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Authors	Author address	Title	Publication	Abstract
[No authors listed]		RE: "MULTI-SITE CLINICAL ASSESSMENT OF MYALGIC ENCEPHALOMYELITIS/CHRONIC FATIGUE SYNDROME (MCAM) : DESIGN AND IMPLEMENTATION OF A PROSPECTIVE/RETROSPECTIVE ROLLING COHORT STUDY".	Am J Epidemiol. 2017 Jul 1;186(1) :129.	
[No authors listed]		Correction for Naviaux et al., Metabolic features of chronic fatigue syndrome.	Proc Natl Acad Sci U S A. 2017 May 2;114(18) :E3749.	Erratum for Proc Natl Acad Sci U S A. 2016 Sep 13;113(37) :E5472-80.
<b>ABDULLA J(15) , Torpy BDJ(16) .</b>	Research Professor, Cell and Molecular Biology, College of the Environment and Life Sciences, University of Rhode Island, Kingston, RI	Chronic Fatigue Syndrome.	In: De Groot LJ(1) , et al. editors. Endotext [Internet]. South Dartmouth (MA) : MDText.com, Inc.; 2000-. 2017 Apr 20.	Chronic fatigue syndrome (CFS) is a common, enigmatic medical condition comprising mental and physical fatigue, diagnosed after exclusion of possible medical causes. The prominence of post-exertional exacerbation of fatigue is highlighted by the recently suggested re-naming as Syndrome of Exertional Intolerance Disease (SEID) . Diagnosis is syndromic. No clinical test can confirm the presence of CFS. Treatment is supportive with no specific therapy shown to be reproducibly effective. There are several categories of hypotheses regarding CFS aetiology including infections, immune, mitochondrial, neurobehavioural or stress system (HPA axis and sympathetic nervous system) disorders. Recently, fatigue disorders have been popularly referred to as "adrenal fatigue." Although CFS and the syndromically related fibromyalgia have been shown to have lower HPA axis function especially reduced cortisol, when analysed compared to controls in aggregate, and in some cases excessive sympathetic nervous system usually sympathoneural system responses, these findings overlap with controls and such testing is not diagnostic. Moreover, augmentation of cortisol levels with glucocorticoids has not been shown to be clinically useful. The stress system abnormalities may represent epiphenomena of the disease process rather than pathogenic abnormalities of importance to the symptomatology. Recent studies have pointed to new

				pathological associations and small treatment trials exist which hold some promise but require replication
<b>Ablin JN(1) .</b>	Institute of Rheumatology , Tel Aviv Sourasky Medical Center and Tel Aviv University.	[CENTRALIZED PAIN AND FIBROMYALGIA: WHAT DO WE MEAN WHEN WE SAY "IT'S ALL IN YOUR HEAD"?][Article in Hebrew]	Harefuah. 2017 Dec;156(12) :762-766.	INTRODUCTION: Fibromyalgia is a syndrome characterized by chronic widespread musculoskeletal pain, tenderness, fatigue and associated symptoms which include cognitive difficulties, abdominal symptoms etc. A leading paradigm regarding the pathogenesis of fibromyalgia (and similar functional disorders) focuses on the concept of central sensitization. This concept describes a situation in which there is an increased sensitivity of the central nervous system to the processing and transmission of pain, leading to the development of clinical phenomena such as allodynia and hyperalgesia. Various lines of evidence have contributed to the development of the central sensitization paradigm. A decrease in the capacity of the nervous system to perform descending pain inhibition is one aspect of this paradigm. Increased windup and long term potentiation are additional phenomena. An increase in the CSF-level of pain-facilitating neurotransmitters, coupled with a decrease in pain inhibitory transmitters, has also been described. Novel mechanisms such as microglia cell activation are under investigation. Certain clinical characteristics may alert the clinician to the possibility that a patient is suffering from centralized pain (i.e. fibromyalgia or related syndromes) . Multiple sites of pain are typical, as well as a long history of pain- related complaints in the same patients. Disturbed sleep, fatigue and dyscognition are typical. Various triggers such as physical trauma, infection and stress are often reported and tenderness is demonstrable on physical examination. Functional imaging of the central nervous system, including techniques such as fMRI, proton magnetic resonance spectroscopy and resting connectivity analysis, are improving our understanding regarding the neural mechanism underlying central sensitization.
<b>Afrin LB(1) , Self S(2) , Menk J(3) , Lazarchick J(2) .</b>	Division of Hematology, Oncology and Transplantation, University of Minnesota	Characterization of Mast Cell Activation Syndrome.	Am J Med Sci. 2017 Mar;353(3) :207-215.	BACKGROUND: Mast cell activation syndrome (MCAS) , a recently recognized nonneoplastic mast cell disease driving chronic multisystem inflammation and allergy, appears prevalent and thus important. We report the first systematic characterization of a large MCAS population. METHOD: Demographics, comorbidities, symptoms, family histories, physical examination and laboratory

	<p>(UMN) ,  Minneapolis,  Minnesota.  Electronic  address:  afrinl@umn.e  du. (2)  Department  of Pathology  and  Laboratory  Medicine,  Medical  University of  South  Carolina,  Charleston,  South  Carolina. (3)  Clinical and  Translational  Science  Institute  (CTSI) ,  University of  Minnesota,  Minneapolis,  Minnesota.</p>			<p>findings were reviewed in 298 retrospective and 115 prospective patients with MCAS. Blood samples from prospective subjects were examined by flow cytometry for clonal mast cell disease and tested for cytokines potentially driving the monocytosis frequent in MCAS. RESULTS: Demographically, white females dominated. Median ages at symptom onset and diagnosis were 9 and 49 years, respectively (range: 0-88 and 16-92, respectively) and median time from symptom onset to diagnosis was 30 years (range: 1-85) . Median numbers of comorbidities, symptoms, and family medical issues were 11, 20, and 4, respectively (range: 1-66, 2-84, and 0-33, respectively) . Gastroesophageal reflux, fatigue and dermatographism were the most common comorbidity, symptom and examination finding. Abnormalities in routine laboratories were common and diverse but typically modest. The most useful diagnostic markers were heparin, prostaglandin D2, histamine and chromogranin A. Flow cytometric and cytokine assessments were unhelpful. CONCLUSIONS: Our study highlights MCAS<sup>x3</sup>'s morbidity burden and challenging heterogeneity. Recognition is important given good survival and treatment prospects.</p>
<p><b>Agardy S(1) .</b></p>	<p>ME/CFS  patient.  Member of  emerge  Australia,  patient  advocacy  group,  Australia.</p>	<p>Chronic fatigue syndrome patients have no reason to accept the PACE trial results: Response to Keith J Petrie and John Weinman.</p>	<p>J Health Psychol.  2017  Aug;22(9) :1206-1208.</p>	<p>Petrie and Weinman urge chronic fatigue syndrome patients to move on from their beliefs about their illness and accept the findings of thePACE trial. This is unreasonable in view of the failure of PACE to achieve evidence of recovery through cognitive behaviour therapy and graded exercise therapy in either self-reports or the objective measure of the 6-minute walking test. Contrary to their suggestion, the Institute of Medicine describes chronic fatigue syndrome not as psychological but as a serious, chronic, systemic disease, with post-exertional malaise as its main feature which inhibits exercise. Linking</p>

				debate about PACE with intimidation of researchers is unjustifiable and damaging to patients.
<b>Agger JL(1) , Schr�jlder A(2) , Gormsen LK(3) , Jensen JS(2) , Jensen TS(4) , Fink PK(2) .</b>	The Research Clinic for Functional Disorders and Psychosomatics, Aarhus University Hospital, Noerrebrogade, Aarhus, Denmark. Electronic address: johanne.agger@aarhus.rm.dk. (2) The Research Clinic for Functional Disorders and Psychosomatics, Aarhus University Hospital, Noerrebrogade, Aarhus, Denmark. (3) Psychiatric Hospital Risskov, Aarhus University Hospital, Skovagervej, Risskov,	Imipramine versus placebo for multiple functional somatic syndromes (STreSS-3) : a double-blind, randomised study.	Lancet Psychiatry. 2017 May;4(5) :378-388.	BACKGROUND: Functional somatic syndromes, including chronic fatigue syndrome or irritable bowel syndrome, often co-exist. Treatment guidelines supported by high quality evidence exist for most functional somatic syndromes, but are lacking for multiple comorbid functional somatic syndromes. We aimed to assess the effect of the tricyclic antidepressant, imipramine, in patients with multiple functional somatic syndromes defined by the criteria for multiorgan bodily distress syndrome, a unifying diagnosis that encompasses most functional somatic syndromes and somatoform disorders. METHODS: In this single-centre, double-blind, randomised trial done in a Danish university hospital setting, participants were patients consecutively referred (age 20-50 years) fulfilling criteria for multiorgan bodily distress syndrome with no concurrent comorbid depression or anxiety disorder. Participants were randomly assigned (1:1) to receive either 10 weeks of low-dose imipramine or placebo (oral daily doses of 25-75 mg) . The hospital pharmacy handled randomisation (computer-generated) and masking, providing sequentially numbered packs of study drug that were given serially to the participants. All others involved were masked to allocation. Primary outcome was patient-rated overall health improvement on a 5-point clinical global improvement scale. Improvement was defined as patients responding "better" or "much better" as opposed to "unchanged" and "worse" or "much worse" when rating their overall health status after 10 weeks of minimum 25 mg study drug. Analyses included patients who received at least one dose of study drug. This study is registered with ClinicalTrials.gov, number NCT01518634. FINDINGS: Between Jan 30, 2012, and Nov 24, 2014, 138 patients were randomly assigned; 70 to receive imipramine and 68 to receive placebo. The study was completed on May 1, 2015. 125 patients received at least one dose of study drug: 65 received imipramine and 60 received placebo. Treatment was terminated prematurely for eight (12%) patients receiving imipramine and seven (12%) patients receiving placebo. Data were missing for two (3%) patients receiving imipramine and three (5%) patients receiving placebo. Of the 120 patients (96%) who provided primary outcome data, 33 (53%)

	Denmark. (4) Danish Pain Research Center, Aarhus University Hospital, Noerrebrogade, Aarhus, Denmark.			receiving imipramine reported their overall health status as "better" or "much better" compared with 14 patients (25%) receiving placebo. The improvement after imipramine was significantly greater than after placebo (odds ratio 3.3 [95% CI 1.6-6.8]; p=0.001). Number needed to treat was 3.6 (95% CI 2.3-8.9). Analysis of the worst-case scenario for patients with missing outcome did not change the interpretation of the results. 32 patients (49%) receiving imipramine and 10 patients (17%) receiving placebo had at least one adverse event of moderate intensity (p=0.0001); eight patients (12%) receiving imipramine and three patients (5%) receiving placebo had at least one adverse event of severe intensity (p=0.1496). One patient (1%) receiving placebo experienced a serious adverse event (a subdural haematoma sustained after an accident). Adverse events caused dropout in four patients (6%) receiving imipramine and three patients (5%) receiving placebo. INTERPRETATION: Imipramine treatment compared with placebo significantly improved overall health in patients with multiple functional somatic syndromes when both treatments were supported by regular contacts with clinicians. Adverse events were more common in the imipramine group, but only rarely led to discontinuation of treatment. FUNDING: The Danish Foundation, Trygffonden.
<b>Alhasson F(1) , Das S(1) , Seth R(1) , Dattaroy D(1) , Chandrashekar V(1) , Ryan CN(2) , Chan LS(2) , Testerman T(3) , Burch J(4) , Hofseth LJ(5) , Horner R(6) , Nagarkatti M(3) , Nagarkatti P(3) , Lasley SM(7) , Chatterjee S(1) .</b>	Environmental Health and Disease Laboratory, Department of Environmental Health Sciences, Arnold School of Public Health, University of South Carolina,	Altered gut microbiome in a mouse model of Gulf War Illness causes neuroinflammation and intestinal injury via leaky gut and TLR4 activation.	PLoS One. 2017 Mar 22;12(3) :e0172914.	Many of the symptoms of Gulf War Illness (GWI) that include neurological abnormalities, neuroinflammation, chronic fatigue and gastrointestinal disturbances have been traced to Gulf War chemical exposure. Though the association and subsequent evidences are strong, the mechanisms that connect exposure to intestinal and neurological abnormalities remain unclear. Using an established rodent model of Gulf War Illness, we show that chemical exposure caused significant dysbiosis in the gut that included increased abundance of phylum Firmicutes and Tenericutes, and decreased abundance of Bacteroidetes. Several gram negative bacterial genera were enriched in the GWI-model that included Allobaculum sp. Altered microbiome caused significant decrease in tight junction protein Occludin with a concomitant increase in Claudin-2, a signature of a leaky gut. Resultant leaching of gut caused portal endotoxemia that led to upregulation of toll like receptor 4 (TLR4)

	Columbia, South Carolina, United States of America.			activation in the small intestine and the brain. TLR4 knock out mice and mice that had gut decontamination showed significant decrease in tyrosine nitration and inflammatory mediators IL1 <sup>β</sup> and MCP-1 in both the small intestine and frontal cortex. These events signified that gut dysbiosis with simultaneous leaky gut and systemic endotoxemia-induced TLR4 activation contributes to GW chemical-induced neuroinflammation and gastrointestinal disturbances.
<b>Ali A(1) , Weiss TR(2) , Dutton A(3) , McKee D(4) , Jones KD(5) , Kashikar-Zuck S(6) , Silverman WK(7) , Shapiro ED(8) .</b>	Department of Pediatrics; Department of Medicine. Electronic address: ather.ali@yale.edu. (2) Department of Pediatrics. (3) Department of Psychiatry. (4) Department of Economics, Yale University, New Haven, CT. (5) Schools of Nursing and Medicine, Oregon Health & Science University, Portland, OR. (6) Department of Pediatrics, University of	Mindfulness-Based Stress Reduction for Adolescents with Functional Somatic Syndromes: A Pilot Cohort Study.	J Pediatr. 2017 Apr;183:184-190.	OBJECTIVE: To assess the feasibility of a mindfulness-based stress reduction (MBSR) program for adolescents with widespread chronic pain and other functional somatic symptoms and to make preliminary assessments of its clinical utility. STUDY DESIGN: Three cohorts of subjects completed an 8-week MBSR program. Child- and parent-completed measures were collected at baseline and 8 and 12 weeks later. Measures included the Functional Disability Inventory (FDI) , the Fibromyalgia/Symptom Impact Questionnaire-Revised (FIQR/SIQR) , the Pediatric Quality of Life Inventory, the Multidimensional Anxiety Scale (MASC2) , and the Perceived Stress Scale. Subjects and parents were interviewed following the program to assess feasibility. RESULTS: Fifteen of 18 subjects (83%) completed the 8-week program. No adverse events occurred. Compared with baseline scores, significant changes were found in mean scores on the FDI (33% improvement, P=0.026) , FIQR/SIQR (26% improvement, P=0.03) , and MASC2 (child: 12% improvement, P=0.02; parent report: 17% improvement, P=0.03) at 8 weeks. MASC2 scores (child and parent) and Perceived Stress Scale scores were significantly improved at 12 weeks. More time spent doing home practice was associated with better outcomes in the FDI and FIQR/SIQR (44% and 26% improvement, respectively) . Qualitative interviews indicated that subjects and parents reported social support as a benefit of the MBSR class, as well as a positive impact of MBSR on activities of daily living, and on pain and anxiety. CONCLUSIONS: MBSR is a feasible and acceptable intervention in adolescents with functional somatic syndromes and has preliminary evidence for improving functional disability, symptom impact, and anxiety, with consistency between parent and child measures. TRIAL REGISTRATION: ClinicalTrials.gov: NCT02190474.

	<p>Cincinnati, Cincinnati, OH. (7) Child Study Center; Department of Psychology. (8) Department of Pediatrics; Department of Epidemiology of Microbial Diseases, Yale University, New Haven, CT.</p>			
<p><b>Ali S(1) , Goldsmith K(2) , Burgess M(1) , Chalder T(3) .</b></p>	<p>Chronic Fatigue Research and Treatment Unit, South London and Maudsley NHS Foundation Trust, UK. (2) Biostatistics &amp; Health Informatics Department, Division of Psychology and Systems Sciences, Institute of Psychiatry, Psychology and</p>	<p>Guided Self-Help for Patients with Chronic Fatigue Syndrome Prior to Starting Cognitive Behavioural Therapy: a Cohort Study.</p>	<p>Behav Cogn Psychother. 2017 Sep;45(5) :448-466.</p>	<p>BACKGROUND: Previous research suggests that minimal interventions such as self-help guidance can improve outcomes in patients with fatigue or chronic fatigue syndrome (CFS) . AIMS: The aim of the current study was to investigate whether self-help guidance could improve physical functioning, social adjustment and fatigue in a group of patients with CFS who were awaiting CBT at a clinic in secondary care. METHOD: Patients completed questionnaires at their initial assessment (baseline) , immediately before beginning CBT (pre-treatment) , and after their last session of CBT (end of treatment) . The primary outcome was physical functioning, and the secondary outcomes were social adjustment and fatigue. Multi-level linear models were used to assess change over time after adjustment for gender and age. RESULTS: Multi-level models revealed that from baseline to pre-treatment, patients showed statistically significant improvements in physical functioning, but there were no statistically significant improvements in fatigue or social adjustment. However, all the primary and secondary outcomes showed statistically significant changes after CBT. CONCLUSIONS: The findings of this study indicate that self-help guidance may be beneficial for patients with CFS who are awaiting CBT treatment or</p>

	Neuroscience, King's College London,UK. (3) Department of Psychological Medicine, Institute of Psychiatry, Psychology and Neuroscience, King's College London,UK.			those who are unable to access specialist treatment in their local area.
<b>Ali S(1) , Matcham F(2) , Irving K(3) , Chalder T(4) .</b>	Chronic Fatigue Research and Treatment Unit, South London and Maudsley NHS Foundation Trust, London, United Kingdom.	Fatigue and psychosocial variables in autoimmune rheumatic disease and chronic fatigue syndrome: A cross-sectional comparison.	J Psychosom Res. 2017 Jan;92:1-8.	OBJECTIVE: Fatigue is common in autoimmune rheumatic diseases (ARD) . This study compared symptom-related cognitions, beliefs, behaviours, quality of sleep, lack of acceptance and distress in participants with ARD such as rheumatoid arthritis (RA) , seronegative spondyloarthritis (SpA) , and connective tissue disease (CTD) , and participants with chronic fatigue syndrome (CFS) . METHODS: 303 participants with RA, SpA, CTD and CFS completed questionnaire measures of fatigue, social adjustment, cognitive-behavioural responses, lack of acceptance, distress and quality of sleep. The RA, SpA and CTD groups were first compared with each other. They were then combined into one group and compared with the CFS group. RESULTS: There were no statistically significant differences between the RA, SpA or CTD groups for any of the measures. The CFS group was more fatigued, reported more distress and sleep disturbance and had worse social adjustment than the ARD group after adjustment for age and illness duration. After adjustment for fatigue, age, and illness duration, the CFS group scored more highly on lack of acceptance and avoidance/resting behaviour while the ARD group showed significantly higher levels of catastrophizing, damage beliefs, and symptom focusing than the CFS group. CONCLUSION: Fatigue in rheumatic diseases may be perpetuated by similar underlying transdiagnostic processes. The ARD and CFS groups showed similarities but also key differences in



				their responses to symptoms. Specific aspects of treatment may need to be tailored towards each group. For example, lack of acceptance and avoidance behaviour may be particularly important in perpetuating fatigue in CFS.
<b>Ameratunga R(1) , Gillis D(2) , Gold M(3) , Linneberg A(4) , Elwood JM(5) .</b>	Department of Virology and Immunology, Auckland Hospital, Auckland, New Zealand	Evidence Refuting the Existence of Autoimmune/Autoinflammatory Syndrome Induced by Adjuvants (ASIA) .	J Allergy Clin Immunol Pract. 2017 Nov - Dec;5(6) :1551-1555.e1.	Autoimmune/autoinflammatory syndrome induced by adjuvants (ASIA) was described in 2011. Over time the condition and its triggers have broadened to include several autoimmune disorders, the macrophagic myofasciitis syndrome, the Gulf war syndrome, the sick building syndrome, siliconosis, and the chronic fatigue syndrome. The aluminum-containing adjuvants in the hepatitis B vaccine and the human papillomavirus vaccine in particular have been stated to be the major causes of the disorder. Here, we review the specificity of the diagnostic criteria for ASIA. We also examine relevant human data, pertaining to causation, particularly from patients undergoing allergen-specific immunotherapy (IT) . Patients undergoing allergen-specific IT receive 100 to 500 times more injected aluminum over 3 to 5 years, compared with hepatitis B and human papillomavirus vaccine recipients. In a large pharmacoepidemiological study, in contrast to case series of ASIA, patients receiving aluminum-containing allergen IT preparations were shown to have a lower incidence of autoimmune disease. In another clinical trial, there were no increases in exacerbations in a cohort of patients with systemic lupus erythematosus immunized with the hepatitis B vaccine. Current data do not support the causation of ASIA by vaccine adjuvants containing aluminum, which should be of reassurance to patients undergoing routine immunizations as well as to those undergoing allergen-specific IT.
<b>Andersson L(1) .</b>	Department of Physiology and Pharmacology , Karolinska Institutet, Stockholm, Sweden. Electronic address:	Conflicting results in article describing "HPV-vaccination and risk of chronic fatigue syndrome/myalgic encephalomyelitis".	Vaccine. 2017 Dec 18;35(51) :7081.	

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<b>Andreoli L(1) , Tincani A.</b>	Department of Clinical and Experimental Sciences, University of Brescia, and Rheumatology and Clinical Immunology Unit, Spedali Civili of Brescia, Brescia, Italy.	Undifferentiated connective tissue disease, fibromyalgia and the environmental factors.	Curr Opin Rheumatol. 2017 Jul;29(4) :355-360.	<b>PURPOSE OF REVIEW:</b> The aim of this study was to discuss the role of environmental factors in the induction and perpetuation of autoimmunity, with particular focus on undifferentiated connective tissue disease (UCTD) and fibromyalgia. These two entities may share undefined clinical and laboratory features and recognize environmental exposures as triggering factors. From this particular point of view, both UCTD and fibromyalgia may resemble the picture of the 'Autoimmune/Inflammatory Syndrome Induced by Adjuvants' (ASIA) . <b>RECENT FINDINGS:</b> A case-control study on environmental exposures showed that patients with UCTD were significantly more exposed to several adjuvants (vaccines, metal implants, proximity to metal factories and foundries) than age and sex-matched healthy controls. UCTD exposed to major ASIA triggers (vaccines, silicone) displayed typical features of ASIA (general weakness, chronic fatigue, irritable bowel syndrome) in the context of a predisposing genetic background (familiarity for autoimmunity) . <b>SUMMARY:</b> The induction and perpetuation of autoimmunity is a complex process that requires the interaction between the individual genetic background and the environment. Environmental factors are gaining increasing attention since the description of ASIA, a syndrome that includes symptoms typically seen in patients with fibromyalgia and UCTD. A recent case-control study focusing on environmental exposures suggested that nearly half of patients with UCTD may fall within the ASIA spectrum.
<b>Antcliff D(1) , Campbell M, Woby S, Keeley P.</b>	Departments of *Physiotherapy & Research and Development, The Pennine Acute Hospitals NHS Trust, North	Activity Pacing is Associated With Better and Worse Symptoms for Patients With Long-term Conditions.	Clin J Pain. 2017 Mar;33(3) :205-214.	<b>BACKGROUND:</b> Activity pacing has been associated with both improved and worsened symptoms, and its role in reducing disability among patients with long-term conditions has been questioned. However, existing studies have measured pacing according to unidimensional subscales, and therefore the empirical evidence for pacing as a multifaceted construct remains unclear. We have developed a 26-item Activity Pacing Questionnaire (APQ-26) for chronic pain/fatigue containing 5 themes of pacing: activity adjustment, activity consistency, activity progression, activity planning, and activity acceptance. <b>OBJECTIVE:</b> To assess the

	<p>Manchester General Hospital        School of Nursing, Midwifery and Social Work, University of Manchester, Manchester        Department of Health Sciences, University of Huddersfield, Huddersfield, UK.</p>			<p>associations between the 5 APQ-26 pacing themes and symptoms of pain, physical fatigue, depression, avoidance, and physical function. METHODS: Cross-sectional questionnaire study design. Data analyzed using multiple regression. PARTICIPANTS: A total of 257 adult patients with diagnoses of chronic low back pain, chronic widespread pain, fibromyalgia, and chronic fatigue syndrome/myalgic encephalomyelitis. RESULTS: Hierarchical multiple regression showed that activity adjustment was significantly associated with increased physical fatigue, depression, and avoidance, but decreased physical function (all <math>P \leq 0.030</math>). Activity consistency was associated with decreased pain, physical fatigue, depression, and avoidance, but increased physical function (all <math>P \leq 0.003</math>). Activity planning was associated with reduced physical fatigue (<math>P = 0.025</math>) and activity acceptance was associated with increased avoidance (<math>P = 0.036</math>). CONCLUSIONS: Some APQ-26 pacing themes were associated with worse symptoms and others with symptom improvement. Specifically, pacing themes involving adjusting/reducing activities were associated with worse symptoms, whereas pacing themes involving undertaking consistent activities were associated with improved symptoms. Future study will explore the causality of these associations to add clarification regarding the effects of pacing on patients' symptoms.</p>
<p><b>Aoun Sebaiti M(1) ,        Kauv P(2) , Charles-Nelson A(3) , Van Der Gucht A(4) , Blanc-Durand P(4) , Itti E(4) ,        Gherardi RK(5) ,        Bachoud-Levi AC(6) ,        Authier FJ(7) .</b></p>	<p>INSERM/UPEC U955 Team 10 'Biology of Neuromuscular System', Faculty of Medicine, 94000 Créteil, France; Department of Neurology, Henri Mondor University Hospital,</p>	<p>Cognitive dysfunction associated with aluminum hydroxide-induced macrophagic myofasciitis: A reappraisal of neuropsychological profile.</p>	<p>J Inorg Biochem. 2017 Oct 6. pii: S0162-0134(17)30652-9.</p>	<p>Patients with macrophagic myofasciitis (MMF) present with diffuse arthromyalgias, chronic fatigue, and cognitive disorder. Representative features of MMF-associated cognitive dysfunction include attentional dysfunction, dysexecutive syndrome, visual memory deficit and left ear extinction. Our study aims to reevaluate the neuropsychological profile of MMF. 105 unselected consecutive MMF patients were subjected to a neuropsychological battery of screen short term and long-term memory, executive functions, attentional abilities, instrumental functions and dichotic listening. From these results, patients were classified in four different groups: Subsymptomatic patients (n=41) with performance above pathological threshold (-1.65 SD) in all tests; Fronto-subcortical patients (n=31) who showed pathological results at executive functions and selective attention tests; Papezian patients (n=24) who showed pathological results in storage, recognition and</p>

	94000 CrÃ©teil, France.			consolidation functions for episodic verbal memory, in addition to fronto-subcortical dysfunction; and Extinction patients (n=9) who had a left ear extinction at dichotic listening test in association to fronto-subcortical and papezian dysfunction. In addition, inter-test analysis showed that patients with apparently normal cognitive functions (Subsymptomatic group) performed significantly worse to attention tests compared to others. In conclusion, our study shows that (i) most patients have specific cognitive deficits; (ii) all patients with cognitive deficit have impairment of executive functions and selective attention; (iii) patients without measurable cognitive deficits display significant weakness in attention; (iv) episodic memory impairment affects verbal, but not visual, memory; (v) none of the patients show an instrumental dysfunction.
<b>Arana J(1) , Mba-Jonas A(2) , Jankosky C(2) , Lewis P(3) , Moro PL(3) , Shimabukuro TT(3) , Cano M(3) .</b>	Immunization Safety Office, Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia. Electronic address: JArana@cdc.gov. (2) Office of Biostatistics and	Reports of Postural Orthostatic Tachycardia Syndrome After Human Papillomavirus Vaccination in the Vaccine Adverse Event Reporting System.	J Adolesc Health. 2017 Nov;61(5) :577-582.	PURPOSE: Human papillomavirus (HPV) vaccination prevents infections with HPV strains that cause certain cancers. Reports of postural orthostatic tachycardia syndrome (POTS) following HPV vaccination have raised safety concerns. We reviewed POTS reports submitted to the Vaccine Adverse Event Reporting System (VAERS) . METHODS: We searched the VAERS database for reports of POTS following any type of HPV vaccination (bivalent, quadrivalent, or nonavalent) from June 2006 to August 2015. We reviewed reports and applied established POTS diagnostic criteria. We calculated unadjusted POTS case reporting rates based on HPV vaccine doses distributed and conducted empirical Bayesian data mining to screen for disproportional reporting of POTS following HPV vaccination. RESULTS: Among 40,735 VAERS reports following HPV vaccination, we identified 29 POTS reports that fully met diagnostic criteria. Of these, 27 (93.1%) were in females and mean age was 14 years (range 12-32) . Median time from vaccination to start of symptoms was 43 days (range 0-407) ; most (18, 75.0%) had onset between 0 and 90 days. Symptoms frequently reported concomitantly included headache (22, 75.9%) and dizziness (21, 72.4%) . Twenty (68.9%) reports documented a history of pre-existing medical conditions, of which chronic fatigue (5, 17.2%) , asthma (4, 13.8%) , and chronic headache (3, 10.3%) were most common. Approximately one POTS case is reported for every 6.5 million HPV vaccine doses distributed in the United States. No empirical Bayesian data mining safety

	<p>Epidemiology, Center for Biologics Evaluation and Research, U.S. Food and Drug Administration, Silver Spring, Maryland. (3) Immunization Safety Office, Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia.</p>			<p>signals for POTS and HPV vaccination were detected. CONCLUSIONS: POTS is rarely reported following HPV vaccination. Our review did not detect any unusual or unexpected reporting patterns that would suggest a safety problem.</p>
<p><b>Atkins C(1) , Wilson AM(1) .</b></p>	<p>Norwich Medical School, University of East Anglia, Norwich, Norfolk, UK.</p>	<p>Managing fatigue in sarcoidosis - A systematic review of the evidence.</p>	<p>Chron Respir Dis. 2017 May;14(2) :161-173.</p>	<p>Fatigue is a common manifestation of sarcoidosis, often persisting without evidence of disease activity. First-line therapies for sarcoidosis have limited effect on fatigue. This review aimed to assess the treatment options targeting sarcoidosis-associated fatigue. Medline and Web of Science were searched in November 2015; the bibliographies of these papers, and relevant review papers, were also searched. Studies were included if they reported on the efficacy of interventions (both pharmacological and non-</p>

				<p>pharmacological) on fatigue scores in sarcoidosis patients. Eight studies were identified that fulfilled the inclusion criteria. These studies evaluated six different interventions (infliximab, adalimumab, ARA 290, methylphenidate, armodafinil and exercise programmes) . There is evidence to support a treatment effect of anti-tumour necrosis factor (TNF) -<math>\hat{\pm}</math>therapies (adalimumab and infliximab) and neurostimulants (methylphenidate and armodafinil) , but within five of the studies, the risk of bias was high within most domains and the remaining three studies included only small numbers of participants and were short in duration. Trial evidence for treating fatigue as a manifestation of sarcoidosis is limited and requires further investigation. Anti-TNF-<math>\hat{\pm}</math> therapies may be beneficial in patients with organ-threatening disease. Neurostimulants have some trial evidence supporting improvements in fatigue but further investigation is needed before they can be recommended.</p>
<p><b>Ayache SS(1) , Chalah MA(1) , Kuempfel T(2) , Padberg F(3) , Lefaucheur JP(1) , Palm U(2) .</b></p>	<p>UniversitÃ© Paris-Est, Creteil Val de Marne, EA 4391 ExcitabilitÃ© Nerveuse et ThÃ©rapeutique.</p>	<p>[Facial emotion recognition, theory of mind and empathy in multiple sclerosis]. [Article in German; Abstract available in German from the publisher]</p>	<p>Fortschr Neurol Psychiatr. 2017 Nov;85(11) :663-674.</p>	<p>Multiple sclerosis (MS) , a chronic progressive inflammatory disease of the central nervous system, causes frequent disability, mood disorders, fatigue, and cognitive dysfunction. As a part of the last, social cognition is frequently disturbed in MS patients. It comprises empathy and social perception of emotions from facial, bodily and vocal cues. Social cognitive deficits worsen affect decoding, interpersonal relationship, and quality of life. Despite the impact of these deficits on global functioning, only a small number of studies have investigated its correlations and overlaps with MS symptoms. This review focuses on the definition and anatomy of social cognition and draws attention to findings of neuropsychological and neuroimaging studies on social cognitive performance in MS. Results of the available studies show that social cognitive deficits are already measurable in early stages of MS. Over time course of the disease, neuropsychological and neuroimaging studies show an increase of disease burden and social and non-social cognitive impairment following the hypothesis of a disconnection syndrome resulting from gray and white matters lesions. These structural changes might exceed a threshold of compensatory restorative and neuroplasticity mechanisms and finally lead to deficits in social cognition. Considering this burden in social functioning, a further assessment of</p>

				sociocognitive deficits in MS is urgently needed to provide specific therapeutic approaches and to improve quality of life.
<b>Balinas C(1) (2) , Nguyen T(1) (2) , Johnston S(1) (2) , Smith P(2) , Staines D(1) (2) , Marshall- Gradisnik S(1) (2) .</b>	School of Medical Science, Griffith University, Gold Coast, QLD, Australia. (2) The National Centre for Neuroimmuno logy and Emerging Diseases, Menzies Health Institute Queensland, Griffith University, Gold Coast, QLD Australia.	Investigation of mast cell toll- like receptor 3 in Chronic Fatigue Syndrome/Myalgic Encephalomyelitis and Systemic Mastocytosis participants using the novel application of autoMACS magnetic separation and flow cytometry.	Asian Pac J Allergy Immunol. 2017 Dec 10.	BACKGROUND: Viral infections and hypersensitivities are commonly reported by Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME) patients. Mast Cells (MC) uniquely mediate type 1 hypersensitivities and resolve viral infections via toll-like receptor 3 (TLR3) . OBJECTIVE: To characterise and compare mast cell progenitors (MCPs) in CFS/ME participants with a known MC disorder, Systemic mastocytosis (SM) , and secondly, to investigate the role of MC TLR3 in CFS/ME participants following Polyinosinic:polycytidylic acid (Poly I:C) stimulation. METHODS: A total of 11 International Consensus Criteria defined CFS/ME participants (40.42 $\pm$ 10.31) , 9 World Health Organisation defined systemic mastocytosis (SM) participants (47.00 $\pm$ 10.37) and 12 healthy controls (HC) (36.36 $\pm$ 9.88) were included. Following autoMACS magnetic separation, CD117+/Lin-MCPs were stimulated with Poly I:C for 24hr. MCP purity (CD117 and Lin2) , maturity (CD34 and Fc $\gamma$ RI) , interaction receptors and ligands (CD154 and HLA-DR) , and SM-specific (CD2 and CD25) markers were measured using flow cytometry. RESULTS: There was a significant decrease in HLA-DR+/CD154- expression between CFS/ME and SM groups pre and post Poly I:C stimulation. There were no significant differences in maturity MCPs, CD154, and CD2/CD25 expression between groups pre and post Poly I:C stimulation. CONCLUSION: This pilot investigation provides a novel methodology to characterise MCPs in a rapid, inexpensive and less invasive fashion. We report a significant decrease in HLA-DR+/CD154- expression between CFS/ME and SM participants, and an observed increase in HLA-DR-/CD154+ expression post Poly I:C stimulation in CFS/ME participants. Peripheral MCPs may be present in CFS/ME pathophysiology, however further investigation is required to determine their immunological role.
<b>Band R(1) , Barrowclough C(1) , Caldwell K(1) , Emsley R(2) , Wearden A(1) .</b>	School of Psychological Sciences and Manchester Centre for	Activity patterns in response to symptoms in patients being treated for chronic fatigue syndrome: An experience sampling methodology study.	Health Psychol. 2017 Mar;36(3) :264-269.	OBJECTIVE: Cognitive-behavioral models of chronic fatigue syndrome (CFS) propose that patients respond to symptoms with 2 predominant activity patterns-activity limitation and all-or-nothing behaviors-both of which may contribute to illness persistence. The current study investigated whether activity patterns occurred at the

	Health Psychology, University of Manchester. (2) Centre for Biostatistics, Institute of Population Health, University of Manchester.			same time as, or followed on from, patient symptom experience and affect. METHOD: Twenty-three adults with CFS were recruited from U.K. CFS services. Experience sampling methodology (ESM) was used to assess fluctuations in patient symptom experience, affect, and activity management patterns over 10 assessments per day for a total of 6 days. Assessments were conducted within patients' daily life and were delivered through an app on touchscreen Android mobile phones. Multilevel model analyses were conducted to examine the role of self-reported patient fatigue, pain, and affect as predictors of change in activity patterns at the same and subsequent assessment. RESULTS: Current experience of fatigue-related symptoms and pain predicted higher patient activity limitation at the current and subsequent assessments whereas subjective wellness predicted higher all-or-nothing behavior at both times. Current pain predicted less all-or-nothing behavior at the subsequent assessment. In contrast to hypotheses, current positive affect was predictive of current activity limitation whereas current negative affect was predictive of current all-or-nothing behavior. Both activity patterns varied at the momentary level. CONCLUSIONS: Patient symptom experiences appear to be driving patient activity management patterns in line with the cognitive-behavioral model of CFS. ESM offers a useful method for examining multiple interacting variables within the context of patients' daily life.
<b>Banerjee A(1) , Hendrick P(2) , Bhattacharjee P(3) , Blake H(2) .</b>	School of Health Sciences, University of Nottingham, Nottingham, NG7 2HA, UK; Nottingham CityCare Partnership, Nottingham, NG1 6GN, UK. Electronic address:	A systematic review of outcome measures utilised to assess self-management in clinical trials in patients with chronic pain.	Patient Educ Couns. 2017 Dec 10. pii: S0738-3991(17)30648-1.	OBJECTIVES: The aim of this review was to identify, appraise and synthesise the outcome measures used to assess self-management in patients with chronic pain. METHODS: Medline, Embase, CINAHL, PsycINFO, the Cochrane Library and Google Scholar were searched to identify quantitative measures used within randomised or non-randomised clinical trials to assess self-management in adults (>18 years) with chronic pain. RESULTS: 25 RCTs published between 1998 and 2016 were included in this review. Studies included patients with chronic pain, hip/knee osteoarthritis, rheumatoid arthritis, chronic low back pain, fibromyalgia and chronic fatigue syndrome. Included studies utilised 14 different measures assessing a variety of constructs including self-efficacy (n=19) , coping (n=4) , empowerment (n=2) , pain attitude and management (n=3) , self-care (n=1) , role behaviour



	<p>Anirban.Banerjee@nottingham.ac.uk. (2) School of Health Sciences, University of Nottingham, Nottingham, NG7 2HA, UK. (3) Nottingham CityCare Partnership, Nottingham, NG1 6GN, UK.</p>			<p>(nâ€™=â€ˆ1) and multiple constructs of self-management (nâ€™=â€ˆ1) . The Chronic Pain Coping Inventory (CPCI) and Health Education Impact Questionnaire (heiQ) cover different self-management related constructs across the physical, mental and social health domains. CONCLUSION: The review identified 14 measures used as proxy measure to assess self-management in patients with chronic pain. These measures have good content and construct validity, and internal consistency. However additional research is required to develop their reliability, responsiveness and interpretability. PRACTICE IMPLICATIONS: Multi-constructs measures (CPCI, heiQ) are suitable for assessing self-management.</p>
<p><b>Baraniuk JN(1) , Shivapurkar N(2) .</b></p>	<p>Division of Rheumatology , Immunology and Allergy, Department of Medicine, Georgetown University, Washington, District of Columbia, United States of America. baraniuj@georgetown.edu. (2) Division of Rheumatology , Immunology and Allergy, Department of Medicine,</p>	<p>Exercise - induced changes in cerebrospinal fluid miRNAs in Gulf War Illness, Chronic Fatigue Syndrome and sedentary control subjects.</p>	<p>Sci Rep. 2017 Nov 10;7(1) :15338.</p>	<p>Gulf War Illness (GWI) and Chronic Fatigue Syndrome (CFS) have similar profiles of pain, fatigue, cognitive dysfunction and exertional exhaustion. Post-exertional malaise suggests exercise alters central nervous system functions. Lumbar punctures were performed in GWI, CFS and control subjects after (i) overnight rest (nonexercise) or (ii) submaximal bicycle exercise. Exercise induced postural tachycardia in one third of GWI subjects (Stress Test Activated Reversible Tachycardia, START) . The remainder were Stress Test Originated Phantom Perception (STOPP) subjects. MicroRNAs (miRNA) in cerebrospinal fluid were amplified by quantitative PCR. Levels were equivalent between nonexercise GWI (nâ€™=â€ˆ22) , CFS (nâ€™=â€ˆ43) and control (nâ€™=â€ˆ22) groups. After exercise, START (nâ€™=â€ˆ22) had significantly lower miR-22-3p than control (nâ€™=â€ˆ15) and STOPP (nâ€™=â€ˆ42) , but higher miR-9-3p than STOPP. All post-exercise groups had significantly reduced miR-328 and miR-608 compared to nonexercise groups; these may be markers of exercise effects on the brain. Six miRNAs were significantly elevated and 12 diminished in post-exercise START, STOPP and control compared to nonexercise groups. CFS had 12 diminished miRNAs after exercise. Despite symptom overlap of CFS, GWI and other illnesses in their differential diagnosis,</p>

	Georgetown University, Washington, District of Columbia, United States of America.			exercise-induced miRNA patterns in cerebrospinal fluid indicated distinct mechanisms for post-exertional malaise in CFS and START and STOPP phenotypes of GWI.
<b>Barton JC(1) , Bertoli LF(2) , Barton JC(3) , Acton RT(4) .</b>	Department of Medicine, Brookwood Medical Center, Birmingham, AL; Southern Iron Disorders Center, Birmingham, AL; and Department of Medicine, University of Alabama at Birmingham, AL, USA. ironmd@isp.com. (2) Department of Medicine, Brookwood Medical Center, Birmingham, AL; Southern Iron Disorders Center, Birmingham, AL; and	Fibromyalgia in 300 adult index patients with primary immunodeficiency.	Clin Exp Rheumatol. 2017 May-Jun;35 Suppl 105(3) :68-73. Epub 2017 Apr 19.	OBJECTIVES: We sought to determine the prevalence and clinical and laboratory associations of fibromyalgia in adults with primary immunodeficiency (immunoglobulin (Ig) G subclass deficiency (IgGSD) and common variable immunodeficiency (CVID) . METHODS: We performed a retrospective analysis of these observations in 300 non-Hispanic white adult index patients with recurrent/severe respiratory tract infections and IgGSD or CVID: age; sex; IgGSD; fibromyalgia; chronic fatigue; autoimmune conditions (ACs) ; interstitial cystitis (IC) ; diabetes; body mass index; serum Ig isotypes; blood lymphocytes and subsets; and human leukocyte antigen (HLA) -A and -B types and haplotypes. We performed univariate comparisons, logistic multivariable regressions, and an analysis of covariance. RESULTS: Mean age was 49 ± 12 (standard deviation) y. There were 246 women (82.0%) . IgGSD was diagnosed in 276 patients (92.0%) . Fifty-six patients had fibromyalgia (18.7%; female:male 13:1) . Other characteristics included: chronic fatigue, 63.0%; aggregate ACs, 35.3%; Sjögren's syndrome, 8.0%; IC, 3.0%; diabetes, 10.3%; and HLA-A*29, B*44 positivity, 9.7%. Prevalences of female sex; chronic fatigue; IC; and HLA-A*29, B*44 positivity were greater in patients with fibromyalgia. Logistic regression on fibromyalgia revealed three positive associations: chronic fatigue (p=0.0149; odds ratio 2.6 [95% confidence interval 1.2, 5.6]) ; Sjögren's syndrome (p=0.0004; 5.2 [2.1, 13.2]) ; and IC (p=0.0232; 5.7 [1.3, 25.7]) . In an analysis of covariance, there were significant interactions of chronic fatigue, Sjögren's syndrome, and interstitial cystitis on fibromyalgia. CONCLUSIONS: Fibromyalgia is common in non-Hispanic white adult index patients with primary immunodeficiency, especially women. Chronic fatigue, Sjögren's syndrome, and IC are significantly associated with fibromyalgia after adjustment for other independent variables.

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<p><b>Beckman KA(1) (2) , Luchs J(3) (4) , Milner MS(5) (6) , Ambrus JL Jr(7) .</b></p>	<p>Comprehensive EyeCare of Central Ohio, Westerville, OH, USA.</p>	<p>The Potential Role for Early Biomarker Testing as Part of a Modern, Multidisciplinary Approach to Sjögren's Syndrome Diagnosis.</p>	<p>Adv Ther. 2017 Apr;34(4) :799-812.</p>	<p>Sjögren's syndrome (SS) is a chronic and progressive multisystem autoimmune disease typically managed by rheumatologists. Diagnostic delays are common, due in large part to the non-specific and variable nature of SS symptoms and the slow progression of disease. The hallmark characteristics of SS are dry eye and dry mouth, but there are a broad range of other possible symptoms such as joint and muscle pain, skin rashes, chronic dry cough, vaginal dryness, extremity numbness or tingling, and disabling fatigue. Given that dry eye and dry mouth are typically the earliest presenting complaints, eye care clinicians and dental professionals are often the first point of medical contact and can provide critical collaboration with rheumatologists to facilitate both timely diagnosis and ongoing care of patients with SS. Current diagnostic criteria advocated by the American College of Rheumatology are predicated on the presence of signs/symptoms suggestive of SS along with at least two objective factors such as traditional biomarker positivity, salivary gland biopsy</p>

				<p>findings, and/or presence of keratoconjunctivitis sicca. Traditional biomarkers for SS include the autoantibodies anti-Sjögren's syndrome-related antigen A (SS-A/Ro) , anti-Sjögren's syndrome-related antigen B (SS-B/La) , antinuclear antibody (ANA) titers, and rheumatoid factor (RF) . While diagnostically useful, these biomarkers have low specificity for SS and are not always positive, especially in early cases of SS. Several newly-identified biomarkers for SS include autoantibodies to proteins specific to the salivary and lacrimal glands [SP-1 (salivary gland protein-1) , PSP (parotid secretory protein) , CA-6 (carbonic anhydrase VI) ]. Data suggest that these novel biomarkers may appear earlier in the course of disease and are often identified in cases that test negative to traditional biomarkers. The Sjögren's test is a commercially available diagnostic panel that incorporates testing for traditional SS biomarkers (anti-SS-A/Ro, anti-SS-B/La, ANA, and RF) , as well as three novel, proprietary early biomarkers (antibodies to SP-1, PSP, and CA-6) which provide greater sensitivity and specificity than traditional biomarker testing alone. Timely diagnosis of SS requires appropriate clinical vigilance for potential SS symptoms, referral and collaborative communication among rheumatology, ophthalmology, and oral care professions, and proactive differential work-up that includes both physical and laboratory evaluations.</p>
<p><b>Belcaro G(1) , Hosoi M(2) , Feragalli B(2) , Luzzi R(2) , Dugall M(2) .</b></p>	<p>Irvine3 Labs, Department of Medical, Oral and Biotechnological Sciences, &amp;quot;G. D'Annunzio&amp;quot; University, Pescara, Italy - cardres@abol.it. (2) Irvine3 Labs, Department</p>	<p>Supplementation with Robuvit® in subjects with burnout associated to high oxidative stress.</p>	<p>Minerva Med. 2017 Nov 21.</p>	<p>BACKGROUND: This supplement registry study evaluated the effect of supplementation with Robuvit® on the burnout syndrome (BOS) of patients with significant fatigue and high oxidative stress. Robuvit® (French oak wood extract) is a standardized supplement, effective in treating chronic fatigue syndrome (CFS) , post-traumatic stress disorder (PTSD) and convalescence. METHODS: A group of 108 subjects with BOS, consisting of a subgroup of 42 young surgeons in training and a subgroup of 66 managers, were studied. Subjects followed a standard management (SM) ; one half of the subjects received 300 mg/day of Robuvit® for 4 weeks in addition to SM. RESULTS: Surgeons in training: Robuvit® was (p&lt;0.05) more effective compared to SM in improving parameters evaluated with the aid of Maslach Burnout Inventory: dealing with patients problems, improving the relationship with patients, decreasing emotional drainage and intolerance (p&lt;0.05) . The feeling of a</p>

	<p>of Medical, Oral and Biotechnological Sciences, "G. D'Annunzio" University, Pescara, Italy.</p>			<p>positive influence improved. The decrease in strain from interactions at work, the decrease in the lack of care feeling, the improved levels in interest were all positively affected with Robuvit (p&lt;0.05) in comparison with SM. The need for giving up decreased, the level of satisfaction improved and the regrets for being in the profession decreased. So important BOS symptoms were positively affected by the supplement (p&lt;0.05). Oxidative stress (388;24 Carr Units decreased to 344;22 with Robuvit; p&lt;0.05), SM had no influence on oxidative stress. Professionals: Robuvit® was also more effective in professionals with burnout syndrome than the SM only in decreasing emotional drainage, fatigue and intolerance (p&lt;0.05). Robuvit® significantly improved the feeling of having a positive influence (p&lt;0.05). Also, Robuvit® significantly decreased the strain resulting from interactions at work and improved the care for colleagues/customers (p&lt;0.05). Interest and enthusiasm were significantly increased in subjects taking Robuvit® in comparison with standard management alone (p&lt;0.05). The mean score of the desire to give up was decreased with Robuvit® in comparison with SM (p&lt;0.05) and job satisfaction was significantly improved (p&lt;0.05). The feeling of regrets of being in the profession was significantly reduced with the supplement in comparison to SM (p&lt;0.05). Robuvit® reduced oxidative stress (p&lt;0.05) from 397;33 to 323;29 Carr Units in comparison with a low decrease with SM (from 396;19 vs 378;27) at 4 weeks. CONCLUSIONS: In conclusion, in this registry study on BOS, Robuvit® by controlling fatigue (the primary symptom) and oxidative stress, relieves the most important 'symptoms' associated with BOS. The effects are comparable in young surgeons not accustomed to stress, as well as in professionals in management positions who are used to control stress.</p>
<p><b>Bezzina OM(1),</b></p>	<p>Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, UK. (2) Newcastle</p>	<p>Subjective and Objective Measures of Dryness Symptoms in Primary Sjögren's Syndrome: Capturing the Discrepancy.</p>	<p>Arthritis Care Res (Hoboken) . 2017 Nov;69(11) :1714-1723.</p>	<p>OBJECTIVE: To develop a novel method for capturing the discrepancy between objective tests and subjective dryness symptoms (a sensitivity scale) and to explore predictors of dryness sensitivity. METHODS: Archive data from the UK Primary Sjögren's Syndrome Registry (n = 688) were used. Patients were classified on a scale from -5 (stoical) to +5 (sensitive) depending on the degree of discrepancy between their objective and subjective symptoms classes. Sensitivity scores were correlated with demographic</p>

	<p>upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK. Royal Hospital, Sunderland, UK.</p>			<p>variables, disease-related factors, and symptoms of pain, fatigue, anxiety, and depression. RESULTS: Patients were on average relatively stoical for both types of dryness symptoms (mean <math>\hat{\pm}</math> SD ocular dryness <math>-0.42 \hat{\pm} 2.2</math> and <math>-1.24 \hat{\pm} 1.6</math> oral dryness) . Twenty-seven percent of patients were classified as sensitive to ocular dryness and 9% to oral dryness. Hierarchical regression analyses identified the strongest predictor of ocular dryness sensitivity to be self-reported pain and that of oral dryness sensitivity to be self-reported fatigue. CONCLUSION: Ocular and oral dryness sensitivity can be classified on a continuous scale. The 2 symptom types are predicted by different variables. A large number of factors remain to be explored that may impact symptom sensitivity in primary Sjögren's syndrome, and the proposed method could be used to identify relatively sensitive and stoical patients for future studies.</p>
<p><b>Blease C(1) (2) , Carel H(3) , Geraghty K(4) .</b></p>	<p>School of Philosophy, University College Dublin, Dublin, Ireland. (2) Program in Placebo Studies, Harvard Medical School, Harvard University, Boston, USA. (3) School of Philosophy, University of Bristol, Bristol, UK. (4) Centre for Primary Care,</p>	<p>Epistemic injustice in healthcare encounters: evidence from chronic fatigue syndrome.</p>	<p>J Med Ethics. 2017 Aug;43(8) :549-557.</p>	<p>Chronic fatigue syndrome or myalgic encephalomyelitis (CFS/ME) remains a controversial illness category. This paper surveys the state of knowledge and attitudes about this illness and proposes that epistemic concerns about the testimonial credibility of patients can be articulated using Miranda Fricker's concept of epistemic injustice. While there is consensus within mainstream medical guidelines that there is no known cause of CFS/ME, there is continued debate about how best to conceive of CFS/ME, including disagreement about how to interpret clinical studies of treatments. Against this background, robust qualitative and quantitative research from a range of countries has found that many doctors (and medical students) display uncertainty about whether CFS/ME is real, which may result in delays in diagnosis and treatment for patients. Strikingly, qualitative research evinces that patients with CFS/ME often experience suspicion by healthcare professionals, and many patients vocally oppose the effectiveness, and the conceptualisation, of their illness as psychologically treatable. We address the intersection of these issues and healthcare ethics, and claim that this state of affairs can be explained as a case of epistemic injustice (2007) . We find evidence that healthcare consultations are fora where patients with CFS/ME may be particularly vulnerable to epistemic injustice. We argue that the (often unintentional) marginalisation of many patients is a professional failure that may lead to further ethical and</p>

	University of Manchester, Manchester, UK.			practical consequences both for progressive research into CFS/ME, and for ethical care and delivery of current treatments among individuals suffering from this debilitating illness.
<b>Bliksrud YT.</b>		Tenuous link between chronic fatigue syndrome and pyruvate dehydrogenase deficiency. Article in English, Norwegian]	Tidsskr Nor Laegeforen. 2017 Nov 28;137(23-24) .	
<b>Boddu P(1) , Schlette E(2) , Thakral B(2) , Tang G(2) , Pemmaraju N(1) , Kadia T(1) , Ferrajoli A(1) , Ravandi F(1) , Wierda W(1) , Jain N(3) .</b>	Department of Leukemia, MD Anderson Cancer Center, The University of Texas, Houston, TX, USA. (2) Department of Hematopathology, MD Anderson Cancer Center, The University of Texas, Houston, TX, USA. (3) Department of Leukemia, MD Anderson Cancer Center, The University of Texas, Houston, TX, USA.	Acute promyelocytic leukemia in a patient with chronic lymphocytic leukemia-A case report.	Hematol Oncol Stem Cell Ther. 2017 Aug 16. pii: S1658-3876(17) 30092-4.	Chronic lymphocytic leukemia (CLL) is known to be associated rarely with myeloid malignancies such as acute myelogenous leukemia. In this article, we report an extremely rare occurrence of acute promyelocytic leukemia in a patient with CLL. A 71-year-old man first presented to our clinic with a diagnosis of CLL and worsening motor neuropathy symptoms. It was suspected that his CLL might be contributing to the neuropathy as a paraneoplastic syndrome, and he was treated with rituximab monotherapy in weekly doses for the 1st month and monthly treatments thereafter. By the end of his sixth monthly course of rituximab, the patient noted significant improvement in neuropathy symptoms but reported experiencing a new-onset worsening fatigue. He had new-onset cytopenias (white blood cells 1.6k/ÅµL, hemoglobin 11.7g/dL, and platelet count 77k/ÅµL) . A bone marrow examination was performed; it showed a high percentage of progranulocytes (21%) , which stained positive for myeloperoxidase (MPO) and demonstrated a fine granular pattern on the promyelocytic leukemia (PML) oncogenic domain immunofluorescence test. The diagnosis of acute promyelocytic leukemia was confirmed by fluorescence in situ hybridization, which showed a PML/RAR1± rearrangement in 46% of interphases. Flow cytometry was consistent with immunophenotype of acute promyelocytic leukemia and minimal residual CLL (0.07%) . The patient was started promptly on all-trans-retinoic acid and arsenic trioxide induction regimen. Molecular remission was achieved after the first consolidation cycle. The patient is currently past his fourth consolidation cycle of all-trans-retinoic acid/arsenic trioxide and continues to be in complete remission. Our case illustrates that it is important for the physicians to be aware of coexistent hematologic

	Electronic address: njain@mdanderson.org.			and solid tumor malignancies in CLL, and maintain a low threshold for diagnostic testing based on grounds of low clinical suspicion.
<b>Boissoneault J(1) , Sevel L(1) , Robinson ME(1) , Staud R(2) .</b>	a Department of Clinical and Health Psychology , University of Florida , Gainesville , FL , USA. (2) b Department of Medicine , University of Florida , Gainesville , FL , USA.	Functional brain connectivity of remembered fatigue or happiness in healthy adults: Use of arterial spin labeling.	J Clin Exp Neuropsychol. 2018 Apr;40(3) :224-233.	INTRODUCTION: Chronic fatiguing illnesses like cancer, multiple sclerosis, chronic fatigue syndrome, or depression are frequently associated with comorbidities including depression, pain, and insomnia, making the study of their neural correlates challenging. To study fatigue without such comorbidities, functional connectivity (FC) analyses were used in healthy individuals to study brain activity during recall of a fatiguing event inside the MRI scanner. A positive mood induction served as control condition. METHOD: Using SPM8 and the CONN toolbox, FC was tested using seed- and independent component- based (ICA) analyses. Differences in the FC correlations between seed-to-voxel and ICA clusters between conditions were assessed with permutation testing. RESULTS: 17 participants (59% women) achieved mean (SD) in-scanner fatigue VAS ratings of 31.85 (20.61) . Positive mood induction resulted in happiness ratings of 46.07 (18.99) VAS. Brain regions where alterations in FC correlated with fatigue included the globus pallidum, left lateral occipital cortex, and cuneus. FC of happiness involved the parahippocampal gyrus, both supplemental motor areas, as well as right superior frontal gyrus. Using data-driven ICA, we identified an intra-cerebellar network where several regions were significantly associated with fatigue, but not happiness ratings. Results of permutation testing provided evidence that the detected clusters correlated differentially with self-reported fatigue and happiness. CONCLUSIONS: Our study suggests that functional interactions between globus pallidum and occipital structures contribute to experimental fatigue in healthy individuals. They also highlight the important role of cortico-cerebellar interactions in producing feelings of fatigue. FC of occipital structures contributed to both experimental fatigue and happiness ratings.
<b>Bonvanie IJ(1) , KallesÃ_e KH(2) , Janssens KAM(3) , SchrÃ¶lder A(2) ,</b>	University Medical Center of Groningen,	Psychological Interventions for Children with Functional Somatic Symptoms: A	J Pediatr. 2017 Aug;187:272-281.e17.	OBJECTIVE: To analyze the effectiveness of psychological treatments on symptom load and associated disability in children with functional somatic symptoms, and to explore potential moderators of effects. STUDY DESIGN: Cochrane, PubMed, PsycINFO, EMBASE, and CINAHL



<p><b>Rosmalen JGM(3) , Rask CU(4) .</b></p>	<p>Interdisciplinary Center Psychopathology and Emotion Regulation, University of Groningen, Groningen, The Netherlands.</p>	<p>Systematic Review and Meta-Analysis.</p>		<p>were searched for randomized controlled trials published in peer-reviewed journals. Randomized controlled trials studying the effect of a psychological treatment on symptom load and disability in children with functional somatic symptoms were selected. Data on symptom load, disability, and school absence directly post-treatment and at follow-up were extracted by 2 assessors. Studies were appraised with the Cochrane risk of bias tool. Standardized mean differences were pooled in a random-effects model. Heterogeneity in effect-sizes was explored by use of meta-regressions. PROSPERO Registration ID: CRD42015029667. RESULTS: Out of 4098 identified records, 27 studies were included in this review of which 21 were included in meta-analyses. Psychological treatments reduced symptom load (Hedges <math>g = -0.61</math>), disability (Hedges <math>g = -0.42</math>), and school absence (Hedges <math>g = -0.51</math>) post-treatment in children suffering from various functional somatic symptoms. Effects were maintained at follow-up. Type and duration of symptoms, age, and treatment dose did not explain heterogeneity in effect-sizes between studies. Effect-sizes should be interpreted with caution because of the variety in outcome measures, unexplained heterogeneity in found effects and potential publication bias. CONCLUSIONS: Psychological interventions reduce symptom load, disability, and school absence in children with functional somatic symptoms. Future research should clarify which patient and treatment characteristics modify outcomes.</p>
<p><b>Bouquet J(1) , Gardy JL(2) (3) , Brown S(4) (5) , Pfeil J(1) , Miller RR(3) , Morshed M(6) (7) , Avina-Zubieta A(8) , Shojania K(8) , McCabe M(2) , Parker S(9) , Uyaguari M(2) , Federman S(1) , Tang P(10) , Steiner T(11) , Otterstater M(2) (3) , Holt R(4) , Moore R(4) , Chiu CY(1) (12) ,</b></p>	<p>Department of Laboratory Medicine, University of California, San Francisco, USA.</p>	<p>RNA-Seq Analysis of Gene Expression, Viral Pathogen, and B-Cell/T-Cell Receptor Signatures in Complex Chronic Disease.</p>	<p>Clin Infect Dis. 2017 Feb 15;64(4) :476-481.</p>	<p>Background: Chronic fatigue syndrome (CFS) remains poorly understood. Although infections are speculated to trigger the syndrome, a specific infectious agent and underlying pathophysiological mechanism remain elusive. In a previous study, we described similar clinical phenotypes in CFS patients and alternatively diagnosed chronic Lyme syndrome (ADCLS) patients—individuals diagnosed with Lyme disease by testing from private Lyme specialty laboratories but who test negative by reference 2-tiered serologic analysis. Methods: Here, we performed blinded RNA-seq analysis of whole blood collected from 25 adults diagnosed with CFS and 13 ADCLS patients, comparing these cases to 25 matched controls and 11 patients with well-controlled systemic lupus erythematosus (SLE) . Samples were collected at patient</p>

<p><b>Patrick DM(2) (3) ; Complex Chronic Disease Study Group.</b></p>				<p>enrollment and not during acute symptom flares. RNA-seq data were used to study host gene expression, B-cell/T-cell receptor profiles (BCR/TCR) , and potential viral infections. Results: No differentially expressed genes (DEGs) were found to be significant when CFS or ADCLS cases were compared to controls. Forty-two DEGs were found when SLE cases were compared to controls, consistent with activation of interferon signaling pathways associated with SLE disease. BCR/TCR repertoire analysis did not show significant differences between CFS and controls or ADCLS and controls. Finally, viral sequences corresponding to anelloviruses, human pegivirus 1, herpesviruses, and papillomaviruses were detected in RNA-seq data, but proportions were similar (P = .73) across all genus-level taxonomic categories. Conclusions: Our observations do not support a theory of transcriptionally mediated immune cell dysregulation in CFS and ADCLS, at least outside of periods of acute symptom flares.</p>
<p><b>Bozzini S(1) , Albergati A(2) (3) , Capelli E(4) , Lorusso L(5) , Gazzaruso C(1) (3) (6) , Pelissero G(3) , Falcone C(1) (3) (7) .</b></p>	<p>Interdepartmental Center for Research in Molecular Medicine (CIRMC) , University of Pavia, I-27100 Pavia, Italy. (2) Department of Neurology, Istituti Clinici di Pavia e Vigevano, University Hospital, I-27100 Pavia, Italy. (3) IRCCS San Donato Hospital, San Donato</p>	<p>Cardiovascular characteristics of chronic fatigue syndrome.</p>	<p>Biomed Rep. 2018 Jan;8(1) :26-30.</p>	<p>Patients with chronic fatigue syndrome (CFS) commonly exhibit orthostatic intolerance. Abnormal sympathetic predominance in the autonomic cardiovascular response to gravitational stimuli was previously described in numerous studies. The aim of the current study was to describe cardiological and clinical characteristics of Italian patients with CFS. All of the patients were of Caucasian ethnicity and had been referred to our center, the Cardiology Department of the University Hospital of Pavia (Pavia, Italy) with suspected CFS. A total of 44 patients with suspected CFS were included in the present study and the diagnosis was confirmed in 19 patients according to recent clinical guidelines. The characteristics at baseline of the population confirm findings from various previous reports regarding the prevalence in females with a female to male ratio of 4:1, the age of onset of the pathology and the presence of previous infection by the Epstein-Barr virus, cytomegalovirus and other human herpesviruses. Despite the current data indicating that the majority of the cardiological parameters investigated are not significantly different in patients with and without CFS, a significant association between the disease and low levels of blood pressure was identified. Other pilot studies revealed a higher prevalence of hypotension and orthostatic intolerance in patients with CFS. Furthermore, many of the CFS symptoms, including fatigue, vertigo,</p>

	<p>Milanese, I-20097 Milan, Italy. (4) Department of Earth and Environmental Sciences, University of Pavia, I-27100 Pavia, Italy. (5) Department of Neurology, Mellino Mellini Hospital, I-25082 Chiari BS, Italy. (6) Internal Medicine, Diabetes and Endocrine-Metabolic Diseases Unit and the Centre for Applied Clinical Research (Ce.R.C.A.), Clinical Institute Beato Matteo, I-27029 Vigevano, Italy. (7) Department of Cardiology,</p>			<p>decreased concentration, tremors and nausea, may be explained by hypotension.</p>
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<b>Brake R(1) , Jones ID(2) .</b>	Mid Cheshire NHS Foundation Trust, Cheshire, England. (2) School of Nursing and Allied Health, Liverpool John Moores University, Liverpool, England.	Chronic heart failure part 1: pathophysiology, signs and symptoms.	Nurs Stand. 2017 Jan 4;31(19) :54-63.	Chronic heart failure is a common and complex clinical syndrome that results from impaired cardiac relaxation or contraction. Patients with chronic heart failure may experience multiple debilitating symptoms, such as fatigue, pain, and peripheral oedema. However, breathlessness may be considered the most debilitating symptom. This is the first of two articles on chronic heart failure, and outlines the pathophysiology of the condition, its causes, assessment, and signs and symptoms. Part 2 will discuss the treatment and management of the condition, including pharmacological strategies, device implantation, lifestyle modification, cardiac rehabilitation and palliative care.
<b>Brake R(1) , Jones ID(2) .</b>	Mid Cheshire NHS Foundation Trust, Cheshire, England. (2) Liverpool John Moores University, Liverpool, England.	Chronic heart failure part 2: treatment and management.	Nurs Stand. 2017 Jan 11;31(20) :53-63.	Chronic heart failure is a common and complex clinical syndrome that results from impaired cardiac relaxation or contraction. There have been considerable advances in the management of chronic heart failure; however, the mortality rate remains high. Patients with chronic heart failure may experience multiple debilitating symptoms, such as fatigue, pain, and peripheral oedema. However, breathlessness may be considered the most debilitating symptom. The management of chronic heart failure aims to improve the patient's quality of life by reducing symptoms and supporting the patient to manage their condition. Treatment of patients with chronic heart failure may involve a combination of pharmacological therapy, device implantation and cardiac rehabilitation. This is the second of two articles on chronic heart failure. Part 1 discussed the pathophysiology of chronic heart failure, its causes, assessment, signs and symptoms. Part 2 outlines the treatment and management of patients with the condition, including pharmacological strategies,

				device implantation, lifestyle modification, cardiac rehabilitation and palliative care.
<b>Brigden A(1) , Loades M(1) (2) (3) , Abbott A(3) , Bond-Kendall J(3) , Crawley E(1) (3) .</b>	Centre for Child and Adolescent Health, School of Social and Community Medicine, University of Bristol, Bristol, UK. (2) Department of Psychology, University of Bath, Bath, UK. (3) Paediatric CFS/ME Service, Children's Centre, Royal United Hospital, Bath, UK.	Practical management of chronic fatigue syndrome or myalgic encephalomyelitis in childhood.	Arch Dis Child. 2017 Oct;102(10) :981-986.	Paediatric chronic fatigue syndrome or myalgic encephalomyelitis affects at least 1% of secondary school children in the UK and is very disabling. Treatment is effective but few children get a diagnosis or access treatment. This paper summarises what we currently know about diagnosing and treating this important illness in childhood.
<b>Broadbent S(1) , Coutts R(2) .</b>	School of Health and Human Sciences, Southern Cross University, Lismore, Australia suzanne.broadbent@scu.edu.au. (2) School	Intermittent and graded exercise effects on NK cell degranulation markers LAMP-1/LAMP-2 and CD8+CD38+ in chronic fatigue syndrome/myalgic encephalomyelitis.	Physiol Rep. 2017 Mar;5(5) . pii: e13091.	There is substantial evidence of immune system dysfunction in chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) but little is understood of exercise training effects on lymphocyte function in this illness. This study investigated whether graded and intermittent exercise improved CD8+ lymphocyte activation and natural killer cell degranulation markers compared to no exercise. Twenty-four chronic fatigue syndrome (CFS) patients (50.2Â±10.2 year) were randomized to graded exercise (GE) , intermittent exercise (IE) or usual care (UC) groups; a control group (CTL) of 18 matched sedentary non-CFS/ME participants were included for immunological variable comparisons. Main outcome measures were pre- and postintervention expression of

	of Health and Human Sciences, Southern Cross University, Lismore, Australia.			CD3+CD8+CD38+ and CD3-CD16+56+CD107a+ (LAMP-1) CD107b+ (LAMP-2) and aerobic exercise capacity. The postintervention percentage of NK cells expressing LAMP-1 and -2 was significantly higher in IE compared to UC, and higher in GE compared to UC and CTL LAMP-1 and LAMP-2 expression (absolute numbers and percent positive) increased significantly pre-to-postintervention for both GE and IE Preintervention, the absolute number of CD8+CD38+ cells was significantly lower in CTL compared to UC and IE There were no significant pre- to postintervention changes in CD8+CD38+ expression for any group. Aerobic exercise capacity was significantly improved by GE and IE Twelve weeks of GE and IE increased the expression of NK cell activation and degranulation markers, suggesting enhanced immunosurveillance. Low-intensity exercise may also reduce CD8+CD38+ expression, a marker of inflammation. Both GE and IE improved exercise capacity without worsening CFS/ME symptoms, and more robust trials of these exercise modalities are warranted.
<b>Brooks SK(1) , Chalder T(1) , Rimes KA(2) .</b>	Department of Psychological Medicine, King's College London, Institute of Psychiatry, Weston Education Centre, Cutcombe Road, London SE5 9RJ. (2) King's College London, Institute of Psychiatry, Psychology and Neuroscience,	Chronic Fatigue Syndrome: Cognitive, Behavioural and Emotional Processing Vulnerability Factors.	Behav Cogn Psychother. 2017 Mar;45(2) :156-169.	BACKGROUND: Cognitive-behavioural models of chronic fatigue syndrome (CFS) suggest that personality factors such as perfectionism and high moral standards may contribute to the development of CFS. AIMS: To investigate cognitive, behavioural and emotional processing risk factors for CFS. METHOD: CFS patients (n = 67) at a UK specialist clinic completed questionnaires about psychological characteristics both currently and retrospectively (6 months pre-CFS onset) . Responses were compared with those of healthy individuals (n = 73) who rated their current characteristics. Forty-four relatives retrospectively rated the pre-morbid psychological characteristics of the CFS participants. RESULTS: CFS patients showed similar levels of current perfectionism to controls, though higher pre-morbid perfectionism. CFS patients showed greater self-sacrificial beliefs and more unhelpful beliefs about experiencing and expressing negative emotions, both currently but more markedly prior to onset. In the 6 months pre-illness onset, CFS patients showed more disruption to their primary goal and greater general stress than controls. Ratings of pre-morbid psychological characteristics by relatives were consistent with patients' self-reports. The extent of overinvestment in one goal was significantly

	Department of Psychology, Henry Wellcome Building, De Crespigny Park, London SE5 8AF.			associated with fatigue. CONCLUSIONS: Perfectionism, self-sacrificial tendencies, unhelpful beliefs about emotions, and perceived stress may be present to a greater extent pre-morbidly in CFS patients compared with healthy individuals.
<b>Broughton J(1) , Harris S(1) , Beasant L(2) , Crawley E(2) , Collin SM(3) .</b>	Department of Psychology, University of Bath, 10 West, Bath, BA2 7AY, UK. (2) School of Social & Community Medicine, University of Bristol, Oakfield House, Oakfield Grove, Bristol, BS8 2BN, UK. (3) School of Social & Community Medicine, University of Bristol, Oakfield House, Oakfield Grove, Bristol, BS8 2BN, UK.	Adult patients' experiences of NHS specialist services for chronic fatigue syndrome (CFS/ME) : a qualitative study in England.	BMC Health Serv Res. 2017 Jun 2;17(1) :384.	BACKGROUND: Few studies have explored patients' experiences of treatment for CFS/ME. This study aims to fill this gap by capturing the perspective of patients who have been treated by NHS specialist CFS/ME services in England. METHODS: Semi-structured interviews were conducted during the period June-September 2014 with 16 adults who were completing treatment at one of three outpatient NHS specialist CFS/ME services. Interviews were analysed thematically using constant comparison techniques, with particular attention paid to contrasting views. RESULTS: Three themes were identified: 'Journey to specialist services'; 'Things that help or hinder treatment'; and 'Support systems'. Within these themes nine sub-themes were identified. A wide range of factors was evident in forming participants' experiences, including personal characteristics such as perseverance and optimism, and service factors such as flexibility and positive, supportive relationships with clinicians. Participants described how specialist services played a unique role, which was related to the contested nature of the condition. Many participants had experienced a lack of validation and medical and social support before attending a specialist service. Patients' experiences of life before referral, and the concerns that they expressed about being discharged, highlighted the hardship and obstacles which people living with CFS/ME continue to experience in our society. CONCLUSIONS: The experiences of CFS/ME patients in our study showed that NHS specialist CFS/ME services played a vital role in patients' journeys towards an improved quality of life. This improvement came about through a process which included validation of patients' experiences, acceptance of change, practical advice and support, and therapeutic outcomes.

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<b>Brown B(1) , Huszar K(1) , Chapman R(1) .</b>	School of Applied Social Sciences, De Montfort University, UK.	'Betwixt and between'; liminality in recovery stories from people with myalgic encephalomyelitis (ME) or chronic fatigue syndrome (CFS) .	Sociol Health Illn. 2017 Jun;39(5) :696-710.	This paper explores experiences of 16 people claiming to have recovered from Myalgic Encephalomyelitis (ME) or Chronic Fatigue Syndrome (CFS) using the concept of liminality. Liminality describes the status of those falling between socially recognised and medically sanctioned categories, and illuminates both the experience of illness and the process of recovery from ME/CFS. The liminality experienced during illness was akin to that described by Turner with a degree of communitas among sufferers. As recovery progressed, participants stressed the percentage to which they had improved, and compared themselves with peers and themselves prior to the illness. Recovery did not mean transition into a post-liminal phase, but involved a new liminality, characterised by straddling boundaries between illness and wellness. Participants continued strategies such as rest, pacing and meditation. This second liminal state included difficulty in communicating the experience convincingly, and estrangement from the ME/CFS community. Thus, recoverees moved from the liminality of illness to a second, and less legible state of sustained liminality in recovery, described as having one foot in the ill world, one foot in the well world. This suggests that more needs to be understood about the recovery experience to assist those making the transition toward wellness.
<b>Brumbaugh Paradis H(1) , Alter D(2) , Llerandi D(3) .</b>	Duke University Medical Center. (2) AbbVie. (3) Memorial Sloan Kettering Cancer Center.	Venetoclax: Management and Care for Patients With Relapsed or Refractory Chronic Lymphocytic Leukemiaâ€©.	Clin J Oncol Nurs. 2017 Oct 1;21(5) :604-610.	BACKGROUND: Venetoclax (Venclextaâ„Ž) is a potent, selective, orally available, small-molecule B-cell lymphoma 2 inhibitor that achieves response rates of about 80% and has an acceptable safety profile for patients with relapsed or refractory chronic lymphocytic leukemia (CLL) .â€©. OBJECTIVES: The aim was to describe treatment management considerations when caring for patients using venetoclax.â€©. METHODS: A review was done of safety and management considerations based on current clinical practice and 240 patients with CLL who received venetoclax monotherapy on clinical trials from 2011-2016.â€©. FINDINGS: Common adverse events were neutropenia, diarrhea, nausea, anemia, upper respiratory tract infection, thrombocytopenia, and fatigue. Because of rapid tumor reduction with venetoclax, nurses should be aware of the potential for tumor lysis syndrome (TLS) and the need to



				educate patients on steps to minimize risks, including gradual dose ramp-up, adequate hydration, and use of prophylactic antihyperuricemia agents. Following implementation of these risk-reducing measures, no clinical TLS events were reported in ongoing trials.
<p><b>Burke LA(1) , Rosenfeld AG(2) , Daya MR(3) , Vuckovic KM(1) , Zegre-Hemsey JK(4) , Felix Diaz M(1) , Tosta Daiube Santos J(1) , Mirzaei S(1) , DeVon HA(1) .</b></p>	<p>1 Department of Biobehavioral Sciences, College of Nursing, University of Illinois at Chicago, Chicago, IL, USA. (2) 2 Biobehavioral Health Science Division, University of Arizona College of Nursing, Tucson, AZ, USA. (3) 3 Department of Emergency Medicine, Oregon Health &amp; Sciences University, Portland, OR, USA. (4) 4 School of Nursing, University of North</p>	<p>Impact of comorbidities by age on symptom presentation for suspected acute coronary syndromes in the emergency department.</p>	<p>Eur J Cardiovasc Nurs. 2017 Aug;16(6) :511-521.</p>	<p>BACKGROUND: It is estimated half of acute coronary syndrome (ACS) patients have one or more associated comorbid conditions. AIMS: Aims were to: 1) examine the prevalence of comorbid conditions in patients presenting to the emergency department with symptoms suggestive of ACS; 2) determine if comorbid conditions influence ACS symptoms; and 3) determine if comorbid conditions predict the likelihood of receiving an ACS diagnosis. METHODS: A total of 1064 patients admitted to five emergency departments were enrolled in this prospective study. Symptoms were measured on presentation to the emergency department. The Charlson Comorbidity Index (CCI) was used to evaluate group differences in comorbidity burden across demographic traits, risk factors, clinical presentation, and diagnosis. RESULTS: The most prominent comorbid conditions were prior myocardial infarction, diabetes without target organ damage, and chronic lung disease. In younger ACS patients, higher CCI predicted less chest pain, chest discomfort, unusual fatigue and a lower number of symptoms. In older ACS patients, higher CCI predicted more chest discomfort, upper back pain, abrupt symptom onset, and greater symptom distress. For younger non-ACS patients, higher CCI predicted less chest pain and symptom distress. Higher CCI was associated with a greater likelihood of receiving an ACS diagnosis for younger but not older patients with suspected ACS. CONCLUSIONS: Younger patients with ACS and higher number of comorbidities report less chest pain, putting them at higher risk for delayed diagnosis and treatment since chest pain is a hallmark symptom for ACS.</p>

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<b>Cajanding RJ(1) .</b>	Staff Nurse, Liver Intensive Therapy Unit, Institute of Liver Studies, King's College Hospital NHS Foundation Trust, London.	Causes, assessment and management of fatigue in critically ill patients.	Br J Nurs. 2017 Nov 23;26(21) :1176- 1181.	Fatigue is a common complaint among hospitalised patients and is one of the most prevalent and distressing symptoms reported by critically ill patients in the intensive care unit (ICU) . Fatigue comes in many forms, is associated with a wide range of aetiologies, and is aggravated and intensified by a multitude of environmental and situational factors present in the intensive care environment. While assessing and evaluating fatigue is key to the effective management of this distressing symptom, reports have shown that fatigue assessment in the ICU is suboptimal and patients are often left suffering from its untoward consequences. Furthermore, the experience of fatigue that originates in the initial ICU admission often persists months to years after being discharged, and this has been shown to be associated with worse patient outcomes. Nurses are in an ideal position to identify, diagnose and evaluate patients who may be at risk of experiencing fatigue and put in place interventions as necessary. This article aims to discuss the incidence, causes, and clinical implications of fatigue among ICU patients and discuss ways in which nurses can effectively assess, diagnose, evaluate, manage and treat patient's fatigue within the ICU environment.
<b>Cameron K(1) , Williamson P(1) , Short MA(2) , Gradisar M(3) .</b>	School of Psychology, Flinders University, South Australia, Australia. (2) School of Psychology, Flinders University, South Australia, Australia;	Validation of the Flinders Fatigue Scale as a measure of daytime fatigue.	Sleep Med. 2017 Feb;30:105-112.	STUDY OBJECTIVES: To clinically validate the Flinders Fatigue Scale (FFS) as a brief measure of daytime fatigue, and to derive cut-off scores to classify fatigue severity. METHOD: The FFS was administered to 439 adult volunteers from the general population, 292 adults with insomnia, 132 adults with Obstructive Sleep Apnoea (OSA) and 66 adults with Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME) , together with the Fatigue Severity Scale (FSS) and the Epworth Sleepiness Scale (ESS) . RESULTS: A factor analysis revealed a single factor solution for the seven-item scale (67% of total variance) , although a better fit was obtained for a modified six-item version (75% of total variance) . Group FFS scores varied in accordance with theorised fatigue levels, with CFS/ME and insomnia samples reporting significantly higher fatigue than OSA and volunteer samples. Good convergent validity was established with

	<p>Centre for Sleep Research, University of South Australia, South Australia, Australia. (3) School of Psychology, Flinders University, South Australia, Australia. Electronic address: michael.gradisar@flinders.edu.au.</p>			<p>the FSS for volunteer (<math>r = 0.67</math>) and CFS/ME samples (<math>r = 0.61</math>). Excellent discriminant validity with the ESS was observed for the insomnia (<math>r = -0.08</math>) and CFS/ME groups (<math>r = 0.03</math>), while a small-to-moderate correlation was found within the volunteer sample (<math>r = 0.29</math>). Cut-off scores were identified to categorise borderline (13-15), moderate (16-20) and severe (<math>\geq 21</math>) fatigue. CONCLUSIONS: The FFS is a reliable and valid instrument to quantify subjective daytime fatigue. Sensitivity and specificity analyses indicate scores that best discriminate insomniacs and CFS/ME populations from a non-clinical population. However, it is proposed that the data can also be used to indicate the severity of fatigue by reference to these first two groups.</p>
<p><b>Campagnolo N(1) (2), Johnston S(1) (2), Collatz A(1) (2), Staines D(2), Marshall-Gradisnik S(1) (2).</b></p>	<p>School of Medical Science, Griffith University, Gold Coast, QLD, Australia. (2) National Centre for Neuroimmunology and Emerging Diseases, Menzies Health</p>	<p>Dietary and nutrition interventions for the therapeutic treatment of chronic fatigue syndrome/myalgic encephalomyelitis: a systematic review.</p>	<p>J Hum Nutr Diet. 2017 Jun;30(3):247-259.</p>	<p>BACKGROUND: Chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) is characterised by unexplained fatigue for at least 6 months accompanied by a diverse but consistent set of symptoms. Diet modification and nutritional supplements could be used to improve patient outcomes, such as fatigue and quality of life. We reviewed and discussed the evidence for nutritional interventions that may assist in alleviating symptoms of CFS/ME. METHODS: Medline, Cinahl and Scopus were systematically searched from 1994 to May 2016. All studies on nutrition intervention were included where CFS/ME patients modified their diet or supplemented their habitual diet on patient-centred outcomes (fatigue, quality of life, physical activity and/or psychological wellbeing). RESULTS: Seventeen studies were included that meet the inclusion criteria. Of these, 14 different interventions were investigated on study outcomes. Many studies did not show therapeutic benefit on CFS/ME. Improvements in fatigue were</p>

	Institute Queensland, Griffith University, Gold Coast, QLD, Australia.			observed for nicotinamide adenine dinucleotide hydride (NADH) , probiotics, high cocoa polyphenol rich chocolate, and a combination of NADH and coenzyme Q10. CONCLUSIONS: This review identified insufficient evidence for the use of nutritional supplements and elimination or modified diets to relieve CFS/ME symptoms. Studies were limited by the number of studies investigating the interventions, small sample sizes, study duration, variety of instruments used, and studies not reporting dietary intake method. Further research is warranted in homogeneous CFS/ME populations.
<b>Cao Y(1) , Li Q.</b>	Key Laboratory of Xin'an Medicine, Ministry of Education, Anhui Province Key Laboratory of R&D of Chinese Medicine, Anhui University of Chinese Medicine, Hefei, China.	The variation of the 5-hydroxytryptamine system between chronic unpredictable mild stress rats and chronic fatigue syndrome rats induced by forced treadmill running.	Neuroreport. 2017 Aug 2;28(11) :630-637.	The aim of this study was to observe the variation in the 5-hydroxytryptamine (5-HT) system between a chronic unpredictable mild stress (CUMS) model and a chronic fatigue syndrome (CFS) model. The total distance, the crossing pieces, and rearing times in the open-field test of the CUMS group and the CFS group were all less than those of the control group to different degrees. The concentrations of tryptophan, 5-HT, and 5-HIAA of the CUMS group were obviously lower than those of the control group. In the CFS model, the concentrations of tryptophan, 5-HT, and 5-HIAA were obviously higher than those of the control group. The expressions of tryptophan hydroxylase-2 (TPH-2) and 5-HT1A receptor in protein level and mRNA level were also different among the three groups. The expressions of TPH-2 and 5-HT1A were higher in the CFS group than in the CUMS group. The expressions of TPH-2 and 5-HT1A receptor were lower in the CUMS group than in the control group. We can find that in different situations of mood disorders, the variation of 5-HT system may also be opposite.
<b>Castro-Marrero J(1) , Faro M(2) , Aliste L(2) , SÁñez-FrancÃ s N(3) , Calvo N(4) , MartÃ-nez-MartÃ-nez A(2) , de Sevilla TF(2) , Alegre J(2) .</b>	CFS/ME Unit, Vall d'Hebron University Hospital, Collserola Research Institute, Universitat AutÃ²noma de Barcelona,	Comorbidity in Chronic Fatigue Syndrome/Myalgic Encephalomyelitis: A Nationwide Population-Based Cohort Study.	Psychosomatics. 2017 Sep - Oct;58(5) :533-543.	BACKGROUND: Previous studies have shown evidence of comorbid conditions in chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) . OBJECTIVE: To estimate the prevalence of comorbidities and assess their associations using a nationwide population-based database of a Spanish CFS/ME cohort. METHOD: A nationally representative, retrospective, cross-sectional cohort study (2008-2015) assessed 1757 Spanish subjects who met both the 1994 Centers for Disease Control and Prevention/Fukuda definition and 2003 Canadian Criteria for CFS/ME. Sociodemographic and clinical data, comorbidities, and patient-reported outcome measures at baseline were recorded. A cluster analysis based on baseline clinical

	Barcelona, Spain.			<p>variables was performed to classify patients with CFS/ME into 5 categories according to comorbidities. A multivariate logistic regression analysis was conducted adjusting for potential confounding effects such as age and sex; response and categorical predictor variables were also assessed. RESULTS: A total of 1757 CFS/ME patients completed surveys were collected. We identified 5 CFS/ME clusters: group 1-fibromyalgia, myofascial pain, multiple chemical hypersensitivity, sicca syndrome, epicondylitis, and thyroiditis; group 2-alterations of ligaments and subcutaneous tissue, hypovitaminosis D, psychopathology, ligamentous hyperlaxity, and endometriosis. These 2 subgroups comprised mainly older women, with low educational level, unemployment, high levels of fatigue, and poor quality of life; group 3-with hardly any comorbidities, comprising mainly younger women, university students or those already employed, with lower levels of fatigue, and better quality of life; group 4-poorly defined comorbidities; and group 5-hypercholesterolemia. CONCLUSION: Over 80% of a large population-based cohort of Spanish patients with CFS/ME presented comorbidities. Among the 5 subgroups created, the most interesting were groups 1-3. Future research should consider multidisciplinary approaches for the management and treatment of CFS/ME with comorbid conditions.</p>
<p><b>Castro-Marrero J(1) , SÃ¡nchez-FrancÃ s N(2) , Santillo D(1) , Alegre J(1) .</b></p>	<p>CFS/ME Unit, Vall d'Hebron University Hospital, Collserola Research Institute, Universitat AutÃ noma de Barcelona, Barcelona, Spain. (2) Psychiatry Unit, Sant Rafael</p>	<p>Treatment and management of chronic fatigue syndrome/myalgic encephalomyelitis: all roads lead to Rome.</p>	<p>Br J Pharmacol. 2017 Mar;174(5) :345-369.</p>	<p>This review explores the current evidence on benefits and harms of therapeutic interventions in chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) and makes recommendations. CFS/ME is a complex, multi-system, chronic medical condition whose pathophysiology remains unknown. No established diagnostic tests exist nor are any FDA-approved drugs available for treatment. Because of the range of symptoms of CFS/ME, treatment approaches vary widely. Studies undertaken have heterogeneous designs and are limited by sample size, length of follow-up, applicability and methodological quality. The use of rintatolimod and rituximab as well as counselling, behavioural and rehabilitation therapy programs may be of benefit for CFS/ME, but the evidence of their effectiveness is still limited. Similarly, adaptive pacing appears to offer some benefits, but the results are debatable: so is the use of nutritional supplements, which may be of value to CFS/ME patients with</p>

	Hospital (FIDMAG), Barcelona, Spain.			<p>biochemically proven deficiencies. To summarize, the recommended treatment strategies should include proper administration of nutritional supplements in CFS/ME patients with demonstrated deficiencies and personalized pacing programs to relieve symptoms and improve performance of daily activities, but a larger randomized controlled trial (RCT) evaluation is required to confirm these preliminary observations. At present, no firm conclusions can be drawn because the few RCTs undertaken to date have been small-scale, with a high risk of bias, and have used different case definitions. Further, RCTs are now urgently needed with rigorous experimental designs and appropriate data analysis, focusing particularly on the comparison of outcomes measures according to clinical presentation, patient characteristics, case criteria and degree of disability (i.e. severely ill ME cases or bedridden).</p>
<p><b>Chan JS, Li A, Ng SM, Ho RT, Xu A, Yao TJ, Wang XM, So KF, Chan CL.</b></p>		<p>Adiponectin Potentially Contributes to the Antidepressive Effects of Baduanjin Qigong Exercise in Women With Chronic Fatigue Syndrome-Like Illness.</p>	<p>Cell Transplant. 2017 Mar 13;26(3) :493-501.</p>	<p>Our recent study demonstrates that adiponectin signaling plays a significant role in mediating physical exercise-exerted effects on hippocampal neurogenesis and antidepressive effects in mice. Whether the findings can be translated to humans remains unknown. This study aimed to investigate the effects of Baduanjin Qigong exercise on adiponectin and to evaluate whether adiponectin is involved in the antidepressive effects of Qigong exercise on chronic fatigue syndrome (CFS) -like illness. This is a randomized, waitlist-controlled trial. One hundred eight female participants were randomly assigned to either Qigong exercise or waitlist groups. Sixteen 1.5-h Qigong lessons were conducted. Outcome measures were taken at three time points. Baseline adiponectin levels were negatively associated with body weight, body mass index, waist circumference, hip circumference, and waist/hip ratio in women with CFS-like illness. Compared with the waitlist control, Qigong exercise significantly reduced anxiety and depression symptoms and significantly raised plasma adiponectin levels (median <math>\Delta</math> = 0.8 vs. -0.1, <math>p &lt; 0.05</math>). More interestingly, increases in adiponectin levels following Qigong exercise were associated with decreases in depression scores for the Qigong group (<math>r = -0.38</math>, <math>p = 0.04</math>). Moreover, adjusted linear regression analysis further identified Qigong exercise and change in adiponectin levels as the significant factors accounting for reduction of depression</p>

				symptoms. Baduanjin Qigong significantly increased adiponectin levels in females with CFS-like illness. Decreases in depression symptoms were associated with increases in adiponectin levels following Qigong exercise, indicating that the potential contribution of adiponectin to Qigong exercise elicited antidepressive effects in human subjects.
<b>Chand SP, Whitten RA.</b>		In: StatPearls [Internet]. Treasure Island (FL) : StatPearls Publishing; 2017-. 2017 Nov 25.	Cognitive Behavior Therapy (CBT) .	In the 1960s,Â Aaron Beck developed Cognitive-behavioral therapy (CBT) or cognitive therapy. Since then, it has been extensively researched and found to be effective in a large number of outcome studies for some psychiatric disorders including depression, anxiety disorders, eating disorders, substance abuse, and personality disorders. It has also been demonstrated to be effective as an adjunctive treatment to medication for serious mental disorders such as bipolar disorders and schizophrenia. CBT has been adapted and studied for children and adolescents, couples, and families. Its efficacy has also been established in the treatment of non-psychiatric disorders such as irritable bowel syndrome, chronic fatigue syndrome, fibromyalgia, insomnia, migraines, and other chronic pain conditions.
<b>Chandler RE(1) , Juhlin K(2) , Fransson J(2) , Caster O(2) (3) , Edwards IR(2) , NorÃ©n GN(2) .</b>	Uppsala Monitoring Centre, WHO Collaborating Centre for International Drug Monitoring, Uppsala, Sweden. rebecca.chandler@who-umc.org. (2) Uppsala Monitoring Centre, WHO Collaborating Centre for	Current Safety Concerns with Human Papillomavirus Vaccine: A Cluster Analysis of Reports in VigiBase® .	Drug Saf. 2017 Jan;40(1) :81-90.	INTRODUCTION: A number of safety signals-complex regional pain syndrome (CRPS) , postural orthostatic tachycardia syndrome (POTS) , and chronic fatigue syndrome (CFS) -have emerged with human papillomavirus (HPV) vaccines, which share a similar pattern of symptomatology. Previous signal evaluations and epidemiological studies have largely relied on traditional methodologies and signals have been considered individually. OBJECTIVE: The aim of this study was to explore global reporting patterns for HPV vaccine for subgroups of reports with similar adverse event (AE) profiles. METHODS: All individual case safety reports (reports) for HPV vaccines in VigiBase® until 1 January 2015 were identified. A statistical cluster analysis algorithm was used to identify natural groupings based on AE profiles in a data-driven exploratory analysis. Clinical assessment of the clusters was performed to identify clusters relevant to current safety concerns. RESULTS: Overall, 54 clusters containing at least five reports were identified. The four largest clusters included 71Â % of the analysed HPV reports and described AEs included in the product label. Four smaller clusters were

	<p>International Drug Monitoring, Uppsala, Sweden. (3) Department of Computer and Systems Sciences, Stockholm University, Kista, Sweden.</p>			<p>identified to include case reports relevant to ongoing safety concerns (total of 694 cases) . In all four of these clusters, the most commonly reported AE terms were headache and dizziness and fatigue or syncope; three of these four AE terms were reported in &gt;50% of the reports included in the clusters. These clusters had a higher proportion of serious cases compared with HPV reports overall (44-89% in the clusters compared with 24% ) . Furthermore, only a minority of reports included in these clusters included AE terms of diagnoses to explain these symptoms. Using proportional reporting ratios, the combination of headache and dizziness with either fatigue or syncope was found to be more commonly reported in HPV vaccine reports compared with non-HPV vaccine reports for females aged 9-25 years. This disproportionality remained when results were stratified by age and when those countries reporting the signals of CRPS (Japan) and POTS (Denmark) were excluded. CONCLUSIONS: Cluster analysis reveals additional reports of AEs following HPV vaccination that are serious in nature and describe symptoms that overlap those reported in cases from the recent safety signals (POTS, CRPS, and CFS) , but which do not report explicit diagnoses. While the causal association between HPV vaccination and these AEs remains uncertain, more extensive analyses of spontaneous reports can better identify the relevant case series for thorough signal evaluation.</p>
<p><b>Chen M(1) , Zhuang J, Yang J, Wang D, Yang Q.</b></p>	<p>Department of Nephrology, The Second Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University, Wenzhou,</p>	<p>Atypical hemolytic uremic syndrome induced by CbIC subtype of methylmalonic academia: A case report and literature review.</p>	<p>Medicine (Baltimore) . 2017 Oct;96(43) :e8284.</p>	<p>RATIONALE: Methylmalonic acidemia (MMA) is a common organic acidemia, mainly due to methylmalonyl-CoA mutase (MCM) or its coenzyme cobalamin (VitB12) metabolic disorders. Cobalamin C (CbIC) type is the most frequent inborn error of cobalamin metabolism; it can develop symptoms in childhood and often combine multisystem damage, which leads to methylmalonic acid, propionic acid, methyl citrate, and other metabolites abnormal accumulation, causing nerve, liver, kidney, bone marrow, and other organ damage. PATIENT CONCERNS: A 4-year-old girl presented with paleness, fatigue, severe normochromic anemia, and acute kidney injury. DIAGNOSIS: Based on severe normochromic anemia and acute kidney injury, renal biopsy showed membranous proliferative glomerular lesions and thrombotic microvascular disease, supporting the diagnosis of aHUS. Although the serum vitamin B12 was normal,</p>



	Zhejiang, China.			<p>further investigation found the concentration of urinary methylmalonic acid and serum homocysteine increased obviously, genetic analysis revealed a heterozygous MMACHC mutation (exon1: c. 80A &gt;G, c. 609G &gt;A) . The final diagnosis was aHUS induced by inherited methylmalonic acidemia (MMACHC heterozygous mutation exon1: c. 80A &gt;G, c. 609G &gt;A) . INTERVENTIONS: The patient was treated with a 1mg vitamin B12 intramuscular injection daily for 4 days after which the dose was then adjusted to a 1mg intramuscular injection twice a week. At the same time, the girl was given levocarnitine, betaine, folic acid, along with supportive treatment. OUTCOMES: After treated by vitamin B12 for 10 days, the patient condition significantly improved, Follow-up results showed complete recovery of hemoglobin and renal function. LESSONS: Although the majority of MMA onset from neurological damage, our case illustrates that partial CblC-type MMA can onset with severe metabolic aHUS. On the basis of chronic thrombotic microangiopathy (TMA) -induced renal damage, it can be complicated by acute hemolytic lesions. MMA should be considered in those patients with unclear microangiopathic hemolytic anemia accompany significant megaloblastic degeneration in bone marrow. We should pay attention to the causes and adopt a reasonable treatment strategy.</p>
<p><b>Chen Y(1) (2) , Meyer JN(3) , Hill HZ(2) , Lange G(4) , Condon MR(2) (5) , Klein JC(1) , Ndirangu D(1) , Falvo MJ(1) (2) .</b></p>	<p>War Related Illness and Injury Study Center, Veterans Affairs New Jersey Health Care System, East Orange, New Jersey, United States of America.</p>	<p>Role of mitochondrial DNA damage and dysfunction in veterans with Gulf War Illness.</p>	<p>PLoS One. 2017 Sep 14;12(9) :e0184832.</p>	<p>Gulf War Illness (GWI) is a chronic multi-symptom illness not currently diagnosed by standard medical or laboratory test that affects 30% of veterans who served during the 1990-1991 Gulf War. The clinical presentation of GWI is comparable to that of patients with certain mitochondrial disorders-i.e., clinically heterogeneous multisystem symptoms. Therefore, we hypothesized that mitochondrial dysfunction may contribute to both the symptoms of GWI as well as its persistence over time. We recruited 21 cases of GWI (CDC and Kansas criteria) and 7 controls to participate in this study. Peripheral blood samples were obtained in all participants and a quantitative polymerase chain reaction (QPCR) based assay was performed to quantify mitochondrial and nuclear DNA lesion frequency and mitochondrial DNA (mtDNA) copy number (mtDNAcn) from peripheral blood mononuclear cells. Samples were also used to analyze nuclear DNA lesion frequency and enzyme</p>

				<p>activity for mitochondrial complexes I and IV. Both mtDNA lesion frequency (<math>p = 0.015</math>, <math>d = 1.13</math>) and mtDNAcn (<math>p = 0.001</math>; <math>d = 1.69</math>) were elevated in veterans with GWI relative to controls. Nuclear DNA lesion frequency was also elevated in veterans with GWI (<math>p = 0.344</math>; <math>d = 1.41</math>), but did not reach statistical significance. Complex I and IV activity (<math>p &gt; 0.05</math>) were similar between groups and greater mtDNA lesion frequency was associated with reduced complex I (<math>r_2 = -0.35</math>, <math>p = 0.007</math>) and IV (<math>r_2 = -0.28</math>, <math>p &lt; 0.01</math>) enzyme activity. In conclusion, veterans with GWI exhibit greater mtDNA damage which is consistent with mitochondrial dysfunction.</p>
<p><b>Cheng WM(1) , Fan YH(2) , Lin ATL(3) .</b></p>	<p>Division of Urology, Department of Surgery, Taipei City Hospital, Zhongxiao Branch, Taipei, Taiwan</p>	<p>Urodynamic characteristics might be variable in bladder pain syndrome/interstitial cystitis patients with different non-bladder co-morbid conditions.</p>	<p>J Chin Med Assoc. 2017 Dec 6. pii: S1726-4901(17) 30339-8.</p>	<p>BACKGROUND: The aim of the study was to identify the impact of non-bladder co-morbid conditions on the urodynamic characteristics of patients with bladder pain syndrome/interstitial cystitis. METHODS: Patients with bladder pain syndrome/interstitial cystitis completed the screening questionnaires for chronic fatigue syndrome, irritable bowel syndrome, fibromyalgia, temporomandibular disorders, multiple chemical sensitivities, tension/migraine headache, and localized myofascial pain disorder. They underwent either conventional pressure-flow urodynamic studies or video-urodynamic studies. Urodynamic variables were compared between patients with and those without co-morbid conditions. RESULTS: Of 111 patients (16 males and 95 females) with bladder pain syndrome/interstitial cystitis, 87 (78.4%) had at least one co-morbid condition (62% males vs 82% females, <math>p = 0.005</math>). Those with concomitant irritable bowel syndrome were younger and had urodynamic characteristics of smaller catheter-free voided volume, lower catheter-free average flow rate, smaller bladder volume on the first desire to void, and more prevalent dysfunctional voiding than those without irritable bowel syndrome. Patients with concomitant localized myofascial pain disorder also had larger bladder volume at the first desire to void and lower pressure at maximum flow than those without co-morbid myofascial pain disorder. There were no significant differences in urodynamic parameters between bladder pain syndrome/interstitial cystitis patients with and those without other co-morbidities. CONCLUSION: Bladder pain syndrome/interstitial cystitis patients, especially females, are more likely to have non-bladder co-morbidities,</p>

				especially tension/migraine headache and localized myofascial pain. Bladder pain syndrome/interstitial cystitis Patients with co-morbid irritable bowel syndrome are younger and more likely to have abnormal urodynamic findings.
<b>Chi A(1) , Shen Z(2) , Zhu W(2) , Sun Y(2) , Kang Y(2) , Guo F(2) .</b>	Laboratory of Nutrition and Hygiene, Shaanxi Normal University, Xi'an 710119, China. Electronic address: chimu@snnu.edu.cn. (2) Laboratory of Nutrition and Hygiene, Shaanxi Normal University, Xi'an 710119, China.	Characterization of a protein-bound polysaccharide from Herba Epimedii and its metabolic mechanism in chronic fatigue syndrome.	J Ethnopharmacol. 2017 May 5;203:241-251.	OBJECTIVES: Herba Epimedii is one of the famous Traditional Chinese Medicines used to treat the chronic fatigue syndrome (CFS) . The polysaccharides are the main active components in H. epimedii. The aim of this study is to discover the therapeutic effect and metabolic mechanism of H. epimedii polysaccharides against CFS. METHODS: The polysaccharide conjugates named HEP2-a were isolated from the leaves of H. epimedii using a water extraction method, and the general physicochemical properties of HEP2-a were analysed. In addition, a CFS rat model was established, and then, urinary metabonomic studies were performed using gas chromatography time-of-flight mass spectrometry (GC-TOF-MS) in combination with multivariate statistical analysis. RESULTS: The physicochemical properties revealed that HEP2-a had an average molecular weight of 13.6kDa—104Da and consisted of mannose (4.41%) , rhamnose (5.43%) , glucose (31.26%) , galactose (27.07%) , arabinose (23.43%) , and galacturonic acid (8.40%) . The amino acids in HEP2-a include glutamate, cysteine, leucine, tyrosine, lysine, and histidine. Molecular morphology studies revealed many highly curled spherical particles with diameters of 5-10µm in solids and 100-200nm for particles in water. Five metabolites in the HEP2-a group were oppositely and significantly changed compared to the CFS model group. CONCLUSION: Two metabolic pathways were identified as significant metabolic pathways involved with HEP2-a. The therapeutic effects of HEP2-a on CFS were partially due to the restoration of these disturbed pathways.
<b>Chopra P, Tinkle B, Hamonet C, Brock I, Gompel A, Bulbena A, Francomano C.</b>		Pain management in the Ehlers-Danlos syndromes.	Am J Med Genet C Semin Med Genet. 2017 Mar;175(1) :212-219.	Chronic pain in the Ehlers-Danlos syndromes (EDS) is common and may be severe. According to one study, nearly 90% of patients report some form of chronic pain. Pain, which is often one of the first symptoms to occur, may be widespread or localized to one region such as an arm or a leg. Studies on treatment modalities are few and insufficient to guide management. The following is a discussion of the evidence regarding the underlying mechanisms of pain in EDS. The causes of pain in this condition are multifactorial and include

				<p>joint subluxations and dislocations, previous surgery, muscle weakness, proprioceptive disorders, and vertebral instability. Affected persons may also present with generalized body pain, fatigue, headaches, gastrointestinal pain, temporomandibular joint pain, dysmenorrhea, and vulvodynia. Pain management strategies may be focused around treating the cause of the pain (e.g., dislocation of a joint, proprioceptive disorder) and minimizing the sensation of pain. Management strategies for chronic pain in EDS includes physical therapy, medications, as well as durable medical equipment such as cushions, compressive garments, and braces. The different modalities are discussed in this paper. © 2017 Wiley Periodicals, Inc.</p>
<p><b>Chouard CH(1) .</b></p>	<p>a ENT Department &amp; AudioPhonoPr osthesis Laboratory of the Paris-Saint-Antoine Hospital , Paris , France Paris.</p>	<p>Did Napoleon suffer from chronic rhonchopathy?</p>	<p>Acta Otolaryngol. 2017 Apr;137(4) :361-364.</p>	<p>CONCLUSION: If Napoleon had been treated, Europa would then have doubtless been different, and perhaps would not have known the last two World wars. OBJECTIVES: This study plans to demonstrate that Napoleon very probably suffered from Chronic Rhonchopathy. BACKGROUND: Between 1983-1993, the author led their ENT department of CHU Saint-Antoine to contribute in the knowledge of chronic snoring and Obstructive Sleep Apneas Syndrome (OSAS) , and to define the treatment of their consequences. As a result of these efforts, in Paris in 1987 the First International Congress on Chronic Rhonchopathy was organized. Obstructive Sleep Apnoea Syndrome (OSAS) is caused by anatomical and intermittent obstruction of the upper airway, which impedes passage of air to the lungs during sleep. Recent literature demonstrates that chronic snoring frequently precedes this obstruction by several years, and always accompanies this syndrome. All life long, there is a severity increasing continuum between more light snoring and more severe OSAS, i.e. Pickwick Syndrome. This continuum is described as a new disease called Chronic Rhonchopathy. This term was never discussed; since 2006, it has been implicitly recognized. MATERIALS AND METHOD: Napoleon would sleep very little. He used to wake up in the night and then grasp the chance to work. Brief sleeping time in day repaired his fatigue. He also had a short and thick neck. In the last quarter of his life he had progressively suffered from obesity, daily involuntary sleepiness, and his intellectual capabilities had been undoubtedly</p>

				decreasing. In the vast literature concerning Napoleon's behavior, the author brought together the clinical elements which could be due to this disease. This study looked for the morphological peculiarities of this OSAS in sculpture and painting, that had the Emperor as the model. RESULTS: Napoleon presented surely diurnal somnolence, asthenia, obesity, neck shortness, retrognathia, and nasal pathology. He did not suffer from these troubles while he was young. On the contrary, he took advantage of his multiple awakenings, doubtlessly due to apnea occurring during his paradoxical sleep, to deal with some of his main masterpieces, e.g. the French Code Civil. With age, the Emperor's chronic rhonchopathy became more severe. If he had benefitted of modern treatments, maybe Moskowa would not have been a French defeat and Waterloo would have been a victory for France.
<b>Chu L(1) .</b>	From Burlingame, California.	Cytokine Inhibition in Patients With Chronic Fatigue Syndrome.	Ann Intern Med. 2017 Sep 19;167(6) :447-448.	Comment in Ann Intern Med. 2017 Sep 19;167(6) :448.
<b>Citera M(1) , Freeman PR(2) , Horowitz RI(2) .</b>	Department of Psychology, State University of New York at New Paltz, New Paltz, NY. (2) Hudson Valley Healing Arts Center, Hyde Park, NY, USA.	Empirical validation of the Horowitz Multiple Systemic Infectious Disease Syndrome Questionnaire for suspected Lyme disease.	Int J Gen Med. 2017 Sep 4;10:249-273.	PURPOSE: Lyme disease is spreading worldwide, with multiple Borrelia species causing a broad range of clinical symptoms that mimic other illnesses. A validated Lyme disease screening questionnaire would be clinically useful for both providers and patients. Three studies evaluated such a screening tool, namely the Horowitz Multiple Systemic Infectious Disease Syndrome (MSIDS) Questionnaire. The purpose was to see if the questionnaire could accurately distinguish between Lyme patients and healthy individuals. METHODS: Study 1 examined the construct validity of the scale examining its factor structure and reliability of the questionnaire among 537 individuals being treated for Lyme disease. Study 2 involved an online sample of 999 participants, who self-identified as either healthy (N=217) or suffering from Lyme now (N=782) who completed the Horowitz MSIDS Questionnaire (HMQ) along with an outdoor activity survey. We examined convergent validity among components of the scale and evaluated discriminant validity with the Big Five personality characteristics. The third study compared a sample of 236 patients with confirmed Lyme disease with an online sample of 568 healthy individuals. RESULTS: Factor analysis results identified six underlying latent dimensions; four of

				<p>these overlapped with critical symptoms identified by Horowitz - neuropathy, cognitive dysfunction, musculoskeletal pain, and fatigue. The HMQ showed acceptable levels of internal reliability using Cronbach's coefficient alpha and exhibited evidence of convergent and divergent validity. Components of the HMQ correlated more highly with each other than with unrelated traits. DISCUSSION: The results consistently demonstrated that the HMQ accurately differentiated those with Lyme disease from healthy individuals. Three migratory pain survey items (persistent muscular pain, arthritic pain, and nerve pain/paresthesias) robustly identified individuals with verified Lyme disease. The results support the use of the HMQ as a valid, efficient, and low-cost screening tool for medical practitioners to decide if additional testing is warranted to distinguish between Lyme disease and other illnesses.</p>
<p><b>Clark JE(1) , Davidson SL(1) , Maclachlan L(1) , Newton JL(2) , Watson S(1) (3) .</b></p>	<p>Wolfson Research Unit, Newcastle University, Newcastle, UK. (2) Newcastle Hospitals, NHS Foundation Trust and Newcastle University, Institute for Cellular Medicine, Newcastle, UK. (3) NTW NHS Foundation Trust, Newcastle, UK.</p>	<p>Rethinking childhood adversity in chronic fatigue syndrome.</p>	<p>Fatigue. 2017 Oct 10;6(1) :20-29.</p>	<p>Background: Previous studies have consistently shown increased rates of childhood adversity in chronic fatigue syndrome (CFS) . However, such aetiopathogenic studies of CFS are potentially confounded by co-morbidity and misdiagnosis particularly with depression. Purpose: We examined the relationship between rates of childhood adversity using two complimentary approaches (1) a sample of CFS patients who had no lifetime history of depression and (2) a modelling approach. Methods: Childhood trauma questionnaire (CTQ) administered to a sample of 52 participants with chronic fatigue syndrome and 19 controls who did not meet criteria for a psychiatric disorder (confirmed using the Structured Clinical Interview for DSM-IV) . Subsequently, Mediation Analysis (Baye's Rules) was used to establish the risk childhood adversity poses for CFS with and without depression. Results: In a cohort of CFS patients with depression comprehensively excluded, CTQ scores were markedly lower than in all previous studies and, in contrast to these previous studies, not increased compared with healthy controls. Post-hoc analysis showed that CTQ scores correlated with the number of depressive symptoms during the lifetime worst period of low mood. The probability of developing CFS given a history of childhood trauma is 4%, a two-fold increased risk compared to the general population. However, much of this risk is mediated by the concomitant development of major depression. Conclusions: The</p>

				<p>data suggests that previous studies showing a relationship between childhood adversity and CFS may be attributable to the confounding effects of co-morbid or misdiagnosed depressive disorder. Abbreviations: CFS: Chronic fatigue syndrome; CTQ: Childhood trauma questionnaire; MDD: Major depressive disorder; CA: Childhood adversity; P: Probability.</p>
<p><b>Clark LV(1) , Buckland M(2) , Murphy G(2) , Taylor N(2) , Vleck V(3) , Mein C(4) , Wozniak E(4) , Smuk M(1) , White PD(1) .</b></p>	<p>Centre for Psychiatry, Wolfson Institute of Preventive Medicine, Queen Mary's School of Medicine and Dentistry, London, UK.</p>	<p>Cytokine responses to exercise and activity in patients with chronic fatigue syndrome: case-control study.</p>	<p>Clin Exp Immunol. 2017 Dec;190(3) :360-371.</p>	<p>Chronic fatigue syndrome (CFS) is characterized by fatigue after exertion. A systematic review suggested that transforming growth factor (TGF)-<math>\beta^2</math> concentrations are often elevated in cases of CFS when compared to healthy controls. This study attempted to replicate this finding and investigate whether post-exertional symptoms were associated with altered cytokine protein concentrations and their RNA in CFS patients. Twenty-four patients fulfilling Centers for Disease Control criteria for CFS, but with no comorbid psychiatric disorders, were recruited from two CFS clinics in London, UK. Twenty-one healthy, sedentary controls were matched by gender, age and other variables. Circulating proteins and RNA were measured for TGF-<math>\beta^2</math>, tumour necrosis factor (TNF), interleukin (IL) -8, IL-6 and IL-1<math>\beta</math>. We measured six further cytokine protein concentrations (IL-2, IL-4, IL-5, IL-10, IL-12p70, and interferon (IFN) -<math>\beta^3</math>). Measures were taken at rest, and before and after both commuting and aerobic exercise. CFS cases had higher TGF-<math>\beta^2</math> protein levels compared to controls at rest (median (quartiles) 43.9 (19.2, 61.8) versus 18.9 (16.1, 30.0) ng/ml (<math>P=0.003</math>), and consistently so over a 9-day period. However, this was a spurious finding due to variation between different assay batches. There were no differences between groups in changes to TGF-<math>\beta^2</math> protein concentrations after either commuting or exercise. All other cytokine protein and RNA levels were similar between cases and controls. Post-exertional symptoms and perceived effort were not associated with any increased cytokines. We were unable to replicate previously found elevations in circulating cytokine concentrations, suggesting that elevated circulating cytokines are not important in the pathophysiology of CFS.</p>

<p><b>Clark LV(1) , Pesola F(2) , Thomas JM(3) , Vergara-Williamson M(4) , Beynon M(5) , White PD(5) .</b></p>	<p>Centre for Psychiatry, Wolfson Institute of Preventive Medicine, Bart's and the London School of Medicine and Dentistry, Queen Mary University, London, UK</p>	<p>Guided graded exercise self-help plus specialist medical care versus specialist medical care alone for chronic fatigue syndrome (GETSET) : a pragmatic randomised controlled trial.</p>	<p>Lancet. 2017 Jul 22;390(10092) :363-373.</p>	<p>BACKGROUND: Graded exercise therapy is an effective and safe treatment for chronic fatigue syndrome, but it is therapist intensive and availability is limited. We aimed to test the efficacy and safety of graded exercise delivered as guided self-help. METHODS: In this pragmatic randomised controlled trial, we recruited adult patients (18 years and older) who met the UK National Institute for Health and Care Excellence criteria for chronic fatigue syndrome from two secondary-care clinics in the UK. Patients were randomly assigned to receive specialist medical care (SMC) alone (control group) or SMC with additional guided graded exercise self-help (GES) . Block randomisation (randomly varying block sizes) was done at the level of the individual with a computer-generated sequence and was stratified by centre, depression score, and severity of physical disability. Patients and physiotherapists were necessarily unmasked from intervention assignment; the statistician was masked from intervention assignment. SMC was delivered by specialist doctors but was not standardised; GES consisted of a self-help booklet describing a six-step graded exercise programme that would take roughly 12 weeks to complete, and up to four guidance sessions with a physiotherapist over 8 weeks (maximum 90 min in total) . Primary outcomes were fatigue (measured by the Chalder Fatigue Questionnaire) and physical function (assessed by the Short Form-36 physical function subscale) ; both were self-rated by patients at 12 weeks after randomisation and analysed in all randomised patients with outcome data at follow-up (ie, by modified intention to treat) . We recorded adverse events, including serious adverse reactions to trial interventions. We used multiple linear regression analysis to compare SMC with GES, adjusting for baseline and stratification factors. This trial is registered at ISRCTN, number ISRCTN22975026. FINDINGS: Between May 15, 2012, and Dec 24, 2014, we recruited 211 eligible patients, of whom 107 were assigned to the GES group and 104 to the control group. At 12 weeks, compared with the control group, mean fatigue score was 19Â·1 (SD 7Â·6) in the GES group and 22Â·9 (6Â·9) in the control group (adjusted difference -4Â·2 points, 95% CI -6Â·1 to -2Â·3, p&lt;0Â·0001; effect size 0Â·53) and mean physical function score was 55Â·7 (23Â·3) in the GES group and 50Â·8 (25Â·3) in the control group</p>
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				(adjusted difference 6Â·3 points, 1Â·8 to 10Â·8, p=0Â·006; 0Â·20) . No serious adverse reactions were recorded and other safety measures did not differ between the groups, after allowing for missing data. INTERPRETATION: GES is a safe intervention that might reduce fatigue and, to a lesser extent, physical disability for patients with chronic fatigue syndrome. These findings need confirmation and extension to other health-care settings. FUNDING: UK National Institute for Health Research Research for Patient Benefit Programme and the Sue Estermann Fund.
<b>Clauw DJ(1) , Hassett AL(2) .</b>	Department of Anesthesiology and Medicine, Rheumatology , Chronic Pain and Fatigue Research Center, the University of Michigan, Ann Arbor, USA. dclauw@umich.edu. (2) Department of Anesthesiology, Chronic Pain and Fatigue Research Center, The University of Michigan, Ann Arbor, USA.	The role of centralised pain in osteoarthritis.	Clin Exp Rheumatol. 2017 Sep-Oct;35 Suppl 107(5) :79-84. Epub 2017 Sep 29.	The mechanisms underlying chronic pain states, including osteoarthritis, differ from those underlying acute pain. In chronic pain states, central nervous system (CNS) factors often play a particularly prominent role. In many individuals with chronic pain, pain can occur with minimal or no evidence of ongoing nociceptive input. Medical subspecialties have applied a wide-range of labels to these pain conditions including fibromyalgia, irritable bowel syndrome and interstitial cystitis to name just a few. These same CNS processes can augment or magnify pain when there is ongoing nociceptive input, as in conditions such as osteoarthritis or autoimmune disorders. The hallmark of these 'centrally driven' pain conditions is a diffuse hyperalgesic state identifiable through the use of experimental sensory testing, that has been corroborated by functional neuroimaging. Characteristic symptoms of these central pain conditions include multifocal pain, fatigue, poor sleep, memory complaints and frequent co-morbid mood and anxiety disorders. In contrast to acute and peripheral pain states that are responsive to non-steroidal anti-inflammatory drugs (NSAIDs) and opioids, central pain conditions respond best to CNS neuromodulating agents, such as serotonin-norepinephrine reuptake inhibitors (SNRIs) and anticonvulsants. While osteoarthritis is generally considered a peripherally mediated pain state, a subset of these patients also manifests centrally driven pain characteristics. Thus, osteoarthritis can also be thought of as a "mixed" pain state and this requires a more tailored approach to treatment.

<p><b>Clauw DJ(1) .</b></p>	<p>Chronic Pain and Fatigue Research Center, The University of Michigan, Ann Arbor, MI 48106, USA. Electronic address: dclauw@umich.edu.</p>	<p>Guided graded exercise self-help as a treatment of fatigue in chronic fatigue syndrome.</p>	<p>Lancet. 2017 Jul 22;390(10092) :335-336.</p>	<p>Comment on Lancet. 2017 Jul 22;390(10092) :363-373.</p>
<p><b>Cohen S(1) , Markham F(2) .</b></p>	<p>Sidney Kimmel Medical College at Thomas Jefferson University Philadelphia Pennsylvania USA. (2) Thomas Jefferson University Philadelphia Pennsylvania USA.</p>	<p>Ehlers-Danlos hypermobility type in an adult with chronic pain and fatigue: a case study.</p>	<p>Clin Case Rep. 2017 Jun 20;5(8) :1248-1251.</p>	<p>Ehlers-Danlos syndrome hypermobility type (EDS-HT) is an underdiagnosed genetic connective tissue disorder that causes joint hypermobility and widespread pain. We present a patient with the chief complaint of shoulder pain, a long history of widespread joint pain, and associated comorbidities. EDS-HT provided a unifying diagnosis and direction for management.</p>
<p><b>Cohen Tervaert JW(1) , Colaris MJ, van der Hulst RR.</b></p>	<p>aDepartment of Immunology, Maastricht University bDepartment of Plastic Surgery, Maastricht University Medical</p>	<p>Silicone breast implants and autoimmune rheumatic diseases: myth or reality.</p>	<p>Curr Opin Rheumatol. 2017 Jul;29(4) :348-354.</p>	<p>PURPOSE OF REVIEW: In the present review, recent findings regarding silicone breast implants (SBIs) complicated by rheumatic autoimmune diseases are described. RECENT FINDINGS: Despite changes in the principal constituents of the silicone implants during the past 50 years, silicone remained an adjuvant that may 'bleed' and subsequently may be a chronic stimulus to the immune system resulting in similar clinical manifestations as 50 years ago. Silicones are spread throughout the body and can be detected in tissues and the central nervous system. Autoimmune/inflammatory syndrome by adjuvants (ASIA) , allergies, autoimmune diseases, immune deficiencies and lymphomas occur in patients with SBIs. There is a</p>

	Center, Maastricht, the Netherlands.			need for adequately adjusted epidemiological studies to ascertain the frequency of these diseases. Explanation of the breast implants, however, should be advised to patients with complaints, as 60-80% of patients show an amelioration of the signs and symptoms after explanation. SUMMARY: SBIs are associated in a proportion of patients with complaints such as fatigue, cognitive impairment, arthralgias, myalgias, pyrexia, dry eyes and dry mouth. Silicones can migrate from the implant through the body and can induce a chronic inflammatory process. Explanation of SBI results in the majority of patients in an amelioration of the symptoms.
<b>Colaris MJL(1) (2) , de Boer M(1) (2) , van der Hulst RR(1) (2) , Cohen Tervaert JW(3) (4) .</b>	Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands. (2) Reconstructive, Plastic and Hand Surgery, Maastricht University Medical Center, Maastricht, The Netherlands. (3) Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht,	Two hundreds cases of ASIA syndrome following silicone implants: a comparative study of 30 years and a review of current literature.	Immunol Res. 2017 Feb;65(1) :120-128.	In this study, we compared one hundred patients with autoimmune/inflammatory syndrome induced by adjuvants (ASIA) due to silicone implant incompatibility syndrome diagnosed in 2014 in Maastricht, the Netherlands, with one hundred historical patients with adjuvant breast disease diagnosed in the Baylor College of Medicine, Houston, USA, between 1985 and 1992. Similarities and differences between these two cohorts were identified to determine whether the spectrum of silicone-related disease changed during the last 30 years. Patients with complaints possibly due to silicone-filled breast implants were prospectively examined in the Reinaert Clinic, Maastricht, the Netherlands between January 2014 and October 2014. All patients were evaluated for the fulfilment of ASIA criteria. Results were compared to results of the Baylor College cohort and 18 other reviewed historical cohorts. Clinical manifestations between the Maastricht and Baylor College cohorts were comparable. Fatigue was observed in 98 current patients and in 95 historical patients. Arthralgia was observed in 91 versus 81 historical patients. Myalgia was observed in 54 versus 91 patients. Cognitive impairment was observed in 78 versus 81 patients, pyrexia was observed in 64 versus 52 patients, sicca complaints in 73 versus 72 patients and severe neurological manifestations in 20 versus 32 patients. From the 54 patients who underwent removal of their silicone breast implant, 50% (n = 27) of the patients experienced improvement of complaints after explanation of the implant. Also, in the 18 reviewed historical cohorts, similar clinical manifestations were described. Our findings suggest that no major changes were present in the observed clinical manifestations

	<p>The Netherlands. jw.cohenterv ert@maastric htuniversity.nl . (4) Clinical and Experimental Immunology, Reinaert Clinic, Maastricht, The Netherlands. jw.cohenterv ert@maastric htuniversity.nl .</p>			<p>between the Maastricht and Baylor College cohorts. Also, despite changes in the principal constituents of the silicone implants during the past fifty years, silicone remained an adjuvant that may 'bleed' and subsequently may be a chronic stimulus to the immune system resulting in similar clinical manifestations as observed in the Maastricht cohort, the Baylor College cohort and 18 other large cohorts of patients. We therefore conclude that silicone-related disease has not changed during the last 30 years.</p>
<p><b>Collin SM(1) , Bakken IJ(2) , Nazareth I(3) , Crawley E(1) , White PD(4) .</b></p>	<p>1 School of Social and Community Medicine, University of Bristol, Bristol BS8 2BN, UK. (2) 2 Norwegian Institute of Public Health, 0403 Oslo, Norway. (3) 3 UCL Department of Primary Care and Population Health, UCL</p>	<p>Trends in the incidence of chronic fatigue syndrome and fibromyalgia in the UK, 2001-2013: a Clinical Practice Research Datalink study.</p>	<p>J R Soc Med. 2017 Jun;110(6) :231-244.</p>	<p>Objective Trends in recorded diagnoses of chronic fatigue syndrome (CFS, also known as 'myalgic encephalomyelitis' (ME) ) and fibromyalgia (FM) in the UK were last reported more than ten years ago, for the period 1990-2001. Our aim was to analyse trends in incident diagnoses of CFS/ME and FM for the period 2001-2013, and to investigate whether incidence might vary by index of multiple deprivation (IMD) score. Design Electronic health records cohort study. Setting NHS primary care practices in the UK. Participants Participants: Patients registered with general practices linked to the Clinical Practice Research Datalink (CPRD) primary care database from January 2001 to December 2013. Main outcome measure Incidence of CFS/ME, FM, post-viral fatigue syndrome (PVFS) , and asthenia/debility. Results The overall annual incidence of recorded cases of CFS/ME was 14.8 (95% CI 14.5, 15.1) per 100,000 people. Overall annual incidence per 100,000 people for FM was 33.3 (32.8-33.8) , for PVFS 12.2 (11.9, 12.5) , and for asthenia/debility 7.0 (6.8, 7.2) . Annual incidence rates for CFS/ME diagnoses decreased from 17.5 (16.1, 18.9) in 2001 to 12.6 (11.5, 13.8) in 2013 (annual percent change -2.8% (-3.6%, -2.0%) ) . Annual incidence rates for FM</p>

	<p>Royal Free Campus, London NW3 2PF, UK. (4) 4 Wolfson Institute of Preventive Medicine, Barts and the London School of Medicine and Dentistry, Queen Mary University of London, London EC1M 6BQ, UK.</p>			<p>diagnoses decreased from 32.3 (30.4, 34.3) to 27.1 (25.5, 28.6) in 2007, then increased to 38.2 (36.3, 40.1) per 100,000 people in 2013. Overall annual incidence of recorded fatigue symptoms was 2246 (2242, 2250) per 100,000 people. Compared with the least deprived IMD quintile, incidence of CFS/ME in the most deprived quintile was 39% lower (incidence rate ratio (IRR) 0.61 (0.50, 0.75) ), whereas rates of FM were 40% higher (IRR 1.40 (0.95, 2.06) ) . Conclusion These analyses suggest a gradual decline in recorded diagnoses of CFS/ME since 2001, and an increase in diagnoses of fibromyalgia, with opposing socioeconomic patterns of lower rates of CFS/ME diagnoses in the poorest areas compared with higher rates of FM diagnoses.</p>
<p><b>Collin SM(1) , Bakken IJ(2) , Nazareth I(3) , Crawley E(4) , White PD(5) .</b></p>	<p>School of Social and Community Medicine, University of Bristol, Oakfield House, Oakfield Grove, Bristol, BS8 2BN, UK.</p>	<p>Health care resource use by patients before and after a diagnosis of chronic fatigue syndrome (CFS/ME) : a clinical practice research datalink study.</p>	<p>BMC Fam Pract. 2017 May 5;18(1) :60.</p>	<p>BACKGROUND: Our aim was to investigate patterns of health care resource use by patients before and after a diagnosis of CFS/ME, as recorded by Clinical Practice Research Datalink (CPRD) GP practices in the UK. METHODS: We used a case-control study design in which patients who had a first recorded diagnosis of CFS/ME during the period 01/01/2001 to 31/12/2013 were matched 1:1 with controls by age, sex, and GP practice. We compared rates of GP consultations, diagnostic tests, prescriptions, referrals, and symptoms between the two groups from 15 years (in adults) or 10 years (in children) before diagnosis to 10 years after diagnosis. RESULTS: Data were available for 6710 adult and 916 child (age &lt;18 years) matched case-control pairs. Rates of GP consultations, diagnostic tests, prescriptions, referrals, and symptoms spiked dramatically in the year when a CFS/ME diagnosis was recorded. GP consultation rates were 50% higher in adult cases compared to controls 11-15 years before diagnosis (rate ratio (RR) 1.49 (95% CI 1.46, 1.52) ) and 56% higher 6-10 years after diagnosis (RR 1.56 (1.54, 1.57) ) . In children, consultation rates in cases were 45% higher 6-10 years before diagnosis (RR 1.45 (1.40, 1.51) ) and 62% higher 6-10 years after diagnosis (RR 1.62 (1.54, 1.70) ) . For adults</p>

				and children, rates of tests, prescriptions, referrals, and symptoms were higher in cases compared to controls for up to 10 years before and after diagnosis. CONCLUSIONS: Adults and children with CFS/ME have greater health care needs than the rest of the population for at least ten years before their diagnosis, and these higher levels of health care resource use continue for at least ten years after diagnosis.
<b>Collin SM(1) , Crawley E(2) .</b>	School of Social & Community Medicine, Oakfield House, University of Bristol, Oakfield Grove, Bristol, BS8 2BN, UK. simon.collin@bristol.ac.uk. (2) School of Social & Community Medicine, Oakfield House, University of Bristol, Oakfield Grove, Bristol, BS8 2BN, UK.	Specialist treatment of chronic fatigue syndrome/ME: a cohort study among adult patients in England.	BMC Health Serv Res. 2017 Jul 14;17(1) :488.	BACKGROUND: NHS specialist chronic fatigue syndrome (CFS/ME) services in England treat approximately 8000 adult patients each year. Variation in therapy programmes and treatment outcomes across services has not been described. METHODS: We described treatments provided by 11 CFS/ME specialist services and we measured changes in patient-reported fatigue (Chalder, Checklist Individual Strength) , function (SF-36 physical subscale, Work & Social Adjustment Scale) , anxiety and depression (Hospital Anxiety & Depression Scale) , pain (visual analogue rating) , sleep (Epworth, Jenkins) , and overall health (Clinical Global Impression) 1 year after the start of treatment, plus questions about impact of CFS/ME on employment, education/training and domestic tasks/unpaid work. A subset of these outcome measures was collected from former patients 2-5 years after assessment at 7 of the 11 specialist services. RESULTS: Baseline data at clinical assessment were available for 952 patients, of whom 440 (46.2%) provided 1-year follow-up data. Treatment data were available for 435/440 (98.9%) of these patients, of whom 175 (40.2%) had been discharged at time of follow-up. Therapy programmes varied substantially in mode of delivery (individual or group) and number of sessions. Overall change in health 1 year after first attending specialist services was 'very much' or 'much better' for 27.5% (115/418) of patients, 'a little better' for 36.6% (153/418) , 'no change' for 15.8% (66/418) , 'a little worse' for 12.2% (51/418) , and 'worse' or 'very much worse' for 7.9% (33/418) . Among former patients who provided 2- to 5-year follow-up (30.4% (385/1265) ) , these proportions were 30.4% (117/385) , 27.5% (106/385) , 11.4% (44/385) , 13.5% (52/385) , and 17.1% (66/385) , respectively. 85.4% (327/383) of former patients responded "Yes" to "Do you think that you are still suffering from CFS/ME?" 8.9% (34/383) were "Uncertain", and 5.7% (22/383)

				responded "No". CONCLUSIONS: This multi-centre NHS study has shown that, although one third of patients reported substantial overall improvement in their health, CFS/ME is a long term condition that persists for the majority of adult patients even after receiving specialist treatment.
<b>Collin SM(1) , Heron J(2) , Nikolaus S(3) , Knoop H(3) , Crawley E(2) .</b>	Population Health Sciences, Bristol Medical School, University of Bristol, Oakfield House, Oakfield Grove, Bristol BS8 2BN, UK.	Chronic fatigue syndrome (CFS/ME) symptom-based phenotypes and 1-year treatment outcomes in two clinical cohorts of adult patients in the UK and The Netherlands.	J Psychosom Res. 2018 Jan;104:29-34.	<p>OBJECTIVE: We previously described symptom-based chronic fatigue syndrome (CFS/ME) phenotypes in clinical assessment data from 7041 UK and 1392 Dutch adult CFS/ME patients. Here we aim to replicate these phenotypes in a more recent UK patient cohort, and investigate whether phenotypes are associated with 1-year treatment outcome. METHODS: 12 specialist CFS/ME services (11 UK, 1 NL) recorded the presence/absence of 5 symptoms (muscle pain, joint pain, headache, sore throat, and painful lymph nodes) which can occur in addition to the 3 symptoms (post-exertional malaise, cognitive dysfunction, and disturbed/unrefreshing sleep) that are present for almost all patients. Latent Class Analysis (LCA) was used to assign symptom profiles (phenotypes) . Multinomial logistic regression models were fitted to quantify associations between phenotypes and overall change in health 1year after the start of treatment. RESULTS: Baseline data were available for N=918 UK and N=1392 Dutch patients, of whom 416 (45.3%) and 912 (65.5%) had 1-year follow-up data, respectively. 3- and 4-class phenotypes identified in the previous UK patient cohort were replicated in the new UK cohort. UK patients who presented with 'polysymptomatic' and 'pain-only' phenotypes were 57% and 67% less likely (multinomial odds ratio (MOR) 0.43 (95% CI 0.19-0.94) and 0.33 (95% CI 0.13-0.84) ) to report that their health was "very much better" or "much better" than patients who presented with an 'oligosymptomatic' phenotype. For Dutch patients, polysymptomatic and pain-only phenotypes were associated with 72% and 55% lower odds of improvement (MOR 0.28 (95% CI 0.11, 0.69) and 0.45 (95% CI 0.21, 0.99) ) compared with oligosymptomatic patients. CONCLUSIONS: Adult CFS/ME patients with multiple symptoms or pain symptoms who present for specialist treatment are much less likely to report favourable treatment outcomes than patients who present with few symptoms.</p>

<p><b>Collin SM(1) , Nijs J(2) , Meeus M(3) , Polli A(4) , Willekens B(5) , Ickmans K(6) .</b></p>	<p>School of Social &amp; Community Medicine, University of Bristol, Bristol, UK.</p>	<p>Endogenous Pain Facilitation Rather Than Inhibition Differs Between People with Chronic Fatigue Syndrome, Multiple Sclerosis, and Controls: An Observational Study.</p>	<p>Pain Physician. 2017 May;20(4) :E489-E497.</p>	<p>BACKGROUND: Commonalities in the core symptoms of fatigue and cognitive dysfunction experienced by chronic fatigue syndrome (CFS, also known as ME) and multiple sclerosis (MS) patients have been described. Many CFS and MS patients also experience chronic pain, which has been attributed to central sensitization in both groups of patients. However, the characteristics of pain in CFS and MS patients have not been compared. OBJECTIVES: To compare experimental pain measurements in patients with CFS or MS and healthy controls. STUDY DESIGN: Observational study. SETTING: This study took place in Belgium at Vrije Universiteit Brussel and the University of Antwerp. METHODS: Pressure pain thresholds, temporal summation, conditioned pain modulation, and occlusion cuff pressure thresholds rated as painful (1st cuff pressure threshold) and as 3/10 on a verbal numerical scale (2nd cuff pressure threshold) were measured in patients with CFS (n = 48) , MS (n = 19) and healthy pain-free controls (n = 30) . Adjusted between-group differences were estimated using linear regression models. RESULTS: Finger pain pressure thresholds of patients with CFS, compared with patients with MS, were 25% lower (difference ratio 0.75 [95% CI 0.59, 0.95], P = 0.02) and shoulder pain pressure thresholds were 26% lower (difference ratio 0.74 [0.52, 1.04], P = 0.08) . Compared with patients with MS, patients with CFS had 29% lower first cuff pressure threshold (difference ratio 0.71 [0.53, 0.94], P = 0.02) and 41% lower 2nd cuff pressure threshold (0.59 [0.41, 0.86], P = 0.006) . Finger temporal summation was higher in patients with CFS than in patients with MS (mean difference 1.15 [0.33, 1.97], P = 0.006) , but there were no differences in shoulder temporal summation or conditioned pain modulation at either site. Differences between patients with CFS and MS tended to be greater than between either patient group and healthy controls. Pain pressure thresholds and cuff pressure thresholds tended to be positively correlated, and temporal summation negatively correlated, with higher physical function and lower fatigue in both groups of patients. Subjective pain in patients with CFS but not in patients with MS was strongly negatively correlated with pain pressure thresholds and cuff pressure thresholds, and positively correlated with temporal summation. LIMITATIONS: The main limitations of our study are the relatively</p>
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				small sample sizes, its cross-sectional design, and its exploratory nature. CONCLUSIONS: We found differences in the characteristics of pain symptoms reported by patients with CFS and patients with MS, which suggest different underlying mechanisms. Specifically, overactive endogenous pain facilitation was characteristic of pain in patients with CFS but not in patients with MS, suggesting a greater role for central sensitization in CFS.
<b>Cook DB(1) , Light AR(2) , Light KC(2) , Broderick G(3) , Shields MR(4) , Dougherty RJ(4) , Meyer JD(4) , VanRiper S(4) , Stegner AJ(4) , Ellingson LD(5) , Vernon SD(6) .</b>	William S. Middleton Memorial Veterans Hospital, Madison, WI, United States; University of Wisconsin - Madison, Madison, WI, United States. Electronic address: dane.cook@wisc.edu. (2) University of Utah, Salt Lake City, UT, United States. (3) Nova Southeastern University, Fort Lauderdale, FL, United States. (4) University of Wisconsin - Madison,	Neural consequences of post-exertion malaise in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome.	Brain Behav Immun. 2017 May;62:87-99.	Post exertion malaise is one of the most debilitating aspects of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome, yet the neurobiological consequences are largely unexplored. The objective of the study was to determine the neural consequences of acute exercise using functional brain imaging. Fifteen female Myalgic Encephalomyelitis/Chronic Fatigue Syndrome patients and 15 healthy female controls completed 30min of submaximal exercise (70% of peak heart rate) on a cycle ergometer. Symptom assessments (e.g. fatigue, pain, mood) and brain imaging data were collected one week prior to and 24h following exercise. Functional brain images were obtained during performance of: 1) a fatiguing cognitive task - the Paced Auditory Serial Addition Task, 2) a non-fatiguing cognitive task - simple number recognition, and 3) a non-fatiguing motor task - finger tapping. Symptom and exercise data were analyzed using independent samples t-tests. Cognitive performance data were analyzed using mixed-model analysis of variance with repeated measures. Brain responses to fatiguing and non-fatiguing tasks were analyzed using linear mixed effects with cluster-wise (101-voxels) alpha of 0.05. Myalgic Encephalomyelitis/Chronic Fatigue Syndrome patients reported large symptom changes compared to controls (effect size $d = 0.8$ , $p < 0.05$ ). Patients and controls had similar physiological responses to exercise ( $p > 0.05$ ). However, patients exercised at significantly lower Watts and reported greater exertion and leg muscle pain ( $p < 0.05$ ). For cognitive performance, a significant Group by Time interaction ( $p < 0.05$ ), demonstrated pre- to post-exercise improvements for controls and worsening for patients. Brain responses to finger tapping did not differ between groups at either time point. During number recognition, controls exhibited greater brain activity ( $p < 0.05$ ) in the posterior cingulate cortex, but only for the pre-

	<p>Madison, WI, United States.  (5) Iowa State University, Ames, IA, United States.  (6) Bateman Horne Center, Salt Lake City, UT, United States.</p>			<p>exercise scan. For the Paced Serial Auditory Addition Task, there was a significant Group by Time interaction (<math>p &lt; 0.05</math>) with patients exhibiting increased brain activity from pre- to post-exercise compared to controls bilaterally for inferior and superior parietal and cingulate cortices. Changes in brain activity were significantly related to symptoms for patients (<math>p &lt; 0.05</math>). Acute exercise exacerbated symptoms, impaired cognitive performance and affected brain function in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome patients. These converging results, linking symptom exacerbation with brain function, provide objective evidence of the detrimental neurophysiological effects of post-exertion malaise.</p>
<p><b>Copeland SM(1) .</b></p>	<p>CauseHealth Project, Norwegian University of Life Sciences, Ås, Norway.</p>	<p>Unexpected findings and promoting monocausal claims, a cautionary tale.</p>	<p>J Eval Clin Pract. 2017 Oct;23(5) :1055-1061.</p>	<p>Stories of serendipitous discoveries in medicine incorrectly imply that the path from an unexpected observation to major discovery is straightforward or guaranteed. In this paper, I examine a case from the field of research about chronic fatigue syndrome (CFS) . In Norway, an unexpected positive result during clinical care has led to the development of a research programme into the potential for the immunosuppressant drug rituximab to relieve the symptoms of CFS. The media and public have taken up researchers' speculations that their research results indicate a causal mechanism for CFS - consequently, patients now have great hope that 'the cause' of CFS has been found, and thus, a cure is sure to follow. I argue that a monocausal claim cannot be correctly asserted, either on the basis of the single case of an unexpected, although positive, result or on the basis of the empirical research that has followed up on that result. Further, assertion and promotion of this claim will have specific harmful effects: it threatens to inappropriately narrow the scope of research on CFS, might misdirect research altogether, and could directly and indirectly harm patients. Therefore, the CFS case presents a cautionary tale, illustrating the risks involved in drawing a theoretical hypothesis from an unexpected observation. Further, I draw attention to the tendency in contemporary clinical research with CFS to promote new research directions on the basis of reductive causal models of that syndrome. Particularly, in the case of CFS research, underdetermination and causal complexity undermine the potential value of a monocausal claim. In sum, when an unexpected finding occurs in clinical practice or medical research,</p>

				the value of following up on that finding is to be found not in the projected value of a singular causal relationship inferred from the finding but rather in the process of research that follows.
<b>Corfield EC(1) , Martin NG(2) , Nyholt DR(1) .</b>	Faculty of Health, Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, QLD, Australia. (2) QIMR Berghofer Medical Research Institute, Brisbane, QLD, Australia.	Familiality and Heritability of Fatigue in an Australian Twin Sample.	Twin Res Hum Genet. 2017 Jun;20(3) :208-215.	Familial factors have previously been implicated in the etiology of fatigue, of which a significant proportion is likely attributable to genetic influences. However, family studies have primarily focused on chronic fatigue syndrome, while univariate twin studies have investigated broader fatigue phenotypes. The results for similar fatigue phenotypes vary between studies, particularly with regard to sex-specific contributions to the heritability of the traits. Therefore, the current study aims to investigate the familiality and sex-specific effects of fatigue experienced over the past few weeks in an older Australian population of 660 monozygotic (MZ) twin pairs, 190 MZ singleton twins, 593 dizygotic (DZ) twin pairs, and 365 DZ singleton twins. Higher risks for fatigue were observed in MZ compared to DZ co-twins of probands with fatigue. Univariate heritability analyses indicated fatigue has a significant genetic component, with a heritability ( $h^2$ ) estimate of 40%. Sex-specific effects did not significantly contribute to the heritability of fatigue, with similar estimates for males ( $h^2 = 41%$ , 95% CI [18, 62]) and females ( $h^2 = 40%$ , 95% CI [27, 52]) . These results indicate that fatigue experienced over the past few weeks has a familial contribution, with additive genetic factors playing an important role in its etiology.
<b>Costa ID(1) , Gamund- A(1) , Miranda JG(2) , Fransa LG(3) , De Santana CN(4) , Montoya P(1) .</b>	Research Institute of Health Sciences (IUNICS) , University of the Balearic Islands Palma de Mallorca, Spain.	Altered Functional Performance in Patients with Fibromyalgia.	Front Hum Neurosci. 2017 Jan 26;11:14.	Fibromyalgia is a common chronic pain condition that exerts a considerable impact on patients' daily activities and quality of life. Objectives: The main objective of the present study was to evaluate kinematic parameters of gait, functional performance, and balance in women with fibromyalgia syndrome. Methods: The study included 26 female patients with fibromyalgia (49.2 $\pm$ 8.0 years) according to the criteria of the American College of Rheumatology, as well as 16 pain-free women (43.5 $\pm$ 8.5 years) . Gait and balance parameters were extracted from video recordings of participants performing several motor tasks. Non-linear dynamic of body sway time series was also analyzed by computing the Hurst exponent. In addition, functional performance and clinical pain were obtained by using standardized motor tests (Berg's balance scale, 6-min walking test, timed up and go task, Romberg's balance test) and self-report

				<p>questionnaires (Fibromyalgia Impact Questionnaire) . Results: Walking speed was significantly diminished (<math>p &lt; 0.001</math>) in FM patients as compared to pain-free controls, probably due to significant reductions in stride length (<math>p &lt; 0.001</math>) and cycle frequency (<math>p &lt; 0.001</math>) . Analyses of balance also revealed significant differences between fibromyalgia and pain-free controls on body sway in the medial-lateral and anterior-posterior axes (all <math>ps &lt; 0.01</math>) . Several parameters of gait and balance were significantly associated with high levels of pain, depression, stiffness, anxiety, and fatigue in fibromyalgia. Conclusion: Our data revealed that both gait and balance were severely impaired in FM, and that subjective complaints associated with FM could contribute to functional disability in these patients. These findings suggest that optimal rehabilitation and fall prevention in fibromyalgia require a comprehensive assessment of both psychological responses to pain and physical impairments during postural control and gait.</p>
<p><b>Costabel U, Wessendorf TE, Bonella F.</b></p>		<p>[Epidemiology and Clinical Presentation of Sarcoidosis].</p>	<p>Klin Monbl Augenheilkd. 2017 Jun;234(6) :790-795.</p>	<p>Sarcoidosis is a systemic disease of unknown aetiology. Typical histology shows epithelioid cell granulomas, and typical immunopathology enhanced Th1 type immune responses in the involved organs. The disease occurs worldwide, but more frequently in northern countries than in the south. In Germany, the incidence is estimated to be 10 per 100,000, and the prevalence 44-48 per 100,000. Sarcoidosis usually affects adults under 50 years of age, but can also be seen in children, adolescents and in the elderly. Women are more frequently affected than men. Familial clusters can occur. The clinical presentation of sarcoidosis varies widely and depends on the manifestations in the individual organ. Systemic symptoms include fatigue, night sweats, weight loss, fever, arthralgia and myalgia. Organ-specific symptoms include cough and dyspnoea, with pulmonary involvement, headache and palsy in neurosarcoidosis, arrhythmias and heart failure in cardiac sarcoidosis, and manifold skin lesions with skin involvement. Relapses are rarely seen in acute sarcoidosis, whereas the chronic form tends to relapse more frequently. Löfgren's syndrome, a specific phenotype of acute sarcoidosis, is characterised by bilateral lymphadenopathy, ankle arthritis and erythema nodosum. Chronic sarcoidosis can be asymptomatic, despite radiological changes, which may be</p>

				extensive. By definition, sarcoidosis has become chronic after 2 years of disease with ongoing signs of activity. The long-term prognosis is generally good, but depends on the different organ manifestations and complications.
<b>CrÃ©peaux G(1) , Eidi H(2) , David MO(3) , Baba-Amer Y(4) , Tzavara E(5) , Giros B(5) , Authier FJ(4) , Exley C(6) , Shaw CA(7) , Cadusseau J(8) , Gherardi RK(4) .</b>	Inserm U955 E10, UniversitÃ© Paris Est CrÃ©teil (UPEC) , CrÃ©teil, France;	Non-linear dose-response of aluminium hydroxide adjuvant particles: Selective low dose neurotoxicity.	Toxicology. 2017 Jan 15;375:48-57.	Aluminium (Al) oxyhydroxide (AlhydrogelÃ©) , the main adjuvant licensed for human and animal vaccines, consists of primary nanoparticles that spontaneously agglomerate. Concerns about its safety emerged following recognition of its unexpectedly long-lasting biopersistence within immune cells in some individuals, and reports of chronic fatigue syndrome, cognitive dysfunction, myalgia, dysautonomia and autoimmune/inflammatory features temporally linked to multiple Al-containing vaccine administrations. Mouse experiments have documented its capture and slow transportation by monocyte-lineage cells from the injected muscle to lymphoid organs and eventually the brain. The present study aimed at evaluating mouse brain function and Al concentration 180days after injection of various doses of AlhydrogelÃ© (200, 400 and 800Ã©g Al/kg of body weight) in the tibialis anterior muscle in adult female CD1 mice. Cognitive and motor performances were assessed by 8 validated tests, microglial activation by Iba-1 immunohistochemistry, and Al level by graphite furnace atomic absorption spectroscopy. An unusual neuro-toxicological pattern limited to a low dose of AlhydrogelÃ© was observed. Neurobehavioural changes, including decreased activity levels and altered anxiety-like behaviour, were observed compared to controls in animals exposed to 200Ã©g Al/kg but not at 400 and 800Ã©g Al/kg. Consistently, microglial number appeared increased in the ventral forebrain of the 200Ã©g Al/kg group. Cerebral Al levels were selectively increased in animals exposed to the lowest dose, while muscle granulomas had almost completely disappeared at 6 months in these animals. We conclude that AlhydrogelÃ© injected at low dose in mouse muscle may selectively induce long-term Al cerebral accumulation and neurotoxic effects. To explain this unexpected result, an avenue that could be explored in the future relates to the adjuvant size since the injected suspensions corresponding to the lowest dose, but not to the highest doses, exclusively contained small agglomerates in the bacteria-size range known to favour capture and, presumably,

				transportation by monocyte-lineage cells. In any event, the view that Alhydrogel <sup>®</sup> neurotoxicity obeys "the dose makes the poison" rule of classical chemical toxicity appears overly simplistic.
<b>Crawley EM(1) , Gaunt DM(2) (3) , Garfield K(2) (3) , Hollingworth W(2) , Sterne JAC(2) , Beasant L(1) , Collin SM(1) , Mills N(2) , Montgomery AA(3) (4) .</b>	Centre for Child and Adolescent Health, Bristol Medical School: Population Health Sciences, University of Bristol, Bristol. (2) Bristol Medical School: Population Health Sciences, University of Bristol, Bristol. (3) Bristol Randomised Trials Collaboration, Bristol Medical School: Population Health Sciences, University of Bristol, Bristol. (4) Nottingham Clinical Trials	Clinical and cost-effectiveness of the Lightning Process in addition to specialist medical care for paediatric chronic fatigue syndrome: randomised controlled trial.	Arch Dis Child. 2018 Feb;103(2) :155-164.	OBJECTIVE: Investigate the effectiveness and cost-effectiveness of the Lightning Process (LP) in addition to specialist medical care (SMC) compared with SMC alone, for children with chronic fatigue syndrome (CFS) /myalgic encephalitis (ME) . DESIGN: Pragmatic randomised controlled open trial. Participants were randomly assigned to SMC or SMC+LP. Randomisation was minimised by age and gender. SETTING: Specialist paediatric CFS/ME service. PATIENTS: 12-18-year olds with mild/moderate CFS/ME. MAIN OUTCOME MEASURES: The primary outcome was the the 36-Item Short-Form Health Survey Physical Function Subscale (SF-36-PFS) at 6-months. Secondary outcomes included pain, anxiety, depression, school attendance and cost-effectiveness from a health service perspective at 3, 6 and 12 months. RESULTS: We recruited 100 participants, of whom 51 were randomised to SMC+LP. Data from 81 participants were analysed at 6 months. Physical function (SF-36-PFS) was better in those allocated SMC+LP (adjusted difference in means 12.5(95% CI 4.5 to 20.5) , p=0.003) and this improved further at 12 months (15.1 (5.8 to 24.4) , p=0.002) . At 6 months, fatigue and anxiety were reduced, and at 12 months, fatigue, anxiety, depression and school attendance had improved in the SMC+LP arm. Results were similar following multiple imputation. SMC+LP was probably more cost-effective in the multiple imputation dataset (difference in means in net monetary benefit at 12 months £1474(95% CI £111 to £2836) , p=0.034) but not for complete cases. CONCLUSION: The LP is effective and is probably cost-effective when provided in addition to SMC for mild/moderately affected adolescents with CFS/ME. TRIAL REGISTRATION NUMBER: ISRCTN81456207.

	Unit, School of Medicine, Queen's Medical Centre, University of Nottingham, Nottingham, UK.			
<b>Curatolo M(1) , La Bianca G(1) , Cosentino G(1) , Baschi R(1) , Salemi G(1) , Talotta R(2) , Romano M(3) , Triolo G(4) , De Tommaso M(5) , Fierro B(1) , Brighina F(6) .</b>	Department of Experimental Biomedicine and Clinical Neuroscience (BioNec) , Neurology Section, University of Palermo, Italy.	Motor cortex tRNS improves pain, affective and cognitive impairment in patients with fibromyalgia: preliminary results of a randomised sham-controlled trial.	Clin Exp Rheumatol. 2017 May-Jun;35 Suppl 105(3) :100-105. Epub 2017 Jun 29.	<p><b>OBJECTIVES:</b> Fibromyalgia (FM) is a clinical syndrome characterised by widespread musculoskeletal pain, chronic fatigue, cognitive deficits, and sleep and mood disorders. The effectiveness of most pharmacological treatments is limited, and there is a need for new, effective and well-tolerated therapies. It has recently been shown that transcranial direct-current stimulation (tDCS) of the motor cortex reduces pain, and that tDCS of the dorso-lateral prefrontal cortex (DLPFC) improves anxiety, depression and cognitive impairment in FM patients. The new technique of transcranial random noise stimulation (tRNS) using randomly changing alternating currents has very recently been shown to improve working memory and pain in limited series of patients with FM or neuropathic pain. The aim of this study was to investigate the clinical effects of primary motor cortex (M1) tRNS in FM patients.</p> <p><b>METHODS:</b> Twenty female FM patients aged 26-67 years were randomised to undergo active (real) or placebo (sham) tRNS sessions on five days a week (Monday-Friday) for two weeks. Each patient was evaluated before and after treatment using a visual analogue scale (VAS) , the Fibromyalgia Impact Questionnaire (FIQ) , the Hospital Anxiety and Depression Scale (HADS) , the Trail Making Test (TMT) , the Rey Auditory Verbal Learning Test (RAVLT) , the Forward and Backward Digit Span test, and the FAS verbal fluency test. <b>RESULTS:</b> In comparison with sham treatment, active tRNS of M1 induced a general improvement in the clinical picture of FM, with a significant reduction in pain, depression, anxiety and FIQ scores and a significant improvement in TMT (A) , RAVLT and FAS scores. <b>CONCLUSIONS:</b> These findings suggest that tRNS of M1 can be very effective in relieving FM symptoms. Unlike motor cortex tDCS, it</p>

				seems to counteract both pain and cognitive disturbances, possibly because the invoked mechanism of stochastic resonance synchronises neural firing and thus leads to more widespread and lasting effects.
<b>Cvejic E(1) , Sandler CX(2) , Keech A(3) , Barry BK(4) , Lloyd AR(5) , Vollmer-Conna U(6) .</b>	School of Psychiatry, University of New South Wales, NSW, Australia; University of Sydney, School of Public Health, NSW, Australia.	Autonomic nervous system function, activity patterns, and sleep after physical or cognitive challenge in people with chronic fatigue syndrome.	J Psychosom Res. 2017 Dec;103:91-94.	OBJECTIVE: To explore changes in autonomic functioning, sleep, and physical activity during a post-exertional symptom exacerbation induced by physical or cognitive challenge in participants with chronic fatigue syndrome (CFS) . METHODS: Thirty-five participants with CFS reported fatigue levels 24-h before, immediately before, immediately after, and 24-h after the completion of previously characterised physical (stationary cycling) or cognitive (simulated driving) challenges. Participants also provided ratings of their sleep quality and sleep duration for the night before, and after, the challenge. Continuous ambulatory electrocardiography (ECG) and physical activity was recorded from 24-h prior, until 24-h after, the challenge. Heart rate (HR) and HR variability (HRV, as high frequency power in normalized units) was derived from the ECG trace for periods of wake and sleep. RESULTS: Both physical and cognitive challenges induced an immediate exacerbation of the fatigue state ( $p<0.001$ ) , which remained elevated 24-h post-challenge. After completing the challenges, participants spent a greater proportion of wakeful hours lying down ( $p=0.024$ ) , but did not experience significant changes in sleep quality or sleep duration. Although the normal changes in HR and HRV during the transition from wakefulness to sleep were evident, the magnitude of the increase in HRV was significantly lower after completing the challenge ( $p=0.016$ ) . CONCLUSION: Preliminary evidence of reduced nocturnal parasympathetic activity, and increased periods of inactivity, were found during post-exertional fatigue in a well-defined group of participants with CFS. Larger studies employing challenge paradigms are warranted to further explore the underlying pathophysiological mechanisms of post-exertional fatigue in CFS.
<b>Daniels J(1) (2) , Brigden A(1) , Kacorova A(1) .</b>	Department of Psychology, University of Bath, UK. (2) Bristol Chronic	Anxiety and depression in chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) :	Psychol Psychother. 2017 Sep;90(3) :502-509.	OBJECTIVES: There is a lack of research examining the incidence of health anxiety in chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) , despite this being an important research area with potentially significant clinical implications. This preliminary study aimed to determine the incidence of anxiety and



	Fatigue Syndrome/ME Service, Southmead Hospital, Bristol, UK.	Examining the incidence of health anxiety in CFS/ME.		depression, more specifically health anxiety, in a sample of CFS/ME patients over a 3-month period. DESIGN: The research was a cross-sectional questionnaire-based study, using a consecutive sample of patients who were assessed in a CFS/ME service. METHOD: Data were taken from the Short Health Anxiety Inventory and the Hospital Anxiety and Depression Scale to identify incidence of anxiety, depression, and health anxiety. RESULTS: Data were collected from 45 CFS/ME patients over the sampling period. Thirty-one patients (68.9%) scored above the normal range but within the subclinical range of health anxiety, and 19 patients (42.2%) scored within the clinically significant health anxiety range. Anxiety and depression were common, with prevalence rates of 42.2% and 33.3% respectively, which is comparable to data found in a recent large-scale trial. CONCLUSIONS: Health anxiety in CFS/ME patients is likely to be common and warrants further investigation to provide a better insight into how this may influence treatment and symptom management. PRACTITIONER POINTS: Anxiety and depression were common in a sample of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) patients, with a high proportion meeting criteria for severe health anxiety. While CFS/ME and health anxiety are distinct and separate conditions, it is unsurprising that patients with CFS/ME, who commonly report feeling 'delegitimized', may experience high levels of anxiety relating to their physical symptoms. Clinicians should consider screening for health anxiety due to the possible clinical implications for treatment; mutual maintenance may negatively influence treatment success in a complex condition such as CFS/ME. Health anxiety has been found to be common across other chronic medical conditions but has been shown to be effectively treated with appropriately tailored interventions.
<b>Daniels J(1) (2) , Loades ME(1) .</b>	Department of Psychology, University of Bath, Bath, UK. (2) Bristol Chronic Fatigue	A Novel Approach to Treating CFS and Co-morbid Health Anxiety: A Case Study.	Clin Psychol Psychother. 2017 May;24(3) :727-736.	OBJECTIVES: Chronic Fatigue Syndrome (CFS) is a debilitating condition that affects 0.2-0.4% of the population. First-line treatments are Cognitive Behaviour Therapy or graded exercise therapy; however, these treatments yield only moderate effect sizes. Emerging research suggests that anxiety about health may be common in CFS. Health anxiety treatment models demonstrate good therapeutic outcomes; however, these models have yet to be

	Syndrome/ME Service, Southmead Hospital, Bristol, UK.			<p>applied to CFS. This paper describes the application of a novel cognitive behavioural approach to the treatment of both physical and anxiety related symptoms in a patient with CFS and, furthermore, presents a conceptual hypothesis regarding the mutually maintaining relationship between these two co-occurring conditions. DESIGN: A single-case design was used, with pre-data, post-data and follow-up data. The cognitive behavioural model of health anxiety was adapted and delivered as an eight-session intervention. The intervention was driven by an individualized formulation developed collaboratively with the patient. RESULTS: The application of this approach generated reliable and clinically significant reductions in physical and psychological symptoms, which were maintained at 12-month follow-up. The participant no longer fulfilled the criteria for CFS or health anxiety following eight treatment sessions. The treatment approach was found to be agreeable to the patient. All treatment hypotheses were supported. CONCLUSIONS: An adapted cognitive behavioural approach to treating CFS and health anxiety yields positive results and shows promise for application to the broader CFS population. Copyright © 2016 John Wiley &amp; Sons, Ltd. KEY PRACTITIONER MESSAGES: Chronic Fatigue Syndrome (CFS) is a debilitating condition that is difficult to treat successfully; first-line recommended treatments achieve only moderate effect sizes. Anxiety, particularly about health, is reported to be common in CFS. However, anxiety is not specifically targeted within treatment and may negatively influence outcome due to the potentially mutually maintaining nature of these complex conditions. The present study demonstrates that an integrated treatment approach designed to encompass physical and psychological symptoms yields reliable and clinically significant outcomes in 50% of time recommend for first line treatments. Results reflected non-case level status for both CFS and health anxiety at end of treatment, in addition to reductions across all clinical measures. This study demonstrates the fundamental importance of an individualized, rather than generic, treatment approach to complex cases; the 'meaning' of experience is a central tenet within a cognitive approach that should be reflected in treatment.</p>
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<p><b>Dannaway J(1) , New CC(2) , New CH(1) , Maher CG(3) .</b></p>	<p>Sydney Medical School (Nepean) , The University of Sydney, Penrith, New South Wales, Australia. (2) School of Physiotherapy , Health Sciences, Australian Catholic University, Sydney, New South Wales, Australia. (3) School of Public Health, Sydney Medical School, The University of Sydney, Sydney, New South Wales, Australia.</p>	<p>Exercise therapy is a beneficial intervention for chronic fatigue syndrome (PEDro synthesis) .</p>	<p>Br J Sports Med. 2017 Oct 5. pii: bjsports-2017-098407.</p>	
<p><b>Dantoft TM(1) , Ebstrup JF(1) , Linneberg A(2) , Skovbjerg S(1) , Madsen AL(1) , Mehlsen J(3) , Brinth L(3) , Epløv LF(4) , Carstensen TW(5) ,</b></p>	<p>Research Centre for Prevention and Health, The Capital Region of Denmark, Glostrup.</p>	<p>Cohort description: The Danish study of Functional Disorders.</p>	<p>Clin Epidemiol. 2017 Feb 23;9:127-139.</p>	<p>The Danish study of Functional Disorders (DanFunD) cohort was initiated to outline the epidemiology of functional somatic syndromes (FSS) and is the first larger coordinated epidemiological study focusing exclusively on FSS. FSS are prevalent in all medical settings and can be defined as syndromes that, after appropriate medical assessment, cannot be explained in terms of a conventional medical or surgical disease. FSS are frequent and the clinical importance varies from vague symptoms to extreme disability. No</p>

<p><b>Schroder A(5) , Fink PK(5) , Mortensen EL(6) , Hansen T(7) , Pedersen O(7) , JÃ,rgensen T(8) .</b></p>				<p>well-described medical explanations exist for FSS, and how to delimit FSS remains a controversial topic. The specific aims with the cohort were to test delimitations of FSS, estimate prevalence and incidence rates, identify risk factors, delimitate the pathogenic pathways, and explore the consequences of FSS. The study population comprises a random sample of 9,656 men and women aged 18-76 years from the general population examined from 2011 to 2015. The survey comprises screening questionnaires for five types of FSS, ie, fibromyalgia, whiplash-associated disorder, multiple chemical sensitivity, irritable bowel syndrome, and chronic fatigue syndrome, and for the unifying diagnostic category of bodily distress syndrome. Additional data included a telephone-based diagnostic interview assessment for FSS, questionnaires on physical and mental health, personality traits, lifestyle, use of health care services and social factors, and a physical examination with measures of cardiorespiratory and morphological fitness, metabolic fitness, neck mobility, heart rate variability, and pain sensitivity. A biobank including serum, plasma, urine, DNA, and microbiome has been established, and central registry data from both responders and nonresponders are similarly available on morbidity, mortality, reimbursement of medicine, health care use, and social factors. A complete 5-year follow-up is scheduled to take place from year 2017 to 2020, and further reexaminations will be planned. Several projects using the DanFunD data are ongoing, and findings will be published in the coming years.</p>
<p><b>Davis NL(1) , King CC(1) , Kourtis AP(1) .</b></p>	<p>Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease</p>	<p>Cytomegalovirus infection in pregnancy.</p>	<p>Birth Defects Res. 2017 Mar 15;109(5) :336-346.</p>	<p>Cytomegalovirus (CMV) is a DNA herpesvirus that is common worldwide. The two known main sources of primary CMV infection during pregnancy are through sexual activity and contact with young children. Primary infection occurs in approximately 1 to 4% of pregnancies, and is mostly asymptomatic in immunocompetent adults. However, primary infection may manifest as a mild mononucleosis or flu-like syndrome with persistent fever and fatigue. CMV can be transmitted from mother-to-child in utero, intrapartum, or during breastfeeding. Intrauterine transmission can lead to congenital CMV infection, a leading cause of permanent hearing and vision loss and neurological disability among children. Congenital CMV transmission rates are as high as 50% in women</p>

	Control and Prevention, Atlanta, Georgia.			<p>who acquire primary CMV infection during pregnancy, and less than 2% in women with nonprimary infection. There is no licensed CMV vaccine. Good hygiene practices and avoiding intimate contact with young children (e.g., kissing on the mouth and sharing utensils) have been suggested as an approach to prevent maternal primary CMV infection during pregnancy, but remains an unproven method of reducing the risk of congenital CMV infection. Approximately 1 in 10 infants who acquire CMV in utero will have clinical signs at birth, and an additional 10 to 15% will go on to develop late-onset sequelae. Antiviral treatment prenatally and postnatally has not proven effective at preventing congenital or postnatal CMV infection, and is not recommended for routine clinical care. However, antiviral treatment when initiated in the first month of life for symptomatic congenital CMV infection is recommended for improved neurodevelopmental and audiologic outcomes. Birth Defects Research 109:336-346, 2017. © 2017 Wiley Periodicals, Inc.</p>
<p><b>De Baets S(1) , Vanhalst M(2) , Coussens M(2) , Rombaut L(3) , Malfait F(3) , Van Hove G(4) , Calders P(2) , Vanderstraeten G(5) , van de Velde D(2) .</b></p>	<p>Faculty of Medicine and Health Sciences, Department of Rehabilitation Sciences and Physiotherapy , Occupational Therapy Program. Ghent University, De Pintelaan 185, 9000 Ghent Belgium..</p>	<p>The influence of Ehlers-Danlos syndrome - hypermobility type, on motherhood: A phenomenological, hermeneutical study.</p>	<p>Res Dev Disabil. 2017 Jan;60:135-144.</p>	<p>BACKGROUND: The consequences of the Ehlers-Danlos Syndrome hypermobility type (EDS-HT) affect many aspects of daily life. "Living with limitations" is a central theme in the life of patients affected by this heritable disorder of connective tissue. The aim of the present study was to explore the lived experiences of women with EDS-HT concerning diagnosis, influence on daily life and becoming and being a mother. METHOD: A phenomenological-hermeneutical study, using in-depth interviews. Patients were selected by a purposive sampling strategy. RESULTS: This study shows that the EDS-HT syndrome affects daily life. Ten woman between 31 and 65 years were interviewed. They have between 2 and 5 children. The data analysis results in six themes. (1) Getting a diagnosis is a relief and supports the choice to become a mother; (2) EDS-HT causes emotional distress, imposes a physical burden and has a major impact on social behavior; (3) EDS-HT demands a restructuring of everyday activities; (4) Children's and mothers' expectations do not correspond; (5) Having a supportive social and physical environment is of major importance; (6) The presence of the child reduces the feeling of illness of the mother. CONCLUSION: The diagnosis of EDS-HT is a catalysing factor in the choice of whether or not to become a mother. EDS-HT has a huge impact on bodily functions, which in turn</p>

				influences activities and participation. IMPLICATIONS: This study gives insight in the activities of daily life of persons with EDS-HT. Health care professionals can be of great importance to help patients in (re) organizing their lives according to the available energy and in supporting their choices. They can help defining goals and setting priorities in daily life.
<b>De Gucht V(1) , Garcia FK(2) , den Engelsman M(2) , Maes S(2) .</b>	Leiden University, Institute of Psychology, Health, Medical and Neuropsychology Unit, The Netherlands. Electronic address: degucht@fsw.leidenuniv.nl. (2) Leiden University, Institute of Psychology, Health, Medical and Neuropsychology Unit, The Netherlands.	Do changes in illness perceptions, physical activity, and behavioural regulation influence fatigue severity and health-related outcomes in CFS patients?	J Psychosom Res. 2017 Apr;95:55-61.	OBJECTIVE: Examine to what extent changes in cognitions and changes in physical activity and behavioural regulation patterns influence fatigue severity, physical symptoms, and physical and psychological functioning of patients suffering from Chronic Fatigue Syndrome (CFS) at follow-up. METHODS: The present study is an observational longitudinal study with a 12-month follow-up. A total of 144 CFS patients participated both at baseline and at follow-up. Four separate hierarchical regression analyses were conducted with fatigue, physical symptoms, physical functioning and psychological functioning at follow-up as the dependent variables, and (changes in) illness perceptions and behavioural regulation patterns (all-or-nothing and limiting behaviour) as the independent variables. Data were collected making use of self-report questionnaires. RESULTS: Increased Consequence and Identity beliefs over time, as well as increases in all-or-nothing behaviour predicted higher fatigue severity at follow-up. Both number and severity of physical symptoms and psychological functioning at follow-up were only determined by changes in illness perceptions, with increased Consequence beliefs influencing both outcomes, and increased Timeline beliefs only determining physical symptoms. Physical functioning at follow-up was predicted by changes in illness perceptions as well as increased levels of both all-or-nothing and limiting behaviour. CONCLUSION: The findings point at a differential pattern of associations between changes in illness perceptions and behaviour regulation patterns on the one hand, and patient outcomes on the other hand. Whereas illness perceptions significantly contribute to each of the outcomes, behaviour regulation patterns contribute only to fatigue severity and physical functioning.

<p><b>de Vega WC(1) (2) , Herrera S(1) (3) , Vernon SD(4) (5) , McGowan PO(6) (7) (8) (9) .</b></p>	<p>Department of Biological Sciences, University of Toronto, Scarborough, 1265 Military Trail, Toronto, ON, M1C 1A4, Canada</p>	<p>Epigenetic modifications and glucocorticoid sensitivity in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) .</p>	<p>BMC Med Genomics. 2017 Feb 23;10(1) :11.</p>	<p>BACKGROUND: Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) is a debilitating idiopathic disease characterized by unexplained fatigue that fails to resolve with sufficient rest. Diagnosis is based on a list of symptoms and exclusion of other fatigue-related health conditions. Despite a heterogeneous patient population, immune and hypothalamic-pituitary-adrenal (HPA) axis function differences, such as enhanced negative feedback to glucocorticoids, are recurring findings in ME/CFS studies. Epigenetic modifications, such as CpG methylation, are known to regulate long-term phenotypic differences and previous work by our group found DNA methylome differences in ME/CFS, however the relationship between DNA methylome modifications, clinical and functional characteristics associated with ME/CFS has not been examined. METHODS: We examined the DNA methylome in peripheral blood mononuclear cells (PBMCs) of a larger cohort of female ME/CFS patients using the Illumina HumanMethylation450 BeadChip Array. In parallel to the DNA methylome analysis, we investigated in vitro glucocorticoid sensitivity differences by stimulating PBMCs with phytohaemagglutinin and suppressed growth with dexamethasone. We explored DNA methylation differences using bisulfite pyrosequencing and statistical permutation. Linear regression was implemented to discover epigenomic regions associated with self-reported quality of life and network analysis of gene ontology terms to biologically contextualize results. RESULTS: We detected 12,608 differentially methylated sites between ME/CFS patients and healthy controls predominantly localized to cellular metabolism genes, some of which were also related to self-reported quality of life health scores. Among ME/CFS patients, glucocorticoid sensitivity was associated with differential methylation at 13 loci. CONCLUSIONS: Our results indicate DNA methylation modifications in cellular metabolism in ME/CFS despite a heterogeneous patient population, implicating these processes in immune and HPA axis dysfunction in ME/CFS. Modifications to epigenetic loci associated with differences in glucocorticoid sensitivity may be important as biomarkers for future clinical testing. Overall, these findings align with recent ME/CFS work that point towards impairment in cellular energy production in this patient population.</p>
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<p><b>de Vega WC(1) (2) , McGowan PO(1) (2) (3) (4) .</b></p>	<p>Department of Biological Sciences, University of Toronto, Scarborough, ON, Canada. (2) Department of Cell &amp; Systems Biology, University of Toronto, Toronto, ON, Canada. (3) Department of Psychology, University of Toronto, Toronto, ON, Canada. (4) Department of Physiology, Faculty of Medicine, University of Toronto, Toronto, ON, Canada.</p>	<p>The epigenetic landscape of myalgic encephalomyelitis/chronic fatigue syndrome: deciphering complex phenotypes.</p>	<p>Epigenomics. 2017 Nov;9(11) :1337-1340.</p>	
<p><b>De Venter M(1) , Illegems J(2) , Van Royen R(2) , Moorkens G(2) , Sabbe BGC(3) , Van Den Eede F(4) .</b></p>	<p>University Psychiatric Department, Campus Antwerp University Hospital (UZA) ,</p>	<p>Differential effects of childhood trauma subtypes on fatigue and physical functioning in chronic fatigue syndrome.</p>	<p>Compr Psychiatry. 2017 Oct;78:76-82.</p>	<p>OBJECTIVE: There is wide consensus that childhood trauma plays an important role in the aetiology of chronic fatigue syndrome (CFS) . The current study examines the differential effects of childhood trauma subtypes on fatigue and physical functioning in individuals suffering from CFS. METHODS: Participants were 155 well-documented adult, predominantly female CFS patients receiving treatment at the outpatient treatment centre for CFS of the Antwerp University Hospital in Belgium. Stepwise regression analyses were</p>



	Antwerp (Edegem), Belgium;			<p>conducted with outcomes of the total score of the Checklist Individual Strength (CIS) measuring fatigue and the scores on the physical functioning subscale of the Medical Outcomes Short Form 36 Health Status Survey (SF-36) as the dependent variables, and the scores on the five subscales of the Traumatic Experiences Checklist (TEC) as the independent variables. RESULTS: The patients' fatigue (<math>\hat{\beta}=1.38</math>; <math>p=0.025</math>) and physical functioning scores (<math>\hat{\beta}=-1.79</math>; <math>p=0.034</math>) were significantly predicted by childhood sexual harassment. There were no significant effects of emotional neglect, emotional abuse, bodily threat, or sexual abuse during childhood. CONCLUSION: Of the childhood trauma subtypes investigated, sexual harassment emerged as the most important predictor of fatigue and poor physical functioning in the CFS patients assessed. These findings have to be taken into account in further clinical research and in the assessment and treatment of individuals coping with chronic fatigue syndrome.</p>
<p><b>Devendorf AR(1), Jackson CT(1), Sunnquist M(1), A Jason L(1).</b></p>	<p>a Department of Psychology, DePaul University, Chicago, IL, USA.</p>	<p>Defining and measuring recovery from myalgic encephalomyelitis and chronic fatigue syndrome: the physician perspective.</p>	<p>Disabil Rehabil. 2017 Oct 5:1-8.</p>	<p>PURPOSE: To inform an operationalised definition of recovery from myalgic encephalomyelitis (ME) and chronic fatigue syndrome (CFS) for research and practice. Without a consensus on defining and measuring recovery, there will continue to be controversy amongst researchers, clinicians, and patients when interpreting treatment outcomes. METHOD: This study explores physicians' views on recovery from ME and CFS. We conducted semi-structured interviews with 10 physician participants who are experts in the ME and CFS field. Our deductive thematic analysis, using a realist perspective, provided a framework for differentiating recovery and significant improvement. RESULTS: Physicians conceptualised recovery as complete symptom remission and a return to pre-morbid functioning (adjusted for with age), whereas they viewed significant improvement as a substantial reduction in symptoms with considerable functional gains, where patients may operate in daily life but still must cope or be treated. CONCLUSIONS: Our findings provide recommendations and approaches for measuring: daily functioning, symptomatology, quality of life, and physical functioning. Implications for rehabilitation Physicians viewed recovery as complete symptom remission and a return to pre-morbid functioning (adjusted for with age). Recovery from myalgic</p>

				encephalomyelitis and chronic fatigue syndrome should be viewed as multidimensional, considering patients' daily life, psychosocial functioning, and overall physical functioning. These findings can improve practitioner-client interactions, as they provide recommendations for measuring recovery in research and practice.
<b>Devendorf AR(1) , Jackson CT(1) , Sunnquist M(1) , Jason LA(1) .</b>	DePaul University, USA.	Approaching recovery from myalgic encephalomyelitis and chronic fatigue syndrome: Challenges to consider in research and practice.	J Health Psychol. 2017 Nov 1:135910531774219 5.	There are unique methodological challenges to studying and assessing recovery in myalgic encephalomyelitis and chronic fatigue syndrome. This study explored these challenges through interviewing 13 physicians who treat myalgic encephalomyelitis and chronic fatigue syndrome. Our deductive thematic analysis produced four themes to consider when approaching recovery: lifespan differences in the illness experience; the heterogeneity of myalgic encephalomyelitis and chronic fatigue syndrome-case definitions, etiological stance, and misdiagnosis; patient follow-up and selection bias; and assessment logistics. We discuss how researchers and clinicians can use these considerations when working with patients, drafting recovery criteria, and interpreting treatment outcomes.
<b>Di Tommaso Morrison MC(1) , Carinci F(2) , Lessiani G(3) , Spinasi E(4) , Kritas SK(5) , Ronconi G(6) , Caraffa A(7) , Conti P(8) .</b>	Salve Regina University, Newport, USA. (2) Department of Morphology, Surgery and Experimental Medicine, University of Ferrara, Ferrara, Italy. (3) Angiology Unit, Medicine and Geriatric Department, Villa Serena Hospital, Italy. (4)	Fibromyalgia and bipolar disorder: extent of comorbidity and therapeutic implications.	J Biol Regul Homeost Agents. 2017 Jan-Mar;31(1) :17-20.	Fibromyalgia (FM) is a syndrome that affects muscles and soft tissues. Presenting symptoms include chronic muscle pain, fatigue, sleep problems and psychological symptoms, including depression and anxiety. There exists strong evidence of a comorbidity between FM and Bipolar Disorder (BD) . In this study, papers from 2006 to February 2016 that examined the comorbidity and etiological similarities of FM and BD were reviewed, as well as the therapeutic implications of these findings. The reviewed articles showed that an adequate psychiatric screening for BD is recommended in FM patients with depressive symptoms, in order to decrease administration of antidepressants for BD, due to the lack of proven efficacy, and to limit antidepressant-induced mania. Alternative therapies, such as agomelatine, memantine and psychotherapeutic treatment should be considered.

	<p>Department of Surgery and Odontostomatological Sciences, University of Cagliari, Italy. (5)</p> <p>Department of Microbiology and Infectious Diseases, School of Veterinary Medicine, Aristotle University of Thessaloniki, Macedonia, Greece. (6)</p> <p>UOS Clinica dei Pazienti del Territorio, Policlinico Gemelli, Roma, Italy. (7)</p> <p>Department of Pharmacology, University of Perugia, Perugia, Italy. (8)</p> <p>Immunology Division,</p>			
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	Postgraduate Medical School, University of Chieti-Pescara, Chieti, Italy.			
<b>Dibattista M(1) , Lobasso S(1) , Stramaglia S(2) (3) , Corcelli A(1) (4) .</b>	Department of Basic Medical Sciences, Neuroscience and Sense Organs, University of Bari Aldo Moro, Bari, Italy. (2) Department of Physics, University of Bari Aldo Moro, Bari, Italy. (3) INFN, Sezione di Bari, Bari, Italy. (4) IPCF-CNR Sezione di Bari, Bari, Italy.	Assessing olfactory functions in patients with Barth syndrome.	PLoS One. 2017 Nov 3;12(11) :e0187619.	Barth syndrome is a rare X-linked disease affecting less than 200 individuals worldwide. Several comorbidities have been associated with the pathology and, among those, cardiac myopathy and neutropenia are the most life threatening. The appropriate nutritive support is important to sustain the everyday life of Barth syndrome patients given the chronic fatigue they experience. Since they often prefer salty and fried food, and avoid vegetables and fruits, their eating habit and food preferences do not always provide the proper amount of vitamins and amino acids. It has been indeed reported that Barth syndrome patients have altered taste sensitivity. As olfaction also contributes to food consumption and flavor perception, we decided to investigate their olfactory abilities using the "Sniffin' sticks' extended test". We found no significant difference in any of the tested olfactory abilities between the group of Barth syndrome patients and the healthy controls. In summary, altered food preference of Barth boys could not be easily explained with an altered olfactory perception.
<b>Dirks M(1) , Pflugrad H(1) , Haag K(1) , Tillmann HL(2) , Wedemeyer H(3) , Arvanitis D(1) , Hecker H(4) , Tountopoulou A(1) , Goldbecker</b>	Department of Neurology, Hannover Medical School, Hannover, Germany. (2)	Persistent neuropsychiatric impairment in HCV patients despite clearance of the virus?!	J Viral Hepat. 2017 Jul;24(7) :541-550.	One of the most disabling symptoms of hepatitis C virus (HCV) infection is chronic fatigue. While this is accepted for HCV polymerase chain reaction (PCR) -positive patients, a relationship between HCV infection and chronic fatigue is questioned after successful virus eradication. As fatigue is a subjective criterion, we aimed to evaluate in addition mood alterations and cognitive function in HCV-exposed patients with only mild liver disease and to

<p><b>A(1) , Worthmann H(1) , Weissenborn K(1) .</b></p>	<p>Division of Gastroenterology, Hepatology &amp; Nutrition, East Carolina University, Greenville, NC, USA. (3) Department of Gastroenterology, Hepatology and Endocrinology , Hannover Medical School, Hannover, Germany. (4) Department of Biometrics, Hannover Medical School, Hannover, Germany.</p>			<p>assess a) possible interrelationships between these factors and health-related quality of life and b) the impact of viremia and former interferon treatment. One hundred and fifty-nine anti-HCV-positive individuals without advanced liver disease answered health-related quality of life (HRQoL) , fatigue and depression questionnaires and underwent a battery of attention and memory tests. Accompanying diseases which could distort the results of the study such as HIV co-infection or drug addiction were exclusion criteria. The patients were subdivided into four groups according to their viremia status and interferon treatment history. Patients' data were evaluated with respect to norms given in the respective test manuals and in addition compared to those of 33 age-matched healthy controls. Eighty-five per cent of the patients had chronic fatigue, 50-60% mild depression or anxiety, 45% memory deficits and 30% attention deficits, irrespective of their HCV viremia status or treatment history. HRQoL correlated negatively with chronic fatigue (<math>P &lt; .001</math>) , while cognitive deficits-especially memory function-were independent from fatigue and depression. HCV infection may cause long-standing cerebral dysfunction that significantly impairs HRQoL and may even persist after clearance of the virus.</p>
<p><b>Doerr JM(1) , Jopp DS(2) , Chajewski M(2) , Nater UM(3) .</b></p>	<p>Clinical Biopsychology , Dept. of Psychology, University of Marburg, Gutenbergstrasse 18, 35032, Marburg,</p>	<p>Patterns of control beliefs in chronic fatigue syndrome: results of a population-based survey.</p>	<p>BMC Psychol. 2017 Mar 6;5(1) :6.</p>	<p>BACKGROUND: Chronic fatigue syndrome (CFS) represents a unique clinical challenge for patients and health care providers due to unclear etiology and lack of specific treatment. Characteristic patterns of behavior and cognitions might be related to how CFS patients respond to management strategies. METHODS: This study investigates control beliefs in a population-based sample of 113 CFS patients, 264 individuals with insufficient symptoms or fatigue for CFS diagnosis (ISF) , and 124 well individuals. RESULTS: Controlling for personality and coping, individuals with low confidence in their</p>

	<p>Germany. (2)  Dept. of Psychology,  Fordham University,  Dealy 318,  441 East Fordham  Road, Bronx,  NY, 10458-9993, USA. (3)  Clinical Biopsychology  , Dept. of Psychology,  University of Marburg,  Gutenbergstrasse 18, 35032,  Marburg, Germany.  urs.nater@staff.uni-marburg.de.</p>			<p>problem-solving capacity were almost 8 times more likely to be classified as ISF and 5 times more likely to be classified as CFS compared to being classified as well. However there was a wide distribution within groups and individuals with "low confidence" scores were found in 31.7% of Well individuals. Individuals with low levels of anxiety and who were more outgoing were less likely to be classified as ISF or CFS. CONCLUSIONS: These findings suggest that fostering control beliefs could be an important focus for developing behavioral management strategies in CFS and other chronic conditions.</p>
<p><b>Donnachie E(1) ,  Schneider A(2) ,  Mehring M(2) , Enck P(3) .</b></p>	<p>Department of Internal Medicine VI: Psychosomatic Medicine and Psychotherapy , University Hospital Tübingen, Germany and Institute of General</p>	<p>Incidence of irritable bowel syndrome and chronic fatigue following GI infection: a population-level study using routinely collected claims data.</p>	<p>Gut. 2017 Jun 10. pii: gutjnl-2017-313713.</p>	<p>OBJECTIVES: To investigate the occurrence of postinfectious IBS in routine outpatient care, comparing different types of GI infection and its interaction with psychosomatic comorbidity. DESIGN: Retrospective cohort study using routinely collected claims data covering statutorily insured patients in Bavaria, Germany. Cases were defined as patients without prior record of functional intestinal disorder with a first-time diagnosis of GI infection between January 2005 and December 2013 and classed according to the type of infection. Each case was matched by age, sex and district of residence to a patient without history of GI infection. Prior psychological disorder (depression, anxiety or stress reaction disorder) was assessed in the 2 years prior to inclusion. Proportional hazards regression models were used to estimate the</p>

	<p>Practice, Klinikum rechts der Isar, Technische Universität München, Munich, Germany. (2)</p> <p>Institute of General Practice, Klinikum rechts der Isar, Technische Universität München, Munich, Germany. (3)</p> <p>Department of Internal Medicine VI: Psychosomatic Medicine and Psychotherapy, University Hospital Tübingen, Tübingen, Germany.</p>			<p>HRs for GI infection and psychological disorder. Chronic fatigue syndrome (CFS) was assessed as a comparator outcome. RESULTS: A total of 508%278 patients with first diagnosis of GI infection were identified, resulting in a matched cohort of 1 016 556 patients. All infection types were associated with an increased risk of IBS (HR: 2.19-4.25) and CFS (HR 1.35-1.82) . Prior psychological disorder was a distinct risk factor for IBS (HR: 1.73) and CFS (HR: 2.08) . Female sex was a further risk factor for both conditions. CONCLUSION: Psychological disorder and GI infections are distinct risk factors for IBS. The high incidence of non-specific GI infection suggests that postinfectious IBS is a common clinical occurrence in primary care. Chronic fatigue is a further significant sequela of GI infection.</p>
<p><b>Dunstan RH(1) , Sparkes DL(2) , Dascombe BJ(3) , Stevens CJ(4) , Murphy GR(2) ,</b></p>	<p>University of Newcastle, Callaghan, NSW, 2308, Australia.</p>	<p>Sex differences in amino acids lost via sweating could lead to differential susceptibilities to disturbances in nitrogen balance and collagen turnover.</p>	<p>Amino Acids. 2017 Aug;49(8) :1337-1345.</p>	<p>Fluid collected during sweating is enriched with amino acids derived from the skin's natural moisturising factors and has been termed "faux" sweat. Little is known about sex differences in sweat amino acid composition or whether faux sweat amino acid losses affect nitrogen balance. Faux sweat collected by healthy adults (n = 47)</p>

<p><b>Macdonald MM(2) , Gottfries J(5) , Gottfries CG(6) , Roberts TK(2) .</b></p>	<p>hugh.dunstan@newcastle.edu.au. (2) University of Newcastle, Callaghan, NSW, 2308, Australia. (3) Latrobe University, Melbourne, VIC, 3086, Australia. (4) Southern Cross University, Coffs Harbour, NSW, 2450, Australia. (5) University of Gothenburg, Box 100, 405 30, Gothenburg, Sweden. (6) Gottfries Clinic, Malmö, Sweden.</p>			<p>after exercise, and at rest by chronic fatigue patients, was analysed for amino acid composition. Healthy females had higher total amino acid concentrations in sweat (10.5 <math>\pm</math> 1.2 mM) compared with healthy males (6.9 <math>\pm</math> 0.9 mM) . Females had higher levels of 13 amino acids in sweat including serine, alanine and glycine. Higher hydroxyproline and proline levels suggested greater collagen turnover in females. Modelling indicated that with conservative levels of exercise, amino acid losses in females via faux sweat were triple than those predicted for urine, whereas in males they were double. It was concluded that females were more susceptible to key amino acid loss during exercise and/or hot conditions. Females reporting chronic fatigue had higher levels of methionine in faux sweat than healthy females. Males reporting chronic fatigue had higher levels of numerous amino acids in faux sweat compared to healthy males. Higher amino acid loss in faux sweat associated with chronic fatigue could contribute to a hypometabolic state. Depending on activity levels, climatic conditions and gender, amino acid losses in sweat and skin leachate could influence daily protein turnover where periods of continuously high turnover could lead to a negative net nitrogen balance.</p>
<p><b>Earl KE(1) , Sakellariou GK(1) (2) , Sinclair M(1) , Fenech M(1) (3) , Croden F(4) , Owens DJ(5) , Tang J(6) , Miller A(3) , Lawton C(4) , Dye L(4) , Close GL(5) ,</b></p>	<p>Department of Musculoskeletal Biology, Institute of Ageing and Chronic Disease, MRC-</p>	<p>Vitamin D status in chronic fatigue syndrome/myalgic encephalomyelitis: a cohort study from the North-West of England.</p>	<p>BMJ Open. 2017 Nov 8;7(11) :e015296.</p>	<p>OBJECTIVE: Severe vitamin D deficiency is a recognised cause of skeletal muscle fatigue and myopathy. The aim of this study was to examine whether chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) is associated with altered circulating vitamin D metabolites. DESIGN: Cohort study. SETTING: UK university hospital, recruiting from April 2014 to April 2015. PARTICIPANTS: Ninety-two patients with CFS/ME and 94 age-matched healthy controls (HCs) . MAIN OUTCOME MEASURES:</p>



<p><b>Fraser WD(6) , McArdle A(1) , Beadsworth MBJ(1) (3) .</b></p>	<p>Arthritis Research UK Centre for Integrated Research into Musculoskeletal Ageing, University of Liverpool, Liverpool, UK.</p>			<p>The presence of a significant association between CFS/ME, fatigue and vitamin D measures. RESULTS: No evidence of a deficiency in serum total 25(OH) vitamin D (25(OH) D2 and 25(OH) D3 metabolites) was evident in individuals with CFS/ME. Liquid chromatography tandem mass spectrometry (LC-MS/MS) analysis revealed that total 25(OH) D was significantly higher (<math>p=0.001</math>) in serum of patients with CFS/ME compared with HCs (60.2 and 47.3â€‰nmol/L, respectively) . Analysis of food/supplement diaries with WinDiets revealed that the higher total 25(OH) vitamin D concentrations observed in the CFS/ME group were associated with increased vitamin D intake through use of supplements compared with the control group. Analysis of Chalder Fatigue Questionnaire data revealed no association between perceived fatigue and vitamin D levels. CONCLUSIONS: Low serum concentrations of total 25(OH) D do not appear to be a contributing factor to the level of fatigue of CFS/ME.</p>
<p><b>Edwards J(1) .</b></p>	<p>University College London, UK.</p>	<p>PACE team response shows a disregard for the principles of science.</p>	<p>J Health Psychol. 2017 Aug;22(9) :1155-1158.</p>	<p>The PACE trial of cognitive behavioural therapy and graded exercise therapy for chronic fatigue syndrome/myalgic encephalomyelitis has raised serious questions about research methodology. An editorial article by Geraghty gives a fair account of the problems involved, if anything understating the case. The response by White et al. fails to address the key design flaw, of an unblinded study with subjective outcome measures, apparently demonstrating a lack of understanding of basic trial design requirements. The failure of the academic community to recognise the weakness of trials of this type suggests that a major overhaul of quality control is needed.</p>
<p><b>Engl T(1) , Drescher D(1) , BickelÄ¶ller R(1) , Grabhorn R(2) .</b></p>	<p>Department of Urology, Goethe University, Frankfurt am Main, Germany. (2) Department of Psychiatry, Goethe University,</p>	<p>Fatigue, depression, and quality of life in patients with prostatic diseases.</p>	<p>Cent European J Urol. 2017;70(1) :44-47.</p>	<p>INTRODUCTION: Fatigue and depression are commonly attributed to malignant and chronic benign diseases. However, these phenomena have been little investigated to date in prostatic diseases. Our aim was to compare fatigue and depression in prostate cancer patients treated with Androgen Deprivation Therapy (ADT) and in patients with Lower Urinary Tract Symptoms (LUTS) / Benign Prostatic Syndrome. MATERIAL AND METHODS: 100 patients each with PCa (prostate cancer) and BPS (Benign Prostatic Syndrome) were surveyed using the Brief Fatigue Inventory (BFI) , EORTC-QLQ C30 [1], and Beck Depression Inventory (BDI) . EORTC-QLQ-C30 was analyzed by the Mann-Whitney-U-Test. Results were analyzed using the</p>

	Frankfurt am Main, Germany.			MWUT, CST and ST. RESULTS: No differences were found between both groups in terms of fatigue (BFI) . The prostate cancer group showed a significantly higher impairment in the EORTC-QLQ-C30 role function and fatigue score. We found differences on the BDI in regards to self-criticism with higher mean scores for LUTS patients, whereas loss of energy and loss of sexual interest were more relevant in prostate cancer patients. However, the overall mean score of both groups showed no difference. CONCLUSIONS: This study compared fatigue, depression, and the quality of life in prostate cancer patients treated with ADT and patients with BPS/LUTS. The two groups do not differ in fatigue and depression levels.
<b>Eriksen W(1) .</b>	Domain for Mental and Physical Health, Norwegian Institute of Public Health, Box 4404 Nydalen, 0403 Oslo, Norway. Electronic address: w-bjarer@online.no.	The spread of EBV to ectopic lymphoid aggregates may be the final common pathway in the pathogenesis of ME/CFS.	Med Hypotheses. 2017 May;102:8-15.	According to the hypothesis presented here, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) develops over 3 steps: Step 1 is characterized by the aggregation of lymphoid cells in dorsal root ganglia or other nervous structures. The cause of this formation of ectopic lymphoid aggregates may be an acute infection, asymptomatic reactivations of a common neurotropic virus, exposure to a neurotoxin, or physical injury to peripheral nerves. In step 2, Epstein-Barr virus (EBV) -infected lymphocytes or monocytes bring EBV from the circulation to one or several of these lymphoid aggregates, whereupon cell-to-cell transmission of EBV and proliferation of latently EBV-infected lymphocytes lead to the presence of many EBV-infected cells in the lymphoid aggregates. The EBV-infected cells in the aggregates ignite an inflammation in the surrounding nervous tissue. This local inflammation elicits, in turn, a wave of glial cell activation that spreads from the EBV-infected area to parts of the nervous system that are not EBV-infected, disturbing the neuron-glial interaction in both the peripheral - and central nervous system. In step 3, immune cell exhaustion contributes to a consolidation of the pathological processes. There might be a cure: Infusions of autologous EBV-specific T-lymphocytes can perhaps remove the EBV-infected cells from the nervous system.
<b>Fallon N(1) , Chiu Y(2) , Nurmikko T(3) (4) , Stancak A(1) .</b>	Department Psychological Sciences, Institute of	Altered theta oscillations in resting EEG of fibromyalgia syndrome patients.	Eur J Pain. 2018 Jan;22(1) :49-57.	BACKGROUND: Fibromyalgia syndrome (FM) is a chronic pain disorder characterized by widespread pain, sleep disturbance, fatigue and cognitive/affective symptoms. Functional imaging studies have revealed that FM and other chronic pain syndromes can

	<p>Psychology, Health, and Society, University of Liverpool, UK. (2) Wirral University Teaching Hospital NHS Foundation Trust, UK. (3) Pain Research Institute, Institute of Ageing and Chronic Disease, University of Liverpool, UK. (4) The Walton Centre NHS Foundation Trust, Liverpool, UK.</p>			<p>affect resting brain activity. This study utilized electroencephalographic (EEG) recordings to investigate the relative power of ongoing oscillatory activity in the resting brain. METHODS: A 64-channel EEG was recorded at rest in 19 female FM patients and 18 healthy, age-matched, control subjects. The Manual Tender Point Scale (MTPS) examination was performed to quantify tonic pain and tenderness on the day of testing along with measures of mood, arousal and fatigue. Oscillations in delta, theta, alpha, beta and gamma frequency bands were analysed using Standardised Low-Resolution Brain Electromagnetic Tomography to evaluate sources of spectral activity throughout the whole brain. RESULTS: FM patients exhibited greater pain, tiredness and tension on the day of testing relative to healthy control participants and augmented theta activity in prefrontal and anterior cingulate cortices. No significant differences were seen in other frequency bands. Augmented frontal theta activity in FM patients significantly correlated with measures of tenderness and mean tiredness scores. CONCLUSIONS: The findings indicate that alterations to resting-state oscillatory activity may relate to ongoing tonic pain and fatigue in FM, and manifest in brain regions relevant for cognitive-attentional aspects of pain processing and endogenous pain inhibition. Enhanced low-frequency oscillations were previously seen in FM and other chronic pain syndromes, and may relate to pathophysiological mechanisms for ongoing pain such as thalamocortical dysrhythmia. SIGNIFICANCE: Increased prefrontal theta activity may contribute to persistent pain in fibromyalgia or represent the outcome of prolonged symptoms. The findings point to the potential for therapeutic interventions aimed at normalizing neural oscillations, while further research utilizing quantitative analysis of resting EEG could benefit our understanding of fibromyalgia pathophysiology.</p>
<p><b>Favero G(1) , Trapletti V(2) , Bonomini F(3) (4) , Stacchiotti A(5) (6) , Lavazza A(7) , Rodella LF(8) (9) , Rezzani R(10) (11) .</b></p>	<p>Anatomy and Physiopathology Division, Department of Clinical and Experimental Sciences,</p>	<p>Oral Supplementation of Melatonin Protects against Fibromyalgia-Related Skeletal Muscle Alterations in Reserpine-Induced Myalgia Rats.</p>	<p>Int J Mol Sci. 2017 Jun 29;18(7) . pii: E1389.</p>	<p>Fibromyalgia is a chronic syndrome characterized by widespread musculoskeletal pain and an extensive array of other symptoms including disordered sleep, fatigue, depression and anxiety. Important factors involved in the pathogenic process of fibromyalgia are inflammation and oxidative stress, suggesting that anti-inflammatory and/or antioxidant supplementation might be effective in the management and modulation of this syndrome.</p>

	<p>University of Brescia, Viale Europa 11, 25123 Brescia, Italy. gaia.favero@u nibs.it. (2) Anatomy and Physiopatholo gy Division, Department of Clinical and Experimental Sciences, University of Brescia, Viale Europa 11, 25123 Brescia, Italy. segreteria.ana tomia@unibs.i t. (3) Anatomy and Physiopatholo gy Division, Department of Clinical and Experimental Sciences, University of Brescia, Viale Europa 11, 25123 Brescia, Italy. francesca.bon omini@unibs.i t. (4)</p>			<p>Recent evidence suggests that melatonin may be suitable for this purpose due to its well known ant-inflammatory, antioxidant and analgesic effects. Thus, in the current study, the effects of the oral supplementation of melatonin against fibromyalgia-related skeletal muscle alterations were evaluated. In detail, 90 Sprague Dawley rats were randomly treated with reserpine, to reproduce the pathogenic process of fibromyalgia and thereafter they received melatonin. The animals treated with reserpine showed moderate alterations at hind limb skeletal muscles level and had difficulty in moving, together with significant morphological and ultrastructural alterations and expression of inflammatory and oxidative stress markers in the gastrocnemius muscle. Interestingly, melatonin, dose and/or time dependently, reduced the difficulties in spontaneous motor activity and the musculoskeletal morphostructural, inflammatory, and oxidative stress alterations. This study suggests that melatonin in vivo may be an effective tool in the management of fibromyalgia-related musculoskeletal morphofunctional damage.</p>
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<b>Feiring B(1) , Laake I(2) , Bakken IJ(3) , Greve-Isdahl M(4) , Wyller VB(5) , HÅberg SE(6) , Magnus P(7) , Trogstad L(8) .</b>	Department of Infectious Disease Epidemiology and Modelling, Norwegian Institute of Public Health, PO Box 4404 Nydalen, 0403 Oslo, Norway.	HPV vaccination and risk of chronic fatigue syndrome/myalgic encephalomyelitis: A nationwide register-based study from Norway.	Vaccine. 2017 Jul 24;35(33) :4203-4212.	BACKGROUND: Vaccination has been suggested to be involved in the aetiology of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) . HPV vaccine was introduced in the Norwegian Childhood Immunisation Programme and offered 12year old girls from 2009. We studied the association between HPV vaccination and risk of CFS/ME and also assessed medical history in relation to both risk of CFS/ME and HPV vaccine uptake. METHODS: Individual data from national registries, including the Norwegian Population Registry, the Norwegian Patient Registry and the Norwegian Immunisation Registry were linked using the unique personal identification number. Yearly incidence rates of CFS/ME for 2009-2014 were calculated among the 824,133 boys and girls, aged 10-17 living in Norway during these 6years. A total of 176,453 girls born 1997-2002 were eligible for HPV vaccination and included in further analyses. Hazard ratios (HRs) of CFS/ME were estimated using Cox regression. Risk differences (RDs) of vaccine uptake were estimated with binomial regression. RESULTS: A similar yearly increase in incidence rate of CFS/ME was observed among girls and boys, IRR=1.15 (95% confidence interval (CI) 1.10-1.19) and 1.15 (95% CI 1.09-1.22) , respectively. HPV vaccination was not associated with CFS/ME, HR=0.86 (95% CI 0.69-1.08) for the entire follow-up period and 0.96 (95% CI 0.64-1.43) for the first two years after vaccination. The risk of CFS/ME increased with increasing number of previous hospital contacts, HR=5.23 (95% CI 3.66-7.49) for 7 or more contacts as compared to no contacts. Girls with 7 or more hospital contacts were less likely to be vaccinated than girls with no previous hospital contacts, RD=-5.5% (95% CI -6.7% to -4.2%) . CONCLUSIONS: No indication of increased risk of CFS/ME following HPV vaccination was observed among girls in the first 6 birth cohorts offered HPV vaccine through the national immunisation programme in Norway.



<p><b>Feiring B(1) , Laake I(2) , Trogstad L(3) .</b></p>	<p>Norwegian Institute of Public Health, Oslo, Norway. Electronic address: berit.feiring@fhi.no. (2) Norwegian Institute of Public Health, Oslo, Norway. Electronic address: ida.laake@fhi.no. (3) Norwegian Institute of Public Health, Oslo, Norway. Electronic address: lill.trogstad@fhi.no.</p>	<p>No conflicting results in the article "HPV vaccination and risk of chronic fatigue syndrome/myalgic encephalomyelitis: A nationwide register-based study from Norway".</p>	<p>Vaccine. 2017 Dec 18;35(51) :7082-7083.</p>	
<p><b>Fernández Martín MT(1) , Álvarez López JC(2) .</b></p>	<p>Servicio de Anestesiología y Reanimación, Hospital de Medina del Campo, Medina del Campo, Valladolid, España. Electronic address:</p>	<p>Sevoflurane anaesthesia for nasal surgery in a patient with multiple chemical sensitivity. [Article in English, Spanish]</p>	<p>Rev Esp Anestesiología Reanim. 2018 Jan;65(1) :49-52.</p>	<p>Multiple chemical sensitivity syndrome is a group of complex disorders that include psychiatric disorders, chronic fatigue and/or respiratory problems. This syndrome could be triggered by specific allergens and toxins that cause neurophysiological sensitization and the appearance of the clinical symptomatology. Anaesthesia for these patients always poses a challenge for the anaesthetist, because they need to find and use drugs that do not trigger or aggravate the symptoms of the disease. Therefore, sevoflurane in these circumstances might be "the ideal anaesthetic". Performing general anaesthesia with sevoflurane as the sole anaesthetic agent, together with a series of environmental measures formed the basis for successful anaesthesia and surgery in our patient with a multiple chemical sensitivity syndrome.</p>

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<p><b>Ferrar KE(1) , Smith AE(1) , Davison K(1) .</b></p>	<p>Alliance for Research in Exercise, Nutrition and Activity, School of Health Sciences, University of South Australia, Adelaide, Australia.</p>	<p>Pacing, Conventional Physical Activity and Active Video Games to Increase Physical Activity for Adults with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Protocol for a Pilot Randomized Controlled Trial.</p>	<p>JMIR Res Protoc. 2017 Aug 1;6(8):e117.</p>	<p>BACKGROUND: Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is a serious illness of biological origin characterized by profound physical and cognitive exhaustion and postexertion malaise. Pacing is a common strategy used to manage available energy and complete activities of daily living; yet little research has investigated this as a strategy to increase physical activity levels. Typically, people living with ME/CFS are faced by unique barriers to physical activity participation and are less physically active than healthy peers. As such they are at increased risk of physical inactivity-related health consequences. Active video games may be a feasible and acceptable avenue to deliver physical activity intervention by overcoming many of the reported barriers to participation. OBJECTIVE: The primary objective of this pilot study is to determine the feasibility and acceptability of active video games to increase physical activity levels of people with ME/CFS. The secondary aims are to explore the preliminary effectiveness of pacing and active video gaming to pacing alone and pacing plus conventional physical activity to increase the physical activity levels of adults with ME/CFS and explore the relationship between physical activity and cumulative inflammatory load (allostatic load) . METHODS: This study will use a mixed method design, with a 3-arm pilot randomized controlled trial, exit interviews, and collection of feasibility and process data. A total of 30 adults with ME/CFS will be randomized to receive either (1) pacing, (2) pacing and</p>

				<p>conventional physical activity, or (3) pacing and active video gaming. The intervention duration will be 6 months, and participants will be followed up for 6 months postintervention completion. The intervention will be conducted in the participant's home, and activity intensity will be determined by continuously monitored heart rate and ratings of perceived exertion. Feasibility and acceptability and process data will be collected during and at the end of the intervention. Health-related outcomes (eg, physical activity, blood samples, quality of life, and functioning) will be collected at baseline, end of intervention, and 6 months after intervention completion. RESULTS: This protocol was developed after 6 months of extensive stakeholder and community consultation. Enrollment began in January 2017; as of publication, 12 participants were enrolled. Baseline testing is scheduled to commence in mid-2017. CONCLUSIONS: This pilot study will provide essential feasibility and acceptability data which will guide the use of active video games for people with ME/CFS to increase their physical activity levels. Physical activity promotion in this clinical population has been poorly and under-researched, and any exploration of alternative physical activity options for this population is much needed.</p>
<p><b>Ferrero K(1) , Silver M(1) , Cocchetto A(2) , Masliah E(3) , Langford D(1) .</b></p>	<p>Lewis Katz School of Medicine at Temple University, Philadelphia, Pennsylvania, USA. (2) State University of New York at Alfred, Engineering Technologies, Alfred, New York, USA. (3) University of</p>	<p>CNS findings in chronic fatigue syndrome and a neuropathological case report.</p>	<p>J Investig Med. 2017 Aug;65(6) :974-983.</p>	<p>Chronic fatigue syndrome (CFS) is characterized as a persistent, debilitating complex disorder of unknown etiology, whereby patients suffer from extreme fatigue, which often presents with symptoms that include chronic pain, depression, weakness, mood disturbances, and neuropsychological impairment. In this mini review and case report, we address central nervous system (CNS) involvement of CFS and present neuropathological autopsy findings from a patient who died with a prior diagnosis of CFS. Among the most remarkable pathological features of the case are focal areas of white matter loss, neurite beading, and neuritic pathology of axons in the white matter with axonal spheroids. Atypical neurons displaying aberrant sprouting processes in response to injury are observed throughout cortical gray and white matter. Abundant amyloid deposits identical to AD plaques with accompanying intracellular granular structures are observed as well. Neurofibrillary tangles are also present in the white matter of the frontal cortex, thalamus and basal ganglia. Taken</p>

	California San Diego, La Jolla, California, USA.			together, these neuropathological findings warrant further studies into CNS disease associated with CFS.
<b>Finkelmeyer A(1) , He J(2) , Maclachlan L(3) , Watson S(1) , Gallagher P(1) , Newton JL(4) , Blamire AM(5) .</b>	Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, England, UK. (2) Aberdeen Biomedical Imaging Centre, University of Aberdeen, Scotland, UK. (3) Department of Public Health and Community Medicine, G�teborgs Universitet, G�teborg, Sweden. (4) Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, England, UK. (5) Newcastle	Grey and white matter differences in Chronic Fatigue Syndrome - A voxel-based morphometry study.	Neuroimage Clin. 2017 Sep 28;17:24-30.	OBJECTIVE: Investigate global and regional grey and white matter volumes in patients with Chronic Fatigue Syndrome (CFS) using magnetic resonance imaging (MRI) and recent voxel-based morphometry (VBM) methods. METHODS: Forty-two patients with CFS and thirty healthy volunteers were scanned on a 3-Tesla MRI scanner. Anatomical MRI scans were segmented, normalized and submitted to a VBM analysis using randomisation methods. Group differences were identified in overall segment volumes and voxel-wise in spatially normalized grey matter (GM) and white matter (WM) segments. RESULTS: Accounting for total intracranial volume, patients had larger GM volume and lower WM volume. The voxel-wise analysis showed increased GM volume in several structures including the amygdala and insula in the patient group. Reductions in WM volume in the patient group were seen primarily in the midbrain, pons and right temporal lobe. CONCLUSION: Elevated GM volume in CFS is seen in areas related to processing of interoceptive signals and stress. Reduced WM volume in the patient group partially supports earlier findings of WM abnormalities in regions of the midbrain and brainstem.

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<b>Gasperi M(1) , Krieger JN(2) , Forsberg C(3) , Goldberg J(4) , Buchwald D(5) , Afari N(6) .</b>	Department of Psychiatry, University of California, San Diego, San Diego, CA, USA; VA Center of Excellence for Stress and Mental Health, San Diego, CA, USA	Chronic prostatitis and comorbid non-uological overlapping pain conditions: A co-twin control study.	J Psychosom Res. 2017 Nov;102:29-33.	OBJECTIVES: Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is characterized by pain and voiding symptoms in the absence of an obvious infection or other cause. CP/CPPS frequently occurs with non-uological chronic overlapping pain conditions (COPCs) of unknown etiology. We conducted a co-twin control study in men discordant for chronic prostatitis (CP) , an overarching diagnosis of which approximately 90% is CP/CPPS. The primary aim was to investigate the contribution of familial factors, including shared genetic and common environmental factors, to the comorbidity of CP and COPCs. METHODS: Data from 6824 male twins in the Vietnam Era Twin Registry were examined to evaluate the association between self-reported lifetime physician diagnosis of CP with COPCs including fibromyalgia, chronic fatigue syndrome, irritable bowel syndrome, temporomandibular disorder, tension headaches, and migraine headaches. Random effects logistic regression models were used and within-pair analyses evaluated confounding effects of familial factors on the associations. RESULTS: There were significant associations between CP and all 6 examined COPCs. After adjusting for shared familial influences in within twin pair analyses, the associations for all COPCs diminished but remained significant. Familial confounding was strongest for the association of CP with fibromyalgia and temporomandibular disorder and smallest for irritable bowel syndrome. CONCLUSIONS: CP and COPCs are highly comorbid. These associations can be partially explained by familial factors. The mechanisms underlying these relationships are likely diverse and multifactorial. Future longitudinal research can help to further elucidate specific genetic and environmental mechanisms and determine potentially causal relationships between CP and its comorbidities.

<p><b>Gelonch O(1) (2) , Garolera M(2) (3) , Valls J(4) , RossellÀ³ L(5) , PifarrÀ© J(4) (6) (7) .</b></p>	<p>Department of Medicine , Universitat de Lleida , Lleida , Spain.</p>	<p>Cognitive complaints in women with fibromyalgia: Are they due to depression or to objective cognitive dysfunction?</p>	<p>J Clin Exp Neuropsychol. 2017 Dec;39(10) :1013- 1025.</p>	<p>INTRODUCTION: Cognitive complaints are common in fibromyalgia, but it is unclear whether they represent an objective cognitive dysfunction or whether they could be explained by depressive symptoms. Here, we aim to elucidate the frequency of subjective cognitive complaints in a sample of women with fibromyalgia, in addition to analyzing associations between these subjective complaints and objective measures linked to the attention and executive cognitive domains. Finally, we aim to investigate the ability of demographic, clinical, and psychological variables to explain the subjective complaints observed. METHOD: One hundred and five women aged 30-55 years diagnosed with fibromyalgia completed a neuropsychological assessment, which included measures of attention and executive functions. They also completed self-report inventories of subjective cognitive complaints, depression, anxiety, intensity of pain, sleep quality, everyday physical functioning, and quality of life. RESULTS: Eighty-four percent of the patients reported subjective cognitive complaints. Depression scores, everyday physical functioning, and working memory performance were most strongly associated with subjective cognitive complaints. These three variables were significant predictors for subjective cognitive complaints with a final model explaining 32% of the variance. CONCLUSIONS: Cognitive complaints are very frequent in patients with fibromyalgia, and these are related to functional and cognitive impairment as well as to depressive symptoms.</p>
<p><b>Geoffroy PA(1) , Micoulaud Franchi JA(2) , Lopez R(3) , Poirot I(4) , Brion A(5) , Royant-Parola S(6) , Etain B(7) .</b></p>	<p>U1144, case 15, facultÀ© de pharmacie, Inserm, 4, avenue de l'Observatoire, 75006 Paris, France;</p>	<p>[How to characterize and treat sleep complaints in bipolar disorders?] [Article in French]</p>	<p>Encephale. 2017 Aug;43(4) :363-373.</p>	<p>OBJECTIVES: Sleep complaints are very common in bipolar disorders (BD) both during acute phases (manic and depressive episodes) and remission (about 80À % of patients with remitted BD have poor sleep quality) . Sleep complaints during remission are of particular importance since they are associated with more mood relapses and worse outcomes. In this context, this review discusses the characterization and treatment of sleep complaints in BD. METHODS: We examined the international scientific literature in June 2016 and performed a literature search with PubMed electronic database using the following headings: "bipolar disorder" and ("sleep" or "insomnia" or "hypersomnia" or "circadian" or "apnoea" or "apnea" or "restless legs") . RESULTS: Patients with BD suffer from sleep and circadian rhythm abnormalities during major depressive episodes</p>

				<p>(insomnia or hypersomnia, nightmares, nocturnal and/or early awakenings, non-restorative sleep) and manic episodes (insomnia, decreased need for sleep without fatigue) , but also some of these abnormalities may persist during remission. These remission phases are characterized by a reduced quality and quantity of sleep, with a longer sleep duration, increased sleep latency, a lengthening of the wake time after sleep onset (WASO) , a decrease of sleep efficiency, and greater variability in sleep/wake rhythms. Patients also present frequent sleep comorbidities: chronic insomnia, sleepiness, sleep phase delay syndrome, obstructive sleep apnea/hypopnea syndrome (OSAHS) , and restless legs syndrome (RLS) . These disorders are insufficiently diagnosed and treated whereas they are associated with mood relapses, treatment resistance, affect cognitive global functioning, reduce the quality of life, and contribute to weight gain or metabolic syndrome. Sleep and circadian rhythm abnormalities have been also associated with suicidal behaviors. Therefore, a clinical exploration with characterization of these abnormalities and disorders is essential. This exploration should be helped by questionnaires and documented on sleep diaries or even actimetric objective measures. Explorations such as ventilatory polygraphy, polysomnography or a more comprehensive assessment in a sleep laboratory may be required to complete the diagnostic assessment. Treatments obviously depend on the cause identified through assessment procedures. Treatment of chronic insomnia is primarily based on non-drug techniques (by restructuring behavior and sleep patterns) , on psychotherapy (cognitive behavioral therapy for insomnia [CBT-I]; relaxation; interpersonal and social rhythm therapy [IPSRT]; etc.) , and if necessary with hypnotics during less than four weeks. Specific treatments are needed in phase delay syndrome, OSAHS, or other more rare sleep disorders. CONCLUSIONS: BD are defined by several sleep and circadian rhythm abnormalities during all phases of the disorder. These abnormalities and disorders, especially during remitted phases, should be characterized and diagnosed to reduce mood relapses, treatment resistance and improve BD outcomes.</p>
<b>Geraghty K(1) , Hann M(1) , Kurtev S(2) .</b>	1 The University of	Myalgic encephalomyelitis/chronic	J Health Psychol. 2017 Aug	Cognitive behavioural therapy and graded exercise therapy are promoted as evidence-based treatments for myalgic

	Manchester, UK. (2) 2 Coventry University, UK.	fatigue syndrome patients' reports of symptom changes following cognitive behavioural therapy, graded exercise therapy and pacing treatments: Analysis of a primary survey compared with secondary surveys.	1:135910531772615 2.	encephalomyelitis/chronic fatigue syndrome. This article explores patients' symptom responses following these treatments versus pacing therapy, an approach favoured by many sufferers. We analyse data from a large cross-sectional patient survey ( nâ€‰=â€‰1428) and compare our findings with those from comparable patient surveys ( nâ€‰=â€‰16,665) , using a mix of descriptive statistics and regression analysis modelling. Findings from analysis of primary and secondary surveys suggest that cognitive behavioural therapy is of benefit to a small percentage of patients (8%-35%) , graded exercise therapy brings about large negative responses in patients (54%-74%) , while pacing is the most favoured treatment with the lowest negative response rate and the highest reported benefit (44%-82%) .
<b>Geraghty KJ(1) .</b>	The University of Manchester, UK.	Further commentary on the PACE trial: Biased methods and unreliable outcomes.	J Health Psychol. 2017 Aug;22(9) :1209-1216.	Geraghty in the year 2016, outlines a range of controversies surrounding publication of results from the PACE trial and discusses a freedom of information case brought by a patient refused access to data from the trial. The PACE authors offer a response, writing 'Dr Geraghty's views are based on misunderstandings and misrepresentations of the PACE trial'. This article draws on expert commentaries to further detail the critical methodological failures and biases identified in the PACE trial, which undermine the reliability and credibility of the major findings to emerge from this trial.
<b>Geraghty KJ(1) .</b>	The University of Manchester, UK.	'PACE-Gate': When clinical trial evidence meets open data access.	J Health Psychol. 2017 Aug;22(9) :1106-1112.	Science is not always plain sailing and sometimes the voyage is across an angry sea. A recent clinical trial of treatments for chronic fatigue syndrome (the PACE trial) has whipped up a storm of controversy. Patients claim the lead authors overstated the effectiveness of cognitive behavioural therapy and graded exercise therapy by lowering the thresholds they used to determine improvement. In this extraordinary case, patients discovered that the treatments tested had much lower efficacy after an information tribunal ordered the release of data from the PACE trial to a patient who had requested access using a freedom of information request.
<b>Germain A(1) , Ruppert D(2) , Levine SM(1) , Hanson MR(1) .</b>	Department of Molecular Biology and Genetics,	Metabolic profiling of a myalgic encephalomyelitis/chronic fatigue syndrome discovery	Mol Biosyst. 2017 Jan 31;13(2) :371-379.	Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) remains a continuum spectrum disease without biomarkers or simple objective tests, and therefore relies on a diagnosis from a set of symptoms to link the assortment of brain and body disorders to



	<p>Cornell University, Ithaca, NY 14853, USA. mrh5@cornell.edu. (2)  Department of Statistical Science and School of Operations Research and Information Engineering, Cornell University, Ithaca, NY 14853, USA.</p>	<p>cohort reveals disturbances in fatty acid and lipid metabolism.</p>		<p>ME/CFS. Although recent studies show various affected pathways, the underlying basis of ME/CFS has yet to be established. In this pilot study, we compare plasma metabolic signatures in a discovery cohort, 17 patients and 15 matched controls, and explore potential metabolic perturbations as the aftermath of the complex interactions between genes, transcripts and proteins. This approach to examine the complex array of symptoms and underlying foundation of ME/CFS revealed 74 differentially accumulating metabolites, out of 361 (<math>P &lt; 0.05</math>), and 35 significantly altered after statistical correction (<math>Q &lt; 0.15</math>). The latter list includes several essential energy-related compounds which could theoretically be linked to the general lack of energy observed in ME/CFS patients. Pathway analysis points to a few pathways with high impact and therefore potential disturbances in patients, mainly taurine metabolism and glycerophospholipid metabolism, combined with primary bile acid metabolism, as well as glyoxylate and dicarboxylate metabolism and a few other pathways, all involved broadly in fatty acid metabolism. Purines, including ADP and ATP, pyrimidines and several amino acid metabolic pathways were found to be significantly disturbed. Finally, glucose and oxaloacetate were two main metabolites affected that have a major effect on sugar and energy levels. Our work provides a prospective path for diagnosis and understanding of the underlying mechanisms of ME/CFS.</p>
<p><b>Germain L(1),  Malcmacher L(2).</b></p>	<p>Faculty, American Academy of Facial Esthetics; Private Practice, New Orleans, Louisiana. (2)  President, American Academy of Facial Esthetics;</p>	<p>Frontline Temporomandibular Joint/Orofacial Pain Therapy for Every Dental Practice.</p>	<p>Compend Contin Educ Dent. 2017 May;38(5):299-305; quiz 306.</p>	<p>Temporomandibular disorders (TMD) are a group of conditions affecting the temporomandibular joint and/or muscles of mastication. TMD may present along with many comorbid pain syndromes such as myofascial pain, headache, and neck and back stiffness with limited range of motion, as well as fibromyalgia and chronic fatigue syndrome. The diagnosis and management of TMD is complex and, many times, multidisciplinary. However, dentists can provide their patients with frontline temporomandibular/orofacial pain therapy with didactic and hands-on training that provides a better understanding and a conservative approach for treatment of TMDs.</p>

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<b>Gerwyn M(1) , Maes M(2) .</b>	Tir Na Nog, Bryn Road seaside 87, Llanelli, SA15 2LW, Wales, UK. (2) IMPACT Strategic Research Centre, Deakin University, School of Medicine and Barwon Health, Geelong, VIC, Australia. dr.michaelmaes@hotmail.com.	Mechanisms Explaining Muscle Fatigue and Muscle Pain in Patients with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) : a Review of Recent Findings.	Curr Rheumatol Rep. 2017 Jan;19(1) :1.	PURPOSE OF REVIEW: Here, we review potential causes of muscle dysfunction seen in many patients with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) such as the effects of oxidative and nitrosative stress (O&NS) and mitochondrial impairments together with reduced heat shock protein production and a range of metabolic abnormalities. RECENT FINDINGS: Several studies published in the last few years have highlighted the existence of chronic O&NS, inflammation, impaired mitochondrial function and reduced heat shock protein production in many patients with ME/CFS. These studies have also highlighted the detrimental effects of chronically elevated O&NS on muscle functions such as reducing the time to muscle fatigue during exercise and impairing muscle contractility. Mechanisms have also been revealed by which chronic O&NS and or impaired heat shock production may impair muscle repair following exercise and indeed the adaptive responses in the striated muscle to acute and chronic increases in physical activity. The presence of chronic O&NS, low-grade inflammation and impaired heat shock protein production may well explain the objective findings of increased muscle fatigue, impaired contractility and multiple dimensions of exercise intolerance in many patients with ME/CFS.
<b>Ghatineh S(1) , Vink M(2) .</b>	Biochemist, London TW11, UK. siminghatineh dr@gmail.com . (2) Soerabaja Research Center, 1096 HH Amsterdam, The Netherlands. markvink.md	FITNET's Internet-Based Cognitive Behavioural Therapy Is Ineffective and May Impede Natural Recovery in Adolescents with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome. A Review.	Behav Sci (Basel) . 2017 Aug 11;7(3) . pii: E52.	The Dutch Fatigue In Teenagers on the interNET (FITNET) study claimed that after 6 months, internet based cognitive behaviour therapy in adolescents with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) , led to a 63% recovery rate compared to 8% after usual care, and that this was maintained at long term follow up (LTFU) . Our reanalysis shows that their post-hoc definition of recovery included the severely ill, the unblinded trial had no adequate control group and it used lax selection criteria as well as outcomes assessed via questionnaires rather than objective outcomes, further contributing to exaggerated recovery figures. Their decision not to publish the actometer results might suggest that these did not back their recovery claims. Despite these bias creating methodological faults, the trial still found no significant

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<b>Glassford JA(1) .</b>	Independent Health Researcher and Consultant Shrewsbury, UK.	The Neuroinflammatory Etiopathology of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) .	Front Physiol. 2017 Feb 17;8:88.	Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) is a debilitating multi-systemic chronic illness of unknown etiology, classified as a neurological disorder by the World Health Organization (WHO) . The symptomatology of the condition appears to emanate from a variety of sources of chronic neurological disturbance and associated distortions, and chronicity, in noxious sensory signaling and neuroimmune activation. This article incorporates a summary review and discussion of biomedical research considered relevant to this essential conception perspective. It is intended to provide stakeholders with a concise, integrated outline disease model in order to help demystify this major public health problem. The primary etiopathological factors presented are: (A) Postural/biomechanical pain signaling, affecting adverse neuroexcitation, in the context of compression, constriction, strain, or damage of vertebral-regional bone and neuromuscular tissues; (B) Immune mediated inflammatory sequelae, in the context of prolonged immunotropic neurotrophic infection-with lymphotropic/gliotropic/glio-toxic varieties implicated in particular; (C) A combination of factors A and B. Sustained glial activation under such conditions is associated with oxidative and nitrosative stress, neuroinflammation, and neural sensitivity. These processes collectively enhance the potential for multi-systemic disarray involving endocrine pathway aberration, immune and mitochondrial dysfunction, and neurodegeneration, and tend toward still more intractable synergistic neuro-glial dysfunction (gliopathy) , autoimmunity, and central neuronal sensitization.
<b>Glazachev OS(1) , Dudnik D•N(1) , Zagaynaya EE(1) .</b>	Sechenov First Moscow State Medical	[Pharmacological treatment of patients with chronic fatigue syndrome]. [Article in Russian;	Zh Nevrol Psikhiatr Im S S Korsakova. 2017;117(4) :40-44.	AIM: To evaluate the efficacy and safety of human placenta extract - laennec infusions in the treatment of patients with confirmed diagnosis of 'Chronic fatigue syndrome' (CFS) . MATERIAL AND

	University, Moscow, Russia.	Abstract available in Russian from the publisher]		<p><b>METHODS:</b> The study included 38 patients with CFS, randomized into 2 groups: patients of the experimental group (EG, n=24) were treated with 10 intravenous laennec infusions, 4 ml each, 2 times/week, for 5 weeks. The control group (CG) consisted of 14 patients. Treatment efficacy evaluated by the severity of chronic fatigue ('The degree of chronic fatigue' questionnaire) , state anxiety, depression and anger (Spilberger test) and quality of life (SF-36v2) , exercise tolerance (cardiopulmonary exercise test with gas analysis) , blood parameters were assessed before, after, and 5 weeks of follow-up. <b>RESULTS AND CONCLUSION:</b> The EG patients showed a significant reduction in the index of chronic fatigue, which was accompanied by the significant decrease in state depression, anxiety, improvements in subjective assessment of quality of life, as well as a significant increase in physical performance indices (maximal oxygen consumption, anaerobic threshold, load time to failure, normalization of the lipid 'profile' immediately after course of infusions and in 5 weeks follow-up) . No changes in chronic fatigue index and other recorded indicators were identified in CG. Laennec did not cause side effects, was well tolerated by all patients.</p>
<p><b>Goldsmith KA, MacKinnon DP, Chalder T, White PD, Sharpe M, Pickles A.</b></p>		Tutorial: The Practical Application of Longitudinal Structural Equation Mediation Models in Clinical Trials.	Psychol Methods. 2017 Dec 28.	<p>The study of mediation of treatment effects, or how treatments work, is important to understanding and improving psychological and behavioral treatments, but applications often focus on mediators and outcomes measured at a single time point. Such cross-sectional analyses do not respect the implied temporal ordering that mediation suggests. Clinical trials of treatments often provide repeated measures of outcomes and, increasingly, of mediators as well. Repeated measurements allow the application of various types of longitudinal structural equation mediation models. These provide flexibility in modeling, including the ability to incorporate some types of measurement error and unmeasured confounding that can strengthen the robustness of findings. The usual approach is to identify the most theoretically plausible model and apply that model. In the absence of clear theory, we put forward the option of fitting a few theoretically plausible models, providing a type of sensitivity analysis for the mediation hypothesis. In this tutorial, we outline how to fit several longitudinal mediation models, including simplex, latent growth and latent change models. This will</p>

				allow readers to learn about one type of model that is of interest, or about several alternative models, so that they can take this sensitivity approach. We use the Pacing, Graded Activity, and Cognitive Behavioral Therapy: A Randomized Evaluation (PACE) trial of rehabilitative treatments for chronic fatigue syndrome (ISRCTN 54285094) as a motivating example and describe how to fit and interpret various longitudinal mediation models using simulated data similar to those in the PACE trial. The simulated data set and Mplus code and output are provided. (PsycINFO Database Record
<b>Gostine M(1) , Davis F(2) , Roberts BA(2) , Risko R(2) , Asmus M(3) , Cappelleri JC(4) , Sadosky A(3) .</b>	Michigan Pain Consultants, Grand Rapids, Michigan, U.S.A. (2) ProCare Systems Inc., Grand Rapids, Michigan, U.S.A. (3) Pfizer Inc., New York, New York, U.S.A. (4) Pfizer Inc., Groton, Connecticut, U.S.A.	Clinical Characteristics of Fibromyalgia in a Chronic Pain Population.	Pain Pract. 2018 Jan;18(1) :67-78.	OBJECTIVE: To compare fibromyalgia (FM) characteristics among patients identified in a community-based chronic pain cohort based on traditional International Classification of Diagnoses 9th revision (ICD-9) diagnostic coding, with that of patients identified using a novel predictive model. METHODS: This retrospective study used data collected from July 1999 to February 17, 2015, in multiple chronic pain clinics in the United States. Patients were assigned to the FM case group based on specific inclusion criteria using ICD-9 codes or, separately, from results of a novel FM predictive model that was developed using random forest and logistic regression techniques. Propensity scoring (1:1) matched FM patients (cases) to nonmalignant chronic pain patients without FM (controls) . Patient-reported measures (eg, pain, fatigue, quality of sleep) and clinical characteristics (ie, comorbidities, procedures, and regions of pain) were outcomes for analysis. RESULTS: Nine ICD-9 clinical modification diagnoses had odds ratios with large effect sizes (Cohen's d > 0.8) , demonstrating the magnitude of the difference between the FM and matched non-FM cohorts: chronic pain syndrome, latex allergy, muscle spasm, fasciitis, cervicgia, thoracic pain, shoulder pain, arthritis, and cervical disorders (all P < 0.0001) . Six diagnoses were found to have a moderate effect size (Cohen's 0.5 < d > 0.8) : cystitis, cervical degeneration, anxiety, joint pain, lumbago, and cervical radiculitis. CONCLUSIONS: The identification of multiple comorbidities, diagnoses, and musculoskeletal procedures that were significantly associated with FM may facilitate differentiation of FM patients from other conditions characterized by chronic widespread pain. Predictive modeling may enhance identification of FM patients who may otherwise go undiagnosed.

<p><b>Goudsmit E(1) , Howes S(2) .</b></p>	<p>1 Health Psychologist (retired) . (2) 2 Science commentator/ writer.</p>	<p>Bias, misleading information and lack of respect for alternative views have distorted perceptions of myalgic encephalomyelitis/chronic fatigue syndrome and its treatment.</p>	<p>J Health Psychol. 2017 Aug;22(9) :1159-1167.</p>	<p>The PACE trial is one of the most recent studies evaluating cognitive behavioural therapy and graded exercise therapy for myalgic encephalomyelitis/chronic fatigue syndrome. These interventions are based on a model which assumes that symptoms are perpetuated by factors such as misguided beliefs and a lack of activity. Our analysis indicates that the researchers have shown significant bias in their accounts of the literature and may also have overstated the effectiveness of the above treatments. We submit that their approach to criticisms undermines the scientific process and is inconsistent with best practice.</p>
<p><b>Grape HE(1) , Solbr�kke KN(1) , Kirkevold M(1) , Mengshoel AM(1) .</b></p>	<p>a Faculty of Medicine , Institute of Health and Society, University of Oslo , Blindern , Oslo , Norway.</p>	<p>Tiredness and fatigue during processes of illness and recovery: A qualitative study of women recovered from fibromyalgia syndrome.</p>	<p>Physiother Theory Pract. 2017 Jan;33(1) :31-40.</p>	<p>Fibromyalgia syndrome (FMS) , a chronic musculoskeletal pain condition, is often accompanied by fatigue. In this study, inspired by narrative approaches to health and illness, we explore how women who have regained their health after FMS describe tiredness along a storyline from before they fell ill, through their illness, recovery process, and present-day health. The data derive from qualitative interviews with eight Norwegian women who previously suffered from FMS but who no longer had the condition at the time of interview. We undertook a narrative analysis to understand the complexity of the stories about tiredness and fatigue and on this basis identified a storyline based on four sub-narratives: 1) Alarming but ignored tiredness (before illness) ; 2) paralyzing fatigue (during illness) ; 3) making sense of fatigue (recovery process) ; and 4) integrating tiredness into life (today) . The findings highlight participants' different understandings and meanings of tiredness and fatigue and the ways in which these link past, present, and future. Significantly, a clear distinction between tiredness and fatigue was not always found. Overall, the storyline that emerges from the narratives is about balancing tiredness/fatigue with everyday life, and how this unfolds in different ways across the span of FMS, from falling ill to recovering and regaining health.</p>
<p><b>Grosman-Rimon L(1) (2) (3) , Clarke H(4) (3) , Chan AK(5) (6) , Mills PB(5) (6) , Rathbone ATL(7) ,</b></p>	<p>Toronto Rehabilitation Institute, Toronto, ON, Canada. (2) University</p>	<p>Clinicians' perspective of the current diagnostic criteria for myofascial pain syndrome.</p>	<p>J Back Musculoskelet Rehabil. 2017;30(3) :509-514.</p>	<p>INTRODUCTION: Myofascial pain syndrome (MPS) is one of the most common chronic musculoskeletal pain disorders. However, MPS is often under-diagnosed. The purpose of this study was to characterize practicing clinicians' perspectives of the current diagnostic criteria for MPS. METHODS: A cross-sectional study design was used with a self-administered questionnaire. The questionnaire</p>

<p><b>Kumbhare D(1) (2) (3) .</b></p>	<p>Health Network, Toronto, ON, Canada. (3) University of Toronto, Toronto, ON, Canada. (4) Toronto General Hospital, Toronto, ON, Canada. (5) University of British Columbia, Vancouver, BC, Canada. (6) GF Strong Rehabilitation Centre, Vancouver, BC, Canada. (7) Western University, London, ON, Canada.</p>			<p>evaluated clinicians' perspective of the current diagnostic criteria for MPS. The sample population (n= 119) consisted of 40% family physicians, 31% physical medicine (PM) and rehabilitation specialists, 11% rheumatologists, 10% emergency room (ER) physicians, and 8% anesthesiologists specializing in chronic pain. RESULTS: Our findings demonstrated that participating clinicians agree that "point tenderness" and "pain reproduction" are criteria for MPS. In contrast, the clinicians do not consider "autonomic symptoms" as an important criterion for MPS. The anesthesiologists view "restricted range of motion" as a criterion for MPS more than the other groups, and they tend to consider "referred pain" and "pain reproduction" as criteria. Physical medicine and rehabilitation specialists and anesthesiologists tend to view "local twitch response" more as a criterion for MPS compared with the other groups. Most groups of clinicians consider "weakness without atrophy" as an important MPS criterion except for family physicians. It is important to note that "poor sleep", "daytime fatigue" and "cognitive symptoms", which are not considered as MPS symptoms, are often mistaken for MPS among practicing clinicians. CONCLUSION: Our findings suggest that the diagnostic criteria are not well known, highlighting the need for an expert consensus to determine the importance of each criterion for MPS diagnosis.</p>
<p><b>Guerit JM(1) .</b></p>	<p>CHIREC, clinique Edith-Cavell, rue Edith-Cavell, 321180 Bruxelles, Belgium. Electronic address:</p>	<p>How can clinical neurophysiology help in studying fatigue?</p>	<p>Neurophysiol Clin. 2017 Apr;47(2) :85-86.</p>	

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<b>Guignat L(1) , Proust-Lemoine E(2) , Reznik Y(3) , Zenaty D(4) .</b>	Service des maladies endocrinienne s et mÃ©taboliques, hÃ´pital Cochin, CHU Paris-Centre, centre de rÃ©fÃ©rence des maladies rares de la surreÃ©nale, 75014 Paris, France. Electronic address: laurence.guignat@aphp.fr.	Group 6. Modalities and frequency of monitoring of patients with adrenal insufficiency. Patient education.	Ann Endocrinol (Paris) . 2017 Dec;78(6) :544-558.	Patients with adrenal insufficiency require regular, specialised monitoring in order to optimise their replacement therapy, to detect signs of under- and over-dosage, and to examine for possible associated disorders (auto-immune disorders in the case of auto-immune primary adrenal insufficiency either isolated or as part of auto-immune polyendocrinopathy syndrome type 1; illnesses with underlying monogenic causes) . The transition period between adolescence and adulthood represents an added risk of a breakdown in monitoring which requires particular attention from medical teams and coordination between adult and pediatric medical teams. It is essential to encourage patient autonomy in the management of their illness, notably their participation in treatment education programs, in particular programs that target avoidance of, or early treatment of acute adrenal insufficiency. The principal educational objectives for patients in such programs are: to be in possession of, and carry the necessary tools for their treatment in an emergency; to be able to identify situations of increased risk and the early signs of adrenal crisis; to know how to adjust their oral glucocorticoid treatment; to be capable of administering hydrocortisone by subcutaneous injection; to be able to predict and therefore adjust treatment to different situations (heat, physical exercise, travel) and to be able to correctly use the appropriate resources of the healthcare services. Other programs could also be developed to respond to needs and expectations of patients, notably concerning the adjustment of hydrocortisone dosage to avoid overdose in the context of chronic fatigue syndrome.
<b>Hakanen JJ(1) , Bakker AB(2) .</b>	Helsinki Collegium for Advanced Studies, University of Helsinki. (2) Center of Excellence for Positive	Born and bred to burn out: A life-course view and reflections on job burnout.	J Occup Health Psychol. 2017 Jul;22(3) :354-364.	Burnout is a response to prolonged stressors at work, and is defined as a chronic syndrome including exhaustion, cynicism, and reduced professional efficacy. The 40 years of research on burnout have yielded thousands of studies on its measurement, antecedents, correlates, and consequences. However, most of these studies have used a cross-sectional design, and only very few have addressed burnout from a life-course perspective. In the first part of this article, we reflect on the ideas that inspired our multidisciplinary "A 35-Year Follow-Up Study on Burnout Among Finnish Employees," and the



	Organizational Psychology, Erasmus University Rotterdam.			challenges that we encountered when conducting and publishing the study. In the second part, we focus on another understudied topic in burnout research, namely negative life events and their role in burnout. In the third part of the article, we more broadly discuss 6 important developments in burnout research over the past decade, and propose 6 key topics for future studies on this topic.
<b>Hakim A, De Wandele I, O'Callaghan C, Pocinki A, Rowe P.</b>		Chronic fatigue in Ehlers-Danlos syndrome-Hypermobility type.	Am J Med Genet C Semin Med Genet. 2017 Mar;175(1) :175-180.	Chronic fatigue is an important contributor to impaired health-related quality of life in Ehlers-Danlos syndrome. There is overlap in the symptoms and findings of EDS and chronic fatigue syndrome. A proportion of those with CFS likely have EDS that has not been identified. The evaluation of chronic fatigue in EDS needs to include a careful clinical examination and laboratory testing to exclude common causes of fatigue including anemia, hypothyroidism, and chronic infection, as well as dysfunction of major physiological or organ systems. Other problems that commonly contribute to fatigue in EDS include sleep disorders, chronic pain, deconditioning, cardiovascular autonomic dysfunction, bowel and bladder dysfunction, psychological issues, and nutritional deficiencies. While there is no specific pharmacological treatment for fatigue, many medications are effective for specific symptoms (such as headache, menstrual dysfunction, or myalgia) and for co-morbid conditions that result in fatigue, including orthostatic intolerance and insomnia. Comprehensive treatment of fatigue needs to also evaluate for biomechanical problems that are common in EDS, and usually involves skilled physical therapy and attention to methods to prevent deconditioning. In addition to managing specific symptoms, treatment of fatigue in EDS also needs to focus on maintaining function and providing social, physical, and nutritional support, as well as providing on-going medical evaluation of new problems and review of new evidence about proposed treatments. © 2017 Wiley Periodicals, Inc.
<b>Hall DL(1) , Lattie EG(2) , Milrad SF(3) , Czaja S(4) , Fletcher MA(5) , Klimas N(5) , Perdomo D(4) , Antoni MH(6) .</b>	Department of Psychology, University of Miami, Coral Gables, FL, USA; Harvard	Telephone-administered versus live group cognitive behavioral stress management for adults with CFS.	J Psychosom Res. 2017 Feb;93:41-47.	OBJECTIVE: Chronic fatigue syndrome (CFS) symptoms have been shown to be exacerbated by stress and ameliorated by group-based psychosocial interventions such as cognitive behavioral stress management (CBSM) . Still, patients may have difficulty attending face-to-face groups. This study compared the effects of a telephone-delivered (T-CBSM) vs a live (L-CBSM) group on perceived stress and

	<p>Medical School, Massachusetts General Hospital, Boston, MA, USA; Harvard Medical School, Beth Israel Deaconess Medical Center, Boston, MA, USA. Electronic address: dhall7@mgh.harvard.edu. (2) Department of Psychology, University of Miami, Coral Gables, FL, USA; Center for Behavioral Intervention Technologies (CBITs), Northwestern University, Chicago, IL, USA. (3) Department of Psychology, University of</p>			<p>symptomology in adults with CFS. METHODS: Intervention data from 100 patients with CFS (mean age 50years; 90% female) participating in T-CBSM (N=56) or L-CBSM (N=44) in previously conducted randomized clinical trials were obtained. Perceived Stress Scale (PSS) and the Centers for Disease Control and Prevention symptom checklist scores were compared with repeated measures analyses of variance in adjusted and unadjusted analyses. RESULTS: Participants across groups showed no differences in most demographic and illness variables at study entry and had similar session attendance. Both conditions showed significant reductions in PSS scores, with L-CBSM showing a large effect (partial <math>\hat{\mu}^2=0.16</math>) and T-CBSM a medium effect (partial <math>\hat{\mu}^2=0.095</math>). For CFS symptom frequency and severity scores, L-CBSM reported large effect size improvements (partial <math>\hat{\mu}^2=0.19-0.23</math>), while T-CBSM showed no significant changes over time. CONCLUSIONS: Two different formats for delivering group-based CBSM-live and telephone-showed reductions in perceived stress among patients with CFS. However, only the live format was associated with physical symptom improvements, with specific effects on post-exertional malaise, chills, fever, and restful sleep. The added value of the live group format is discussed, along with implications for future technology-facilitated group interventions in this population.</p>
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	<p>Miami, Coral Gables, FL, USA. (4)  Department of Psychiatry and Behavioral Sciences, University of Miami, Miami, FL, USA. (5)  Institute for Neuro Immune Medicine, Nova Southeastern University, Davie, FL, USA. (6)  Department of Psychology, University of Miami, Coral Gables, FL, USA;  Department of Psychiatry and Behavioral Sciences, University of Miami, Miami, FL, USA.</p>			
<p><b>Halpin P(1) , Williams MV(1) (2) , Klimas NG(3) (4) , Fletcher</b></p>	<p>Department of Cancer Biology and</p>	<p>Myalgic encephalomyelitis/chronic fatigue syndrome and gulf war</p>	<p>J Med Virol. 2017 Sep;89(9) :1636-1645.</p>	<p>Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) and Gulf War Illness (GWI) are debilitating diseases with overlapping symptomology and there are currently no validated tests for</p>

<p><b>MA(3) (4) , Barnes Z(3) (5) , Ariza ME(1) (2) .</b></p>	<p>Genetics, The Ohio State University, Columbus, Ohio. (2) Institute for Behavioral Medicine Research, The Ohio State University, Columbus, Ohio. (3) NOVA Southeastern University, Institute for Neuro Immune Medicine, Fort Lauderdale, Florida. (4) Miami VA Medical Center, Miami, Florida. (5) University of Miami, Miami, Florida.</p>	<p>illness patients exhibit increased humoral responses to the herpesviruses-encoded dUTPase: Implications in disease pathophysiology.</p>		<p>definitive diagnosis of either syndrome. While there is evidence supporting the premise that some herpesviruses may act as possible triggers of ME/CFS, the involvement of herpesviruses in the pathophysiology of GWI has not been studied in spite of a higher prevalence of ME/CFS in these patients. We have previously demonstrated that the deoxyuridine triphosphate nucleotidohydrolases (dUTPase) encoded by Epstein-Barr virus (EBV) , human herpesvirus-6 (HHV-6) , and varicella-zoster virus (VZV) possess novel functions in innate and adaptive immunity. The results of this study demonstrate that a significant percentage of patients with ME/CFS (30.91-52.7%) and GWI (29.34%) are simultaneously producing antibodies against multiple human herpesviruses-encoded dUTPases and/or the human dUTPase when compared to controls (17.21%) . GWI patients exhibited significantly higher levels of antibodies to the HHV-6 and human dUTPases than controls (<math>P=0.0053</math> and <math>P=0.0036</math>, respectively) , while the ME/CFS cohort had higher anti-EBV-dUTPase antibodies than in both GWI patients (<math>P=0.0008</math>) and controls (<math>P&lt;0.0001</math>) as well as significantly higher anti-human dUTPase antibodies than in controls (<math>P=0.0241</math>) . These results suggest that screening of patients' sera for the presence of various combinations of anti-dUTPase antibodies could be used as potential biomarkers to help identify/distinguish patients with these syndromes and better direct treatment.</p>
<p><b>Hanevik K(1) (2) , Kristoffersen E(3) (4) , Mørch K(3) (5) , Rye KP(3) , Sørnes S(3) , Sværd S(6) , Bruserud Å(3) , Langeland N(3) (5) .</b></p>	<p>Department of Clinical Science, Lab-building 8.floor, University of Bergen, N-</p>	<p>Giardia-specific cellular immune responses in post-giardiasis chronic fatigue syndrome.</p>	<p>BMC Immunol. 2017 Jan 28;18(1) :5.</p>	<p>BACKGROUND: The role of pathogen specific cellular immune responses against the eliciting pathogen in development of post-infectious chronic fatigue syndrome (PI-CFS) is not known and such studies are difficult to perform. The aim of this study was to evaluate specific anti-Giardia cellular immunity in cases that developed CFS after Giardia infection compared to cases that recovered well. Patients reporting chronic fatigue in a questionnaire study three</p>

	5021, Bergen, Norway. kurt.hanevik@med.uib.no.			years after a Giardia outbreak were clinically evaluated five years after the outbreak and grouped according to Fukuda criteria for CFS and idiopathic chronic fatigue. Giardia specific immune responses were evaluated in 39 of these patients by proliferation assay, T cell activation and cytokine release analysis. 20 Giardia exposed non-fatigued individuals and 10 healthy unexposed individuals were recruited as controls. RESULTS: Patients were clinically classified into CFS (n=15), idiopathic chronic fatigue (n=5), fatigue from other causes (n=9) and recovered from fatigue (n=10). There were statistically significant antigen specific differences between these Giardia exposed groups and unexposed controls. However, we did not find differences between the Giardia exposed fatigue classification groups with regard to CD4 T cell activation, proliferation or cytokine levels in 6 days cultured PBMCs. Interestingly, sCD40L was increased in patients with PI-CFS and other persons with fatigue after Giardia infection compared to the non-fatigued group, and correlated well with fatigue levels at the time of sampling. CONCLUSION: Our data show antigen specific cellular immune responses in the groups previously exposed to Giardia and increased sCD40L in fatigued patients.
<b>Harper DE(1), Ichesco E(1), Schrepf A(1), Halvorson M(1), Puiu T(1), Clauw DJ(1), Harris RE(1), Harte SE(1); MAPP Research Network.</b>	Chronic Pain and Fatigue Research Center, Department of Anesthesiology, University of Michigan, Ann Arbor, MI, USA.	Relationships between brain metabolite levels, functional connectivity, and negative mood in urologic chronic pelvic pain syndrome patients compared to controls: A MAPP research network study.	Neuroimage Clin. 2017 Nov 15;17:570-578.	Until recently, the predominant pathology of chronic pelvic pain conditions was thought to reside in the peripheral tissues. However, mounting evidence from neuroimaging studies suggests an important role of the central nervous system in the pathogenesis of these conditions. In the present cross-sectional study, proton magnetic resonance spectroscopy (1H-MRS) of the brain was conducted in female patients with urologic chronic pelvic pain syndrome (UCPPS) to determine if they exhibit abnormal concentrations of brain metabolites (e.g. those indicative of heightened excitatory tone) in regions involved in the processing and modulation of pain, including the anterior cingulate cortex (ACC) and the anterior and posterior insular cortices. Compared to a group of age-matched healthy subjects, there were significantly higher levels of choline (p = 0.006, uncorrected) in the ACC of UCPPS patients. ACC choline levels were therefore compared with the region's resting functional connectivity to the rest of the brain. Higher choline was associated with greater ACC-to-limbic system

				<p>connectivity in UCPPS patients, contrasted with lower connectivity in controls (i.e. an interaction) . In patients, ACC choline levels were also positively correlated with negative mood. ACC <math>\gamma</math>-aminobutyric acid (GABA) levels were lower in UCPPS patients compared with controls (<math>p = 0.02</math>, uncorrected) , but this did not meet statistical correction for the 4 separate regional comparisons of metabolites. These results are the first to uncover abnormal GABA and choline levels in the brain of UCPPS patients compared to controls. Low GABA levels have been identified in other pain syndromes and might contribute to CNS hyper-excitability in these conditions. The relationships between increased ACC choline levels, ACC-to-limbic connectivity, and negative mood in UCPPS patients suggest that this metabolite could be related to the affective symptomatology of this syndrome.</p>
<p><b>Harris S(1) , Gilbert M(2) , Beasant L(2) , Linney C(3) , Broughton J(2) , Crawley E(2) .</b></p>	<p>1 South Wales Doctoral Programme in Clinical Psychology, Cardiff University, UK. (2) 2 Centre for Child and Adolescent Health, School of Social and Community Medicine, University of Bristol, UK. (3) 3 Department of Psychology, Durham University, UK.</p>	<p>A qualitative investigation of eating difficulties in adolescents with chronic fatigue syndrome/myalgic encephalomyelitis.</p>	<p>Clin Child Psychol Psychiatry. 2017 Jan;22(1) :128-139.</p>	<p>BACKGROUND: An estimated 10% of children and adolescents with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) experience eating difficulties; however, little is known about why these difficulties develop, what the impact is or how to manage them. METHODS: Semi-structured interviews were conducted with adolescents (aged 12-17 years) attending a specialist service who have a primary diagnosis of CFS/ME and experience nausea, abdominal pain and/or eating difficulties. A total of 11 adolescents were interviewed (eight female, mean age: 15 years) . Transcripts were analysed thematically using techniques of constant comparison which commenced soon after data collection and informed further interview protocols. RESULTS: Adolescents perceived their eating difficulties were caused by abdominal symptoms, being too fatigued to eat and changes to their senses of taste and smell. Some of the adolescents recognised how their eating difficulties were exacerbated and maintained by psychological factors of low mood and anxiety. The adolescents eating difficulties had a negative impact on their weight, fatigue, socialising and family life. They perceived helpful interventions to include modifying their diets, families adjusting and also medical interventions (e.g. medication) . Adolescents identified that early education and support about diet and eating habits would have been helpful. CONCLUSIONS: If adolescents diagnosed with CFS/ME develop eating difficulties, this</p>

				has a significant impact on their quality of life, illness and on their families. Not eating increases fatigue, low mood and anxiety which further exacerbates the eating difficulties. Clinicians should screen for eating difficulties in those with symptoms of nausea and abdominal pain, warn adolescents and their families of the risk of developing eating difficulties and provide interventions and support as early as possible.
<b>He M(1) , Chen W(1) , Wang M(2) , Wu Y(1) , Zeng J(1) , Zhang Z(1) , Shen S(1) , Jiang J(3) .</b>	<p>Department of Clinical Pharmacology , Shuguang Hospital Affiliated to Shanghai University of TCM, Shanghai 201203, China. (2)</p> <p>Department of Clinical Pharmacology , The Second Affiliated Hospital of Soochow University, Suzhou 215004, Jiangsu, China. (3)</p> <p>Department of Clinical Pharmacology , Shuguang Hospital Affiliated to</p>	Simultaneous determination of multiple bioactive components of Bu-zhong-yi-qi-tang in rat tissues by LC-MS/MS: Application to a tissue distribution study.	J Chromatogr B Analyt Technol Biomed Life Sci. 2017 Feb 15;1044-1045:177-184.	<p>A liquid chromatography coupled with electrospray ionization mass spectrometry method was developed and validated for simultaneous determination of seven bioactive constituents including astragaloside IV, calycosin, glycyrrhizic acid, enoxolone, saikosaponin D, ferulic acid and hesperiden in rats' various tissues using diclofenac as the internal standard (IS) . Biological samples were pretreated by protein precipitation with acetonitrile. The chromatographic separation was carried out on a C18 column with a gradient mobile phase consisting of acetonitrile and water (containing 0.1% formic acid and 4mM ammonium acetate) . All analytes and IS were quantitated through electrospray ionization in negative ion multiple reaction monitoring mode. The mass transitions were as follows: m/z 829.7<sup>+</sup>783.3 for astragaloside IV, m/z 283.3<sup>+</sup>267.7 for calycosin, m/z 821.6<sup>+</sup>350.0 for glycyrrhizic acid, m/z 469.9<sup>+</sup>425.2 for enoxolone, m/z 825.7<sup>+</sup>779.6 for saikosaponin D, m/z 192.5<sup>+</sup>133.9 for ferulic acid, m/z 609.1<sup>+</sup>301.0 for hesperiden and m/z 293.6<sup>+</sup>249.9 for the IS, respectively. The lower limits of quantification for the seven analytes in different rat tissues were 0.2-20ng/mL. Bu-zhong-yi-qi-tang (Hochuekkito in Japan, Bojungikki-tang in Korea) is one of the most frequently prescribed traditional herbal formulas used in Korea, Japan, and China to treat gastrointestinal diseases, cancer and chronic fatigue syndrome. The validated method was successfully applied to a tissue distribution study of the seven components in rat tissue after oral administration of Bu-zhong-yi-qi-tang concentrated granule. The results of the tissue distribution study showed that the high concentration of seven components were mainly in the gastrointestinal tract.</p>

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<b>Heffer-Rahn P(1) , Fisher PL(2) .</b>	Psychological Sciences, University of Liverpool, Liverpool, United Kingdom. (2) Psychological Sciences, University of Liverpool, Liverpool, United Kingdom; Nidaros DPS, Division of Psychiatry, St. Olavs University Hospital, Trondheim, Norway. Electronic address: peter.fisher@liverpool.ac.uk.	The clinical utility of metacognitive beliefs and processes in emotional distress in people with multiple sclerosis.	J Psychosom Res. 2018 Jan;104:88-94.	AIM: Multiple sclerosis (MS) is a chronic demyelinating disease that poses significant life challenges. Depression and anxiety often occur in people with MS (PwMS) . An information processing model of psychopathology, the Self-Regulatory Executive Function (S-REF) model specifies that maladaptive metacognitive beliefs play a fundamental role in the development and maintenance of distress. The model also asserts that a style of thinking known as the cognitive attentional syndrome (CAS) , which consists of worry and rumination, focusing on sources of threat, and unhelpful coping responses, is common across all psychological conditions. This study investigated for the first time whether metacognitive beliefs explained additional variance in distress in PwMS, after accounting for demographic, clinical, and illness appraisal variables. METHOD: One hundred and thirty-two participants with MS completed self-report questionnaires measuring distress, fatigue, pain, metacognitive beliefs, illness appraisals, and the CAS. Hierarchical regression modelling was used to test whether metacognitive beliefs accounted for distress. Mediation modelling examined if the CAS mediated the association between metacognitive beliefs and distress. RESULTS: Metacognitive beliefs made a unique contribution to distress, over and above demographic and clinical variables, and illness appraisals. The CAS fully mediated the relationship between positive metacognitive beliefs and distress, and partially mediated the relationship between negative metacognitive beliefs and distress. CONCLUSIONS: Metacognitive beliefs are associated with emotional distress in PwMS, and the CAS mediates this relationship. Future studies should examine if modification of metacognitive



				beliefs and processes in PwMS will lead to effective alleviation of emotional distress.
<b>Helmfrid S, Edsberg J.</b>		Dags att f�rkasta PACE-studien.	Lakartidningen. 2017 Oct 3;114. pii: ETL.	PMID: 28972641 [Indexed for MEDLINE]
<b>Helmfrid S, Edsberg J.</b>		F�rsgad bild av ME/CFS. [Article in Swedish]	Lakartidningen. 2017 Jun 19;114. pii: EPXR.	
<b>Hermans L(1) (2) , Nijs J(2) (3) (4) , Calders P(1) , De Clerck L(5) , Moorkens G(6) , Hans G(7) , Grosemans S(7) , Roman De Mettelinge T(1) , Tuyman J(8) , Meeus M(1) (2) (8) .</b>	Department of Rehabilitation Sciences and Physiotherapy , Faculty of Medicine and Health Sciences, Ghent University, Ghent,	Influence of Morphine and Naloxone on Pain Modulation in Rheumatoid Arthritis, Chronic Fatigue Syndrome/Fibromyalgia, and Controls: A Double-Blind, Randomized, Placebo-Controlled, Cross-Over Study.	Pain Pract. 2017 Jul 19.	BACKGROUND: Impaired pain inhibitory and enhanced pain facilitatory mechanisms are repeatedly reported in patients with central sensitization pain. However, the exact effects of frequently prescribed opioids on central pain modulation are still unknown. METHODS: A randomized, double-blind, placebo-controlled cross-over trial was carried out. Ten chronic fatigue syndrome (CFS) /fibromyalgia (FM) patients, 11 rheumatoid arthritis (RA) patients and 20 controls were randomly allocated to the experimental (10 mg morphine or 0.2 mg/mL Naloxone) and placebo (2 mL Aqua) group. Pressure pain thresholds (PPTs) and temporal summation at the Trapezius and Quadriceps were assessed by algometry. Conditioned pain modulation (CPM) efficacy and deep tissue pain pressure were assessed by adding ischemic occlusion at the opposite upper arm. RESULTS: Deep tissue pain pressure was lower and temporal summation higher in CFS/FM (P = 0.002 respectively P = 0.010) and RA patients (P = 0.011 respectively P = 0.047) compared to controls at baseline. Morphine had only a positive effect on PPTs in both patient groups (P time = 0.034) . Accordingly, PPTs increased after placebo (P time = 0.015) , and no effects on the other pain parameters were objectified. There were no significant effects of naloxone nor placebo on PPT, deep tissue pain, temporal summation or CPM in the control group. CONCLUSIONS: This study revealed anti-hyperalgesia effects of morphine in CFS/FM and RA patients. Nevertheless, these effects were comparable to placebo. Besides, neither morphine nor naloxone influenced deep tissue pain, temporal summation or CPM. Therefore, these results suggest that the opioid system is not dominant in (enhanced) bottom-up sensitization (temporal summation) or (impaired) endogenous pain inhibition (CPM) in patients with CFS/FM or RA.

<p><b>Higgins JNP(1) , Pickard JD(2) , Lever AML(3) .</b></p>	<p>Department of Radiology, Addenbrooke's Hospital, Cambridge, UK. Electronic address: nick.higgins@addenbrookes.nhs.uk. (2) Academic Department of Neurosurgery, Addenbrooke's Hospital, Cambridge, UK; University of Cambridge, UK. (3) Department of Infectious Diseases, Addenbrooke's Hospital, Cambridge, UK; University of Cambridge, UK.</p>	<p>Chronic fatigue syndrome and idiopathic intracranial hypertension: Different manifestations of the same disorder of intracranial pressure?</p>	<p>Med Hypotheses. 2017 Aug;105:6-9.</p>	<p>Though not discussed in the medical literature or considered in clinical practice, there are similarities between chronic fatigue syndrome and idiopathic intracranial hypertension (IIH) which ought to encourage exploration of a link between them. The cardinal symptoms of each - fatigue and headache - are common in the other and their multiple other symptoms are frequently seen in both. The single discriminating factor is raised intracranial pressure, evidenced in IIH usually by the sign of papilloedema, regarded as responsible for the visual symptoms which can lead to blindness. Some patients with IIH, however, do not have papilloedema and these patients may be clinically indistinguishable from patients with chronic fatigue syndrome. Yet IIH is rare, IIH without papilloedema (IIHWOP) seems rarer still, while chronic fatigue syndrome is common. So are the clinical parallels spurious or is there a way to reconcile these conflicting observations? We suggest that it is a quirk of clinical measurement that has created this discrepancy. Specifically, that the criteria put in place to define IIH have led to a failure to appreciate the existence, clinical significance or numerical importance of patients with lower level disturbances of intracranial pressure. We argue that this has led to a grossly implausible distortion of the epidemiology of IIH such that the milder form of the illness (IIHWOP) is seen as less common than the more severe and that this would be resolved by recognising a connection with chronic fatigue syndrome. We hypothesise, therefore, that IIH, IIHWOP, lesser forms of IIH and an undetermined proportion of chronic fatigue cases are all manifestations of the same disorder of intracranial pressure across a spectrum of disease severity, in which this subset of chronic fatigue syndrome would represent the most common and least severe and IIH the least common and most extreme.</p>
<p><b>Hives L(1) , Bradley A(2) , Richards J(3) , Sutton C(4) , Selfe J(5) , Basu B(6) , Maguire K(7) , Sumner G(8) , Gaber T(9) , Mukherjee A(10) , Perrin RN(3) .</b></p>	<p>School of Dentistry, University of Central Lancashire, Preston, UK. (2) Department</p>	<p>Can physical assessment techniques aid diagnosis in people with chronic fatigue syndrome/myalgic encephalomyelitis? A diagnostic accuracy study.</p>	<p>BMJ Open. 2017 Nov 13;7(11) :e017521.</p>	<p>OBJECTIVE: To assess five physical signs to see whether they can assist in the screening of patients with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) and potentially lead to quicker treatment. METHODS: This was a diagnostic accuracy study with inter-rater agreement assessment. Participants recruited from two National Health Service hospitals, local CFS/ME support groups and the community were examined by three practitioners on the same day in a randomised order. Two allied health professionals</p>

	<p>of Neurophysiology, Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK. (3) Allied Health Research Unit, University of Central, Lancashire, UK. (4) Lancashire Clinical Trials Unit, University of Central Lancashire, Preston, UK. (5) Department of Health Professions, Manchester Metropolitan University, Manchester, Greater Manchester, UK. (6) University Hospital of South Manchester NHS</p>			<p>(AHPs) performed independent examinations of physical signs including: postural/mechanical disturbances of the thoracic spine, breast varicosities, tender Perrin's point, tender coeliac plexus and dampened cranial flow. A physician conducted a standard clinical neurological and rheumatological assessment while looking for patterns of illness behaviour. Each examination lasted approximately 20 minutes. RESULTS: Ninety-four participants were assessed, 52 patients with CFS/ME and 42 non-CFS/ME controls, aged 18-60. Cohen's kappa revealed that agreement between the AHPs was substantial for presence of the tender coeliac plexus (<math>\hat{\kappa}=0.65</math>, <math>p&lt;0.001</math>) and moderate for postural/mechanical disturbance of the thoracic spine (<math>\hat{\kappa}=0.57</math>, <math>p&lt;0.001</math>) and Perrin's point (<math>\hat{\kappa}=0.56</math>, <math>p&lt;0.001</math>). A McNemar's test found no statistically significant bias in the diagnosis by the experienced AHP relative to actual diagnosis (<math>p=1.0</math>) and a marginally non-significant bias by the newly trained AHP (<math>p=0.052</math>). There was, however, a significant bias in the diagnosis made by the physician relative to actual diagnosis (<math>p&lt;0.001</math>), indicating poor diagnostic utility of the clinical neurological and rheumatological assessment. CONCLUSIONS: Using the physical signs appears to improve the accuracy of identifying people with CFS/ME and shows agreement with current diagnostic techniques. However, the present study concludes that only two of these may be needed. Examining for physical signs is both quick and simple for the AHP and may be used as an efficient screening tool for CFS/ME. This is a small single-centre study, and therefore, further validation in other centres and larger populations is needed.</p>
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<p><b>Hodges LD(1) , Nielsen T(1) , Baken D(2) .</b></p>	<p>School of Sport and Exercise, Massey University, Palmerston North, New Zealand. (2) School of Psychology, Massey University, Palmerston North, New Zealand.</p>	<p>Physiological measures in participants with chronic fatigue syndrome, multiple sclerosis and healthy controls following repeated exercise: a pilot study.</p>	<p>Clin Physiol Funct Imaging. 2017 Aug 7.</p>	<p>PURPOSE: To compare physiological responses of chronic fatigue syndrome (CFS/ME) , multiple sclerosis (MS) and healthy controls (HC) following a 24-h repeated exercise test. METHODS: Ten CFS, seven MS and 17 age- and gender-matched healthy controls (10, CFS HC; and seven, MS HC) were recruited. Each participant completed a maximal incremental cycle exercise test on day 1 and again 24 h later. Heart rate (HR) , blood pressure (BP) , rating of perceived exertion (RPE) , oxygen consumption (<math>\dot{V}O_2</math>) , carbon dioxide production and workload (WL) were recorded. Data analysis investigated these responses at anaerobic threshold (AT) and peak work rate (PWR) . RESULTS: On day 2, both CFS and MS had significantly reduced max workload compared to HC. On day 2, significant differences were apparent in WL between CFS and CFS HC (<math>93 \pm 37</math> W, <math>132 \pm 42</math> W, <math>P &lt; 0.042</math>) . CFS workload decreased on day 2, alongside a decrease in HR but with an increase in <math>\dot{V}O_2</math> (<math>ml \cdot kg^{-1} \cdot min^{-1}</math>) . This was in comparison with an increase in WL, HR and <math>\dot{V}O_2</math> for CFS HC. MS demonstrated a decreased WL compared to MS HC on both days of the study (D1 <math>81 \pm 30</math> W, <math>116 \pm 30</math> W; D2 <math>84 \pm 29</math> W, <math>118 \pm 36</math> W) ; however, patients with MS were able to achieve a higher WL on day 2 alongside MS HC. CONCLUSION: These results suggest that exercise exhibits a different physiological response in MS and CFS/ME, demonstrating repeated cardiovascular exercise testing as a valid measure for differentiating between fatigue conditions.</p>
<p><b>Hornig M(1) (2) , Gottschalk CG(3) , Eddy ML(1) , Che X(1) , Ukaigwe JE(1) , Peterson DL(3) , Lipkin WI(1) (2) (4) (5) .</b></p>	<p>Center for Infection and Immunity, Columbia University Mailman School of Public Health, New York, NY, USA. (2) Department of</p>	<p>Immune network analysis of cerebrospinal fluid in myalgic encephalomyelitis/chronic fatigue syndrome with atypical and classical presentations.</p>	<p>Transl Psychiatry. 2017 Apr 4;7(4) :e1080.</p>	<p>Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is a persistent and debilitating disorder marked by cognitive and sensory dysfunction and unexplained physical fatigue. Classically, cases present after a prodrome consistent with infection; however, some cases are atypical and have a different presentation and comorbidities that pose challenges for differential diagnosis. We analyzed cerebrospinal fluid (CSF) from 32 cases with classical ME/CFS and 27 cases with atypical ME/CFS using a 51-plex cytokine assay. Atypical subjects differed in cytokine profiles from classical subjects. In logistic regression models incorporating immune molecules that were identified as potential predictor variables through feature selection, we found strong associations between the</p>

	<p>Epidemiology, Columbia University Mailman School of Public Health, New York, NY, USA. (3) Sierra Internal Medicine at Incline Village, Incline Village, NV, USA. (4) Department of Neurology, College of Physicians &amp; Surgeons, Columbia University, New York, NY, USA. (5) Department of Pathology and Cell Biology, College of Physicians &amp; Surgeons, Columbia University, New York, NY, USA.</p>			<p>atypical ME/CFS phenotype and lower CSF levels of the inflammatory mediators, interleukin 17A and CXCL9. Network analysis revealed an absence of inverse inter-cytokine relationships in CSF from atypical patients, and more sparse positive intercorrelations, than classical subjects. Interleukin 1 receptor antagonist appeared to be a negative regulator in classical ME/CFS, with patterns suggestive of disturbances in interleukin 1 signaling and autoimmunity-type patterns of immune activation. Immune signatures in the central nervous system of ME/CFS patients with atypical features may be distinct from those with more typical clinical presentations.</p>
<p><b>Hughes AM(1), Chalder T(2), Hirsch CR(1), Moss-Morris R(1).</b></p>	<p>Psychology Department, King's College London, Institute of Psychiatry, London, UK.</p>	<p>An attention and interpretation bias for illness-specific information in chronic fatigue syndrome.</p>	<p>Psychol Med. 2017 Apr;47(5):853-865.</p>	<p>BACKGROUND: Studies have shown that specific cognitions and behaviours play a role in maintaining chronic fatigue syndrome (CFS). However, little research has investigated illness-specific cognitive processing in CFS. This study investigated whether CFS</p>

	<p>te of Psychiatry, Psychology and Neuroscience, London,UK. (2) Department of Psychological Medicine,King' s College London,Londo n,UK.</p>			<p>participants had an attentional bias for CFS-related stimuli and a tendency to interpret ambiguous information in a somatic way. It also determined whether cognitive processing biases were associated with co-morbidity, attentional control or self-reported unhelpful cognitions and behaviours. METHOD: A total of 52 CFS and 51 healthy participants completed self-report measures of symptoms, disability, mood, cognitions and behaviours. Participants also completed three experimental tasks, two designed specifically to tap into CFS salient cognitions: (i) visual-probe task measuring attentional bias to illness (somatic symptoms and disability) v. neutral words; (ii) interpretive bias task measuring positive v. somatic interpretations of ambiguous information; and (iii) the Attention Network Test measuring general attentional control. RESULTS: Compared with controls, CFS participants showed a significant attentional bias for fatigue-related words and were significantly more likely to interpret ambiguous information in a somatic way, controlling for depression and anxiety. CFS participants had significantly poorer attentional control than healthy individuals. Attention and interpretation biases were associated with fear/avoidance beliefs. Somatic interpretations were also associated with all-or-nothing behaviour and catastrophizing. CONCLUSIONS: People with CFS have illness-specific biases which may play a part in maintaining symptoms by reinforcing unhelpful illness beliefs and behaviours. Enhancing adaptive processing, such as positive interpretation biases and more flexible attention allocation, may provide beneficial intervention targets.</p>
<p><b>Indart S(1) , Hugon J, Guillausseau PJ, Gilbert A, Dumurgier J, Paquet C, SÃ"ne D.</b></p>	<p>aCognitive Neurology Center AP-HP, HÃ´pital LariboisiÃ¨re bINSERM, U942 cUniversity of Paris Diderot, Sorbonne Paris CitÃ©</p>	<p>Impact of pain on cognitive functions in primary SjÃ¶gren syndrome with small fiber neuropathy: 10 cases and a literature review.</p>	<p>Medicine (Baltimore) . 2017 Apr;96(16) :e6384.</p>	<p>Primary SjÃ¶gren syndrome (pSS) is a chronic systemic autoimmune disease characterized by xerophthalmia, xerostomia, and potential peripheral or central neurological involvement. In pSS, the prevalence of cognitive disorders is generally sparse across literature and the impact of pain on cognitive profile is unclear. The aim of this study was to determine the relation between pain, cognitive complaint, and impairment in a very homogenous population of 10 pSS patients with painful small fiber neuropathy (PSFN) and spontaneous cognitive complaint. Neurological exam, neuropsychological assessment, clinical evaluation measuring pain level, fatigue, anxiety, depression, and cognitive complaint were</p>

	<p>dDepartment of Internal Medicine, AP-HP, Hôpital Lariboisière, INSERM eDepartment of Biochemistry and Molecular Biology, AP-HP, Hôpital Lariboisière, Paris, France.</p>			<p>performed. Our results showed that 100% of patients had cognitive dysfunction especially in executive domain (80%) . The most sensitive test was the Wisconsin Card Sorting Test (WCST) , abnormal in 70% of our population. Moreover, we found clear cut significant correlations between pain levels and 3 measures of WCST: the number of errors (<math>R=0.768</math>, <math>P=0.0062</math>) , perseverations (<math>R=0.831</math>, <math>P=0.0042</math>) , and categories (<math>R=0.705</math>, <math>P=0.02</math>) . In the literature review, the impact of pain is underexplored and results could be discordant. In a homogeneous cohort of pSS patients with PSFN, a cognitive complaint seems to be a valid reflection of cognitive dysfunction marked by a specific executive profile found with the WCST. In this preliminary study, this profile is linked to the level of pain and highlights that an appropriate management of pain control and a cognitive readaptation in patients could improve the quality of life.</p>
<p><b>Ishida J(1) , Saitoh M(2) , Doehner W(3) , von Haehling S(2) , Anker M(4) , Anker SD(2) , Springer J(2) .</b></p>	<p>Institute of Innovative Clinical Trials, University Medical Centre Göttingen, Göttingen, Germany. Electronic address: juishida-circ@umin.ac.jp. (2) Institute of Innovative Clinical Trials, University Medical Centre Göttingen, Göttingen,</p>	<p>Animal models of cachexia and sarcopenia in chronic illness: Cardiac function, body composition changes and therapeutic results.</p>	<p>Int J Cardiol. 2017 Jul 1;238:12-18.</p>	<p>Cachexia is defined as a complex metabolic syndrome associated with underlying illness that is characterized by the loss of body weight consisting of muscle and fat mass wasting. Sarcopenia is defined as the ageing related loss of muscle mass in health and disease that may not have an effect on body weight. As millions of patients are in cachectic or sarcopenic states, both conditions contribute to high numbers to death worldwide. A number of treatments have been proposed for cachexia and sarcopenia, but these are either in the preclinical stage or in clinical trials and hence not available to the general population. Particularly in cachexia there is a massive problem of recruiting patients for trials and also with the follow-up, due to the seriousness of the disease. This underlines the importance of well-characterized animal models. Obviously, most of the widely used cachexia and sarcopenia animal models have limitations in reproducibility of the condition and novel models are warranted in this context. The key findings of developing models in the field of cachexia and sarcopenia are that more types of the conditions have been taken into the researchers' interest. In cardiac cachexia, technical issues, which limit the preciseness and reproducibility in surgical heart failure models, have been overcome by a combination of surgery and the use of transgenic mouse models or salt sensitive rat models. Fatigue is the most pronounced</p>



	Germany. (3) CharitÄ© - Campus Virchow (CVK) , Center for Stroke Research, Berlin, Germany. (4) CharitÄ© - Campus Benjamin Franklin (CBF) , Department of Cardiology, Berlin, Germany.			symptom of cachexia and may be caused by reduced cardiac function independent of the underlying disease. Sarcopenia models often suffer from the use of young animals, due to the limited availability and very high costs of using aged animals. This review will focus on rodent models designed to mimic cachexia and sarcopenia including co-morbidities such as cancer, heart failure, as well as other diseases and conditions.
<b>Ishida S(1) , Kato M(2) , Fujita T(2) , Funahashi Y(2) , Sassa N(2) , Matsukawa Y(2) , Yoshino Y(2) , Yamamoto T(2) , Katsuno T(3) , Maruyama S(3) , Gotoh M(2) .</b>	Department of Urology, Nagoya University Graduate School of Medicine, Nagoya, Japan. Electronic address: showhey@med.nagoya-u.ac.jp. (2) Department of Urology, Nagoya University Graduate	Calcineurin Inhibitor-Induced Pain Syndrome in ABO-Incompatible Living Kidney Transplantation: A Case Report.	Transplant Proc. 2017 Jan - Feb;49(1) :163-166.	<b>BACKGROUND:</b> Calcineurin-inhibitor-induced pain syndrome (CIPS) was used as a reference in the literature as reflex sympathetic dystrophy syndrome related to calcineurin inhibitors. Much of the literature describes CIPS that occurred after kidney and bone marrow transplantation. We describe a rare case of CIPS in induction immunosuppression before kidney transplantation, under administration of an anti-rheumatoid drug. <b>METHODS:</b> A 53-year-old woman had pre-status of ABO-incompatible living kidney transplantation. The patient had rheumatoid arthritis, but that was well-controlled with salazosulfapyridine as an anti-rheumatoid drug. Fourteen days before transplantation, she received induction immunosuppressive therapy consisting of tacrolimus (TAC) and mycophenolate mofetil (MMF) and she stopped taking salazosulfapyridine. The third day after that treatment, she had a high fever, fatigue, and joint pains of the knees, elbows, and wrists. <b>RESULTS:</b> When the patient stopped taking TAC and MMF and started taking salazosulfapyridine again, she soon recovered. Next, we challenged same induction immunosuppression therapy with administration of salazosulfapyridine; however, the patient had the

	School of Medicine, Nagoya, Japan. (3) Department of Nephrology, Nagoya University Graduate School of Medicine, Nagoya, Japan.			same symptom. We considered that the symptom was caused by TAC or MMF, and we did not challenge-test each drug. We found that taking only TAC caused the same symptom for the patient. Also, we challenged cyclosporine (CsA) with MMF and confirmed that she did not have the symptom. CONCLUSIONS: We decided that drugs of the induction immunosuppression therapy were CsA, MMF, prednisolone, and basiliximab. The patient received induction therapy with plasmapheresis and rituximab in addition to the above-mentioned drugs, and we performed ABO-incompatible kidney transplantation for her. The post-surgical course was good, without acute rejection, and she had no pain.
<b>Jackson H(1) , MacLeod AK(1) .</b>	Royal Holloway, University of London, London, UK.	Well-being in Chronic Fatigue Syndrome: Relationship to Symptoms and Psychological Distress.	Clin Psychol Psychother. 2017 Jul;24(4) :859-869.	OBJECTIVE: There is growing recognition in psychology that wellness is more than the absence of disease and distress. Well-being has been defined in numerous ways. Two dominant models include Diener, Eunkook, Suh, Lucas and Smith's (1999) model of subjective well-being (SWB) and Ryff's (1989) model of psychological well-being (PWB) . In contrast to the abundance of research investigating negative constructs and psychopathology in chronic fatigue syndrome (CFS) , there has been a paucity of positive psychology studies. This study had two aims: to examine PWB and SWB and their relationship to symptoms in CFS and to compare PWB scores in a subgroup of the CFS sample to a matched control group. METHOD: Chronic fatigue syndrome participants (n=60) completed self-report scales of PWB, SWB, fatigue, anxiety and depression. PWB scores in a subgroup of the CFS sample (n=42) were compared with those of a matched nonclinical control group (n=42) . RESULTS: Correlations between scales of symptoms and well-being were complex. Well-being dimensions were largely independent of physical components of fatigue but strongly related to psychological components of fatigue and psychological distress. Multiple regression indicated that five dimensions of well-being uniquely predicted symptomatology. Compared with the control group, the CFS group scored significantly lower on five of Ryff's six PWB dimensions, with particularly marked

				<p>deficits in personal growth, environmental mastery and self-acceptance. CONCLUSION: This multidimensional assessment of well-being advances our understanding of CFS and offers new treatment targets. Future research must investigate whether interventions targeting these well-being deficits can boost the efficacy of symptom-focused treatments. Copyright © 2016 John Wiley &amp; Sons, Ltd. KEY PRACTITIONER MESSAGES: Previous psychological research into CFS has largely focused on the identification of negative constructs and CBT, a treatment that targets evidenced-based negative constructs, has demonstrated efficacy in reducing levels of fatigue and disability. However, the majority of people continue to experience psychiatric symptoms and excessive levels of fatigue post-treatment. Finding ways to enhance the efficacy of existing treatments is a clinical priority. There is evidence to suggest that in clinical populations, standard CBT is effective at reducing negative affect and thinking but fails to enhance low levels of positive affect and thinking, implying treatments may be more effective if they promote positive functioning alongside a reduction of negative functioning. Multidimensional models of well-being suggest that well-being is not a single phenomenon, and different psychological disorders may be characterized by varying well-being deficit profiles. Psychological well-being was found to be diminished in CFS participants compared with controls, with particularly marked deficits in personal growth, environmental mastery and self-acceptance, suggesting that these may be particularly important treatment targets. Well-being dimensions within the CFS group were largely independent of physical symptoms but strongly related to psychological symptoms, suggesting what may be causing low levels of well-being in CFS is largely psychological factors and the general impact of living with a chronic illness rather than symptom levels per se.</p>
<p><b>Jain V(1) , Arunkumar A(2) , Kingdon C(3) , Lacerda E(3) , Nacul L(3) .</b></p>	<p>Guy's Campus, King's College London School of Medicine, London, SE1</p>	<p>Prevalence of and risk factors for severe cognitive and sleep symptoms in ME/CFS and MS.</p>	<p>BMC Neurol. 2017 Jun 20;17(1) :117.</p>	<p>BACKGROUND: There are considerable phenotypic and neuroimmune overlaps between myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and multiple sclerosis (MS) . While the precise aetiologies of both MS and ME/CFS are unclear, evidence suggests that deterioration in cognitive function is widely prevalent in patients with either condition. Little is known about differing risk</p>

	<p>1UL, UK.  vageesh.jain@kcl.ac.uk. (2)  University of California, San Francisco, School of Medicine, San Francisco, CA, 94143, USA.  (3) Faculty of Infectious and Tropical Diseases, CURE-ME Team, London School of Hygiene &amp; Tropical Medicine Disability and Eye Health Group, International Centre for Evidence in Disability (ICED, K/490, Keppel St, London, WC1E 7HT, UK.</p>			<p>factors or exposures, which may lead to severe cognitive or sleep symptoms. This study aims to gauge the extent of cognitive and sleep symptoms in ME/CFS and MS patients participating in the UK ME/CFS Biobank and identify the characteristics of those experiencing severe symptoms. METHODS: This was a cross-sectional study of 395 UK ME/CFS Biobank participants, recruited from primary care and the community, using similar standardised protocols, and matched by age, sex and geographical area. Data were collected from participants using a standardized written questionnaire at clinical visits. Cognitive symptoms included problems with short-term memory, attention, and executive function. Sleep symptoms included unrefreshing sleep and poor quality or inadequate duration of sleep. All participants reported symptoms based on an ordinal severity scale. Multivariable logistic regression was carried out in the ME/CFS group to investigate socio-demographic factors associated with severe symptoms. RESULTS: All cognitive and sleep symptoms were more prevalent in the ME/CFS group, with 'trouble concentrating' (98.3%) the most commonly reported symptom. Severe symptoms were also more commonly reported in the ME/CFS group, with 55% reporting 'severe, unrefreshing sleep'. Similarly, in the MS group, the most commonly reported severe symptoms were sleep-related. Logistic regression analysis revealed that ME/CFS patients aged over 50 years were more than three times as likely to experience severe symptoms than those younger than 30 (OR 3.23, <math>p = 0.031</math>). Current smoking was associated with severe symptoms, increasing the risk by approximately three times (OR 2.93, <math>p = 0.003</math>) and those with household incomes of more than £15,000 per year were less likely to experience severe symptoms compared to those earning less than this (OR 0.31, <math>p = 0.017</math>). CONCLUSIONS: Cognitive and sleep symptoms are more common in ME/CFS patients than in MS patients and healthy controls, providing further support for existing evidence of central nervous system abnormalities in ME/CFS. Our findings suggest that people with ME/CFS who are smokers, or have a low income, are more likely to report severe cognitive and sleep symptoms. Future research should aim to develop strategies to prevent the progression of severe cognitive and sleep symptoms</p>
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				through early interventions that prioritise patients identified as being at highest risk.
<b>Jamaluddin FN, Ahmad SA, Noor SBM, Hassan WZW, Azhar Y.</b>		Features selection for Bayes classification of prolonged fatigue on rectus femoris muscle.	Conf Proc IEEE Eng Med Biol Soc. 2017 Jul;2017:2506-2509.	Sports training is very important to athletes in improving and maintaining their performances. It commonly involves high intensity exercise and requires longer time for fatigue to recover, compares to normal activity. During training, adequate rest is essential to allow recuperation and build body strength. Unfortunately, inadequate rest exposes the body to prolonged fatigue (PF) . Hence, this condition needs to be managed accordingly to avoid chronic fatigue syndrome. Recent findings indicate that there are strong characteristics on surface EMG under PF conditions. Currently, the assessment is limited to glycogen breakdown, the existence of lactate and soreness. In this study, twenty participants were recruited to perform five days intensive training (IT) to induce more PF signs. The IT conducted was based on Bruce Protocol treadmill test. It was discovered that the IT successfully induces soreness, unexplained lethargy and performance decrement. Surface EMG were collected from rectus femoris muscle during daily pre and post treadmill tests. Four features were extracted from the surface EMG; mean frequency (Fmean) , median frequency (Fmed) , root mean square (RMS) and mean absolute value (MAV) . The results indicated that all features during post exercise had greater value under PF condition and it was significant at $P < 0.05$ . The features then were classified in accordance to Bayes. The results also showed that Fmed and MAV features offered good performance with 83.1% accuracy, 84.6% specificity and 80% of precision.
<b>Janse A(1) , Nikolaus S(2) , Wiborg JF(2) , Heins M(2) , van der Meer JWM(3) , Bleijenberg G(4) , Tummers M(5) , Twisk J(6) , Knoop H(7) .</b>	Expert Center for Chronic Fatigue, Department of Medical Psychology, Amsterdam Public Health research institute, Vrije Universiteit	Long-term follow-up after cognitive behaviour therapy for chronic fatigue syndrome.	J Psychosom Res. 2017 Jun;97:45-51.	OBJECTIVE: Cognitive behaviour therapy (CBT) is an effective treatment for chronic fatigue syndrome (CFS) . Main aim was to determine whether treatment effects were maintained up to 10years after treatment. METHODS: Participants (n=583) of previously published studies on the effects of CBT for CFS were contacted for a long-term follow-up assessment. They completed questionnaires on main outcomes fatigue severity (CIS) and physical functioning (SF-36) . The course of these outcomes since post-treatment assessment was examined using mixed model analyses. RESULTS: Between 21 and 125months after finishing CBT, 511 persons (response rate 88%) completed a follow-up assessment. At

	<p>Amsterdam, The Netherlands; Academic Medical Center (AMC) , University of Amsterdam, Department of Medical Psychology, Amsterdam Public Health research institute, Amsterdam, The Netherlands. (2) Expert Center for Chronic Fatigue, Department of Medical Psychology, Amsterdam Public Health research institute, Vrije Universiteit Amsterdam, The Netherlands. (3) Department of Internal</p>			<p>follow-up, mean fatigue severity was significantly increased to 37.60 (SD=12.76) and mean physical functioning significantly decreased to 73.16 (SD=23.56) compared to post-treatment assessment. At follow-up still 37% of the participants had fatigue scores in the normal range and 70% were not impaired in physical functioning. CONCLUSION: Positive effects of CBT for CFS on fatigue and physical functioning were partly sustained at long-term follow-up. However, a subgroup of patients once again reported severe fatigue, and compromised physical functioning. Further research should elucidate the reasons for this deterioration to facilitate the development of treatment strategies for relapse prevention.</p>
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<p><b>Jara LJ(1) (2) ,  Izquierdo E(3) (4) ,  Medina G(5) (6) .</b></p>	<p>Direction of  Education and  Research,  Hospital de  Especialidades</p>	<p>Is the immune neuroendocrine  system the connection between  epipharyngitis and chronic  fatigue syndrome induced by  HPV vaccine? : Editorial.</p>	<p>Immunol Res. 2017  Feb;65(1) :5-7.</p>	



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<b>Jason LA(1) , Katz B(2) , Gleason K(1) , McManimen S(1) , Sunnquist M(1) , Thorpe T(1) .</b>	DePaul University, Illinois, US. (2) Northwestern University Feinberg School of Medicine, Ann & Robert H Lurie Children's Hospital of Chicago, US.	A Prospective Study of Infectious Mononucleosis in College Students.	Int J Psychiatry (Overl Park) . 2017;2(1) . pii: <a href="http://www.opastonline.com/wp-content/uploads/2017/01/a-prospective-study-of-infectious-mononucleosis-in-college-students-IJP-17-016.pdf">http://www.opastonline.com/wp-content/uploads/2017/01/a-prospective-study-of-infectious-mononucleosis-in-college-students-IJP-17-016.pdf</a> . Epub 2017 Jan 20.	BACKGROUND: The present study aims to prospectively investigate possible biological and psychological factors present in college students who will go on to develop chronic fatigue syndrome (CFS) following Infectious Mononucleosis (IM) . Identification of risk factors predisposing patients towards developing CFS may help to understand the underlying mechanisms and ultimately prevent its occurrence. Our study is enrolling healthy college students over the age of 18. Enrollment began in March of 2013 and is ongoing. METHODS: Biological and psychological data are collected when students are well (Stage 1) , when they develop IM (Stage 2) , and approximately 6 months after IM diagnosis (Stage 3) . RESULTS: Two case studies demonstrate the progression of student symptomology across all three stages. CONCLUSION: The Case Studies presented illustrate the usefulness of a prospective research design that tracks healthy students, following their trajectory of IM illness to either a) full recovery or b) diagnosis with CFS.
<b>Jason LA(1) , McManimen S(1) , Sunnquist M(1) , Newton JL(2) , Strand EB(3) .</b>	DePaul University. (2) Institute for Ageing and Health, Newcastle University, Newcastle upon Tyne, UK. (3) Oslo University	Clinical Criteria Versus a Possible Research Case Definition in Chronic Fatigue Syndrome/Myalgic Encephalomyelitis.	Fatigue. 2017;5(2) :89-102.	BACKGROUND: The Institute of Medicine (IOM) recently developed clinical criteria for what had been known as chronic fatigue syndrome (CFS) . Given the broad nature of the clinical IOM criteria, there is a need for a research definition that would select a more homogenous and impaired group of patients than the IOM clinical criteria. At the present time, it is unclear what will serve as the research definition. PURPOSE: The current study focused on a research definition which selected homebound individuals who met the four IOM criteria, excluding medical and psychiatric comorbidities. METHODS: Our research criteria were compared to those participants meeting the IOM criteria. Those not meeting

	Hospital, Oslo, Norway.			either of these criteria sets were placed in a separate group defined by 6 or more months of fatigue. Data analyzed were from the DePaul Symptom Questionnaire and the SF-36. Due to unequal sample sizes and variances, Welch's F tests and Games-Howell post hoc tests were conducted. RESULTS: Using a large database of over 1,000 patients from several countries, we found that those meeting a more restrictive research definition were even more impaired and more symptomatic than those meeting criteria for the other two groups. CONCLUSION: Deciding on a particular research case definition would allow researchers to select more comparable patient samples across settings, and this would represent one of the most significant methodologic advances for this field of study.
<b>Jason LA(1) , McManimen S(1) , Sunnquist M(1) , Newton JL(2) , Strand EB(3) .</b>	DePaul University, Chicago, USA. (2) Institute for Ageing and Health, Newcastle University, Newcastle upon Tyne, UK. (3) Oslo University Hospital, Oslo, Norway.	Examining those Meeting IOM Criteria Versus IOM Plus Fibromyalgia.	Neurology (ECronicon) . 2017;5(1) :19-28. Epub 2017 Mar 8.	The Institute of Medicine (IOM) recently developed clinical criteria for chronic fatigue syndrome (CFS) . There might be additional criteria that could select a more homogenous and impaired group of patients, particularly those with pain. The current study focused on criteria which involved meeting the four IOM criteria, excluding medical and psychiatric co-morbidities, along with having fibromyalgia (FM) . Findings indicated that those meeting the IOM clinical criteria plus FM were more impaired on a wide variety of symptoms and functional areas than those meeting on the IOM criteria or those with just 6 months of fatigue. The implications of using such research criteria are discussed.
<b>Jason LA(1) , Ohanian D(1) , Brown A(1) , Sunnquist M(1) , McManimen S(1) , Klebek L(1) , Fox P(1) , Sorenson M(1) .</b>	College of Science and Health, DePaul University, USA.	Differentiating Multiple Sclerosis from Myalgic Encephalomyelitis and Chronic Fatigue Syndrome.	Insights Biomed. 2017;2(2) . pii: 11.	Multiple Sclerosis (MS) , Myalgic Encephalomyelitis (ME) , and Chronic Fatigue syndrome are debilitating chronic illnesses, with some overlapping symptoms. However, few studies have compared and contrasted symptom and disability profiles for these illnesses for the purpose of further differentiating them. The current study was an online self-report survey that compared symptoms from a sample of individuals with MS (N = 120) with a sample of individuals with ME or CFS (N = 269) . Respondents completed the self-report DePaul Symptom Questionnaire. Those individuals with ME or CFS reported significantly more functional limitations and significantly more

				severe symptoms than those with MS. The implications of these findings are discussed.
<b>Jason LA(1) .</b>	Center for Community Research, DePaul University, Chicago, IL, USA.	To Serve or Not to Serve: Ethical and Policy Implications.	Am J Community Psychol. 2017 Dec;60(3-4) :406-413.	The Institute of Medicine (IOM) is one of the nation's more influential health-related non-profit organizations. It plays a large role in shaping health policy by commissioning panels to develop "white papers" describing research and recommendations on a variety of health topics. These white paper publications are often used to help make policy decisions at the legislative and executive levels. Such a prominent institution might seem like a natural ally for policy-related collaborative efforts. As community psychologists, we strongly endorse efforts to positively influence public policy at the national level. However, while serving on influential panels and commissions like the IOM might seem to be very much part of the ethos of our discipline, there are occasions when such institutions are pursuing a mission that inadvertently has the potential to instigate divisive friction among community activists and organizations. A case study is presented whereby I describe my decision not to accept an invitation to serve on a controversial IOM panel. I explore the ethical challenges regarding maintaining my independence from this institution and its attempt to redefine chronic fatigue syndrome (CFS) and myalgic encephalomyelitis (ME), as well as the process of searching for alternative avenues for collaborating with community activists to influence policy related to these debilitating illnesses.
<b>Jason LA(1) .</b>	DePaul University, USA.	The PACE trial missteps on pacing and patient selection.	J Health Psychol. 2017 Aug;22(9) :1141-1145.	As others have pointed out a variety of complicating factors with the PACE trial (e.g. changing outcome criteria), I will limit my remarks to issues that involve the composition of adaptive pacing therapy and issues involving patient selection. My key points are that the PACE trial investigators were not successful in designing and implementing a valid pacing intervention and patient selection ambiguity further compromised the study's outcomes.
<b>John M(1) , Raman M(2) , Ryan K(3) .</b>	Professor of Ophthalmology, Al Azhar Medical College, Thodupuzha;	A tiny tick can cause a big health problem.	Indian J Ophthalmol. 2017 Nov;65(11) :1228-1232.	Ticks are tiny crawling bugs in the spider family that feed by sucking blood from animals. They are second only to mosquitoes as vectors of human disease, both infectious and toxic. Infected ticks spread over a hundred diseases, some of which are fatal if undetected. They spread the spirochete (which multiplies in the insect's gut) with a subsequent bite to the next host. We describe the only reported

	<p>Consulatant MGDM Hospital, Kangazha and LLM Hospital, Kidangoor, Kottayam, Kerala, India. (2) Professor of Parasitology, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) , Chennai, India. (3) Former Professor, Electron Microscopy Centre, Plymouth University, England, United Kingdom.</p>			<p>cases of peri ocular tick bite from India that presented to us within a span of 3 days and its management. Due suspicion and magnification of the lesions revealed the ticks which otherwise masqueraded as small skin tags/moles on gross examination. The ticks were firmly latched on to the skin and careful removal prevented incarceration of the mouth parts. Rickettsial diseases that were believed to have disappeared from India are reemerging and their presence has recently been documented in at least 11 states in the country. Among vector borne diseases, the most common, Lyme disease, also known as the great mimicker, can present with rheumatoid arthritis, fibromyalgia, depression, attention deficit hyperactivity disorder, multiple sclerosis, chronic fatigue syndrome, cardiac manifestations, encephalitis, and mental illness, to name some of the many associations. Common ocular symptoms and signs include conjunctivitis, keratitis, uveitis, and retinitis. Early detection and treatment of tick borne diseases is important to prevent multi system complications that can develop later in life.</p>
<p><b>Jones K(1) , Probst Y(1) (2) .</b></p>	<p>Smart Food Centre, Faculty of Science Medicine and</p>	<p>Role of dietary modification in alleviating chronic fatigue syndrome symptoms: a systematic review.</p>	<p>Aust N Z J Public Health. 2017 Aug;41(4) :338-344.</p>	<p>OBJECTIVE: To review the evidence for the role of dietary modifications in alleviating chronic fatigue syndrome symptoms. METHODS: A systematic literature review was guided by PRISMA and conducted using Scopus, CINAHL Plus, Web of Science and PsycINFO scientific databases (1994-2016) to identify relevant studies.</p>

	<p>Health, School of Medicine, University of Wollongong, New South Wales. (2) Illawarra Health and Medical Research Institute, New South Wales.</p>			<p>Twenty-two studies met the inclusion criteria, the quality of each paper was assessed and data extracted into a standardised tabular format. RESULTS: Positive outcomes were highlighted in some included studies for polyphenol intakes in animal studies, D-ribose supplementation in humans and aspects of symptom alleviation for one of three polynutrient supplement studies. Omega three fatty acid blood levels and supplementation with an omega three fatty acid supplement also displayed positive outcomes in relation to chronic fatigue syndrome symptom alleviation. CONCLUSIONS: Limited dietary modifications were found useful in alleviating chronic fatigue syndrome symptoms, with overall evidence narrow and inconsistent across studies. Implications for public health: Due to the individual and community impairment chronic fatigue syndrome causes the population, it is vital that awareness and further focused research on this topic is undertaken to clarify and consolidate recommendations and ensure accurate, useful distribution of information at a population level.</p>
<p><b>Josev EK(1) (2) , Jackson ML(2) (3) , Bei B(4) (5) , Trinder J(2) , Harvey A(1) (6) , Clarke C(1) , Snodgrass K(1) , Scheinberg A(1) (7) (8) , Knight SJ(1) (7) (9) .</b></p>	<p>Clinical Sciences, Murdoch Childrens Research Institute, Royal Children's Hospital, Melbourne, Australia.</p>	<p>Sleep Quality in Adolescents With Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME) .</p>	<p>J Clin Sleep Med. 2017 Sep 15;13(9) :1057-1066.</p>	<p>STUDY OBJECTIVES: Little is known about the type and severity of sleep disturbances in the pediatric chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) population, compared with healthy adolescents. Using a range of objective and subjective measures, the aim of this study was to investigate sleep quality, the relationship between objective and subjective measures of sleep quality, and their associations with anxiety in adolescents with CFS/ME compared with healthy controls. METHODS: Twenty-one adolescents with CFS/ME aged 13 to 18 years (mean age 15.57 <math>\pm</math> 1.40) , and 145 healthy adolescents aged 13 to 18 years (mean age 16.2 <math>\pm</math> 1.00) wore actigraphy watches continuously for 2 weeks to collect a number of objective sleep variables. The Pittsburgh Sleep Quality Index was used to obtain a subjective measure of sleep quality. Anxiety was measured by the Spence Children's Anxiety scale. RESULTS: On average over the 2-week period, adolescents with CFS/ME were found to have (1) significantly longer objective sleep onset latency, time in bed, total sleep time, and a later rise time (all <math>P &lt; .005</math> ) , and (2) significantly poorer subjective sleep quality (<math>P &lt; .001</math> ) , compared with healthy adolescents. The CFS/ME patient group displayed higher levels of anxiety (<math>P &lt; .05</math> ) , and in both</p>

				groups, higher levels of anxiety were significantly related to poorer subjective sleep quality ( $P < .001$ ) . CONCLUSIONS: This study provides objective and subjective evidence of sleep disturbance in adolescents with CFS/ME compared with healthy adolescent controls.
<b>Joustra ML(1) , Minovic I(2) (3) , Janssens KAM(1) , Bakker SJL(2) (3) , Rosmalen JGM(1) .</b>	Interdisciplinary Center Psychopathology and Emotion regulation, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands. (2) Department of Nephrology, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands. (3) Top Institute Food and Nutrition,	Vitamin and mineral status in chronic fatigue syndrome and fibromyalgia syndrome: A systematic review and meta-analysis.	PLoS One. 2017 Apr 28;12(4) :e0176631.	BACKGROUND: Many chronic fatigue syndrome (CFS) and fibromyalgia syndrome (FMS) patients (35-68%) use nutritional supplements, while it is unclear whether deficiencies in vitamins and minerals contribute to symptoms in these patients. Objectives were (1) to determine vitamin and mineral status in CFS and FMS patients as compared to healthy controls; (2) to investigate the association between vitamin and mineral status and clinical parameters, including symptom severity and quality of life; and (3) to determine the effect of supplementation on clinical parameters. METHODS: The databases PubMed, EMBASE, Web of Knowledge, and PsycINFO were searched for eligible studies. Articles published from January 1st 1994 for CFS patients and 1990 for FMS patients till March 1st 2017 were included. Articles were included if the status of one or more vitamins or minerals were reported, or an intervention concerning vitamins or minerals was performed. Two reviewers independently extracted data and assessed the risk of bias. RESULTS: A total of 5 RCTs and 40 observational studies were included in the qualitative synthesis, of which 27 studies were included in the meta-analyses. Circulating concentrations of vitamin E were lower in patients compared to controls (pooled standardized mean difference (SMD) : -1.57, 95%CI: -3.09, -0.05; $p = .042$ ) . However, this difference was not present when restricting the analyses to the subgroup of studies with high quality scores. Poor study quality and a substantial heterogeneity in most studies was found. No vitamins or minerals have been repeatedly or consistently linked to clinical parameters. In addition, RCTs testing supplements containing these vitamins and/or minerals did not result in clinical improvements. DISCUSSION: Little evidence was found to support the hypothesis that vitamin and mineral deficiencies play a role in the pathophysiology of CFS and FMS, and that the use of supplements is effective in these patients.

	Wageningen, the Netherlands.			
<b>Kajaia T(1) , Maskhulia L(1) , Chelidze K(1) , Akhalkatsi V(1) , Kakhabrishvili Z(1) .</b>	Tbilisi State Medical University, Georgia.	THE EFFECTS OF NON-FUNCTIONAL OVERREACHING AND OVERTRAINING ON AUTONOMIC NERVOUS SYSTEM FUNCTION IN HIGHLY TRAINED ATHLETES.	Georgian Med News. 2017 Mar;(264) :97-103.	Aim of the study was to compare the ANS functioning, as measured by heart rate variability (HRV) , in athletes with non-functional overreaching (NFO) and overtraining syndrome (OTS) and in athletes without NFO/OTS. In 43 athletes with NFO/OTS, 40 athletes without NFO/OTS, as well as in 35 sedentary subjects the ANS function was evaluated with the Autonomic Balance Test, based on the HRV analysis of resting heart rate recordings. Results of the study show lower HRV and lower vagal influence along with increased sympathetic cardiovascular control in athletes with non-functional overreaching and particularly in athletes with overtraining, than in highly trained athletes without NFO/OTS. "Stress Response" in athletes with NFO, as well as in some athletes with OTS, showing sympathetic dominance, considered as a sign of physical or mental fatigue and chronic stress, whereas "Total Autonomic Dystonia" in most of the athletes with OTS (67%) reflects more advanced stage of maladaptation associated with depressed regulatory function of the ANS, both sympathetic, as well as vagal influences. Most frequently NFO and OTS were seen in wrestling, which needs further investigation and regular medical monitoring. Thus, results of the study show progression of autonomic imbalance and depression of regulatory function of the autonomic nervous system in athletes with OTS. The cardiac autonomic imbalance observed in overtrained athletes implies changes in HRV and therefore would consider that heart rate variability may provide useful information in detection of overtraining in athletes and can be a valuable adjacent tool for optimising athlete's training program as well as for timely diagnosis and prevention of progression of NFO/OTS.
<b>Kanchanatawan B(1) , Sirivichayakul S(2) , Thika S(1) , Ruxrunghtham K(2) , Carvalho AF(3) , Geffard M(4) (5) , Anderson G(6) , Noto</b>	University, Bangkok, Thailand. (2) Faculty of Medicine, Chulalongkorn University,	Physio-somatic symptoms in schizophrenia: association with depression, anxiety, neurocognitive deficits and the tryptophan catabolite pathway.	Metab Brain Dis. 2017 Aug;32(4) :1003-1016.	To investigate the frequency of physio-somatic symptoms (PS) symptoms in schizophrenia and their relation to positive, negative and affective symptoms; neurocognitive deficits and impairments in the tryptophan catabolite (TRYCAT) pathway. Eighty four patients with schizophrenia and 40 healthy controls were assessed using the 12 item Fibromyalgia and Chronic Fatigue Syndrome Rating scale (FF) and scales for negative and positive symptoms, depression and

<p><b>C(7) , Ivanova R(8) , Maes M(9) (10) (11) (12) (13) .</b></p>	<p>Bangkok, Thailand.</p>			<p>anxiety. Cognitive functioning was tested using the Cambridge Neuropsychological Test Automated Battery (CANTAB) . Other assessments included: immunoglobulin (Ig) A and IgM responses to tryptophan catabolites (TRYCATs) , namely quinolinic (QA) , 3-OH-kynurenine (3HK) , picolinic (PA) , xanthurenic (XA) and kynurenic acid (KA) and anthranilic acid (AA) . More than 50% of the patients studied had elevated levels of physio-somatic (PS) symptoms, significantly co-occurring with depression and anxiety, but not with negative or positive symptoms. PS symptoms were significantly associated with IgA/IgM responses to TRYCATs, including increased IgA responses to 3 HK, PA and XA, and lowered IgA to QA and AA. Fatigue, muscle pain and tension, autonomic and cognitive symptoms and a flu-like malaise were strongly associated with cognitive impairments in spatial planning and working memory, paired associative learning, visual sustained attention and attention set shifting. PS symptoms in schizophrenia aggregate with depression and anxiety symptoms and may be driven by TRYCAT patterning of IgA/IgM-responses, with IgA indicating mucosal-mediated changes and IgM indicating regulatory functions. As such, the patterning of IgA/IgM responses to TRYCATs may indicate differential TRYCATs regulation of neuronal and glia activity that act to regulate PS signalling in schizophrenia.</p>
<p><b>KasapoÄŸlu Aksoy M(1) , Altan L(1) (2) , Ä–kmen Metin B(1) .</b></p>	<p>a Department of Physical Medicine and Rehabilitation , SaÄŸlÄ±k Bilimleri University Bursa YÄ¼sek İhtisas Training and Research Hospital , Bursa , Turkey and. (2) b</p>	<p>The relationship between balance and vitamin 25(OH) D in fibromyalgia patients.</p>	<p>Mod Rheumatol. 2017 Sep;27(5) :868-874.</p>	<p>INTRODUCTION: Fibromyalgia syndrome (FMS) is a chronic disease characterized by diffuse pain of unknown cause, fatigue, sleep disorders, cognitive dysfunction, and sensitivity. Fibromyalgia was shown to be associated with balance problems and increased incidence of falls. There are many theoretical mechanisms related to the impact of vitamin D on postural control. The aim of the current study was to investigate the relationship between vitamin 25(OH) D levels and pain, balance and daily activities in patients with FMS. METHOD: Patients aged 35-65 years who were diagnosed with FMS according to 1990 ACR diagnostic criteria were screened. Seventy patients diagnosed with FMS and 60 healthy controls with comparable age and gender were included in the study. Fibromyalgia impact scale (FIQ) , Berg Balance Scale (BBS) , the Nottingham Health Profile (NHP) , and visual analog scale (VAS) were applied to the subjects. The subjects were divided into two groups by vitamin</p>



	Department of Physical Medicine and Rehabilitation , Uludağ University Medicine Faculty , Bursa , Turkey.			25(OH) D level being above or below 30ng/ml. RESULTS: A statistically significant difference was established between VAS, BBS value and all NHP subscale and NHP total values of FMS patients and those of healthy control group. The relationship between BBS and the level of vitamin 25(OH) D of all participants was investigated, a positive statistically significant relationship was found with Vit-D at $r=0.481$ level ( $p<0.05$ ) . CONCLUSION: It was observed that low vitamin D levels affected balance in both FMS group and healthy control group. It should be kept in mind that vitamin D level is likely to negatively affect balance and VAS values in FMS.
<b>Kaub-Wittemer D(1) , Hall DA(2) , Kumpf U(3) , Padberg F(3) , Schneider SA(4) .</b>	Department of Neurology, Ludwig-Maximilians-University of München, Munich, Germany. (2) Department of Neurological Sciences, Rush University, Chicago, IL, USA. (3) Department of Psychiatry, Ludwig-Maximilians-University of München, Munich, Germany. (4) Department of Neurology, Ludwig-	Fragile X-associated tremor ataxia syndrome presenting as chronic fatigue syndrome.	Parkinsonism Relat Disord. 2017 Jun;39:85-86.	

	Maximilians-University of MÜNchen, Munich, Germany. Electronic address: susanne.schneider@med.uni-muenchen.de.			
<b>Keating EM(1) (2) , Antiel RM(1) , Weiss KE(1) , Wallace D(3) , Antiel SJ(1) , Fischer PR(1) , Junghans-Rutelonis AN(1) , Harbeck-Weber C(1) .</b>	1 Mayo Clinic, Rochester, MN, USA. (2) 2 Baylor College of Medicine/Texas Children's Hospital, Houston, TX, USA. (3) 3 Children's Mercy Hospital, Kansas City, MO, USA.	Parental Perceptions of Pediatric Pain and POTS-Related Disability.	Clin Pediatr (Phila) . 2017 Nov;56(13) :1185-1192.	Adolescents with postural orthostatic tachycardia syndrome (POTS) often have pain and functional impairment. This study evaluated how parental attributions of children's symptoms relate to child functional impairment. Adolescents with chronic pain and clinical symptoms suggestive of autonomic dysfunction (fatigue, dizziness, nausea) that attended a multidisciplinary chronic pain clinic completed measures of depression, anxiety, and functioning (n = 141) . Parents of 114 of these patients completed the Parent Pain Attribution Questionnaire (PPAQ) , a measure indicating the extent they believe physical and psychosocial factors account for their child's health condition. Patients were retrospectively grouped as to whether or not they had significant POTS on tilt table testing (n = 37) . Greater parental attribution to physical causes was associated with increased levels of functional disability whether patients had POTS ( r = 0.45, P = .006) or not ( r = 0.25, P = .03) . These results suggest that providers should advocate a more comprehensive family-oriented rehabilitative approach to treatment.
<b>Keijmel SP(1) (2) , Delsing CE(3) , Bleijenberg G(4) , van der Meer JWM(1) (2) , Donders RT(5) , Leclercq M(6) , Kampschreur LM(7) , van den Berg M(8) , Sprong T(2) (9) ,</b>	Radboud Expertise Center for Q Fever, Nijmegen, The Netherlands. (2) Department of Internal	Effectiveness of Long-term Doxycycline Treatment and Cognitive-Behavioral Therapy on Fatigue Severity in Patients with Q Fever Fatigue Syndrome (Qure Study) : A Randomized Controlled Trial.	Clin Infect Dis. 2017 Apr 15;64(8) :998-1005.	Background: Approximately 20% of patients with acute Q fever will develop chronic fatigue, referred to as Q fever fatigue syndrome (QFS) . The objective of this randomized controlled clinical trial was to assess the efficacy of either long-term treatment with doxycycline or cognitive-behavioral therapy (CBT) in reducing fatigue severity in patients with QFS. Methods: Adult patients were included who met the QFS criteria according to the Dutch guideline: a new onset of severe fatigue lasting ≥6 months with significant disabilities, related to an acute Q fever infection, without other somatic or

<p><b>Nabuurs-Franssen MH(10) , Knoop H(4) (11) , Bleeker-Rovers CP(1) (2) .</b></p>	<p>Medicine, Division of Infectious Diseases, Radboud University Medical Center, Nijmegen, The Netherlands.</p>			<p>psychiatric comorbidity explaining the fatigue. Using block randomization, patients were randomized between oral study medication and CBT (2:1) for 24 weeks. Second, a double-blind randomization between doxycycline (200 mg/day, once daily) and placebo was performed in the medication group. Primary outcome was fatigue severity at end of treatment (EOT; week 26) , assessed with the Checklist Individual Strength subscale Fatigue Severity. Results: Of 155 patients randomized, 154 were included in the intention-to-treat analysis (doxycycline, 52; placebo, 52; CBT, 50) . At EOT, fatigue severity was similar between doxycycline (40.8 [95% confidence interval {CI}, 37.3-44.3]) and placebo (37.8 [95% CI, 34.3-41.2]; difference, doxycycline vs placebo, -3.0 [97.5% CI, -8.7 to 2.6]; P = .45) . Fatigue severity was significantly lower after CBT (31.6 [95% CI, 28.0-35.1]) than after placebo (difference, CBT vs placebo, 6.2 [97.5% CI, .5-11.9]; P = .03) . Conclusions: CBT is effective in reducing fatigue severity in QFS patients. Long-term treatment with doxycycline does not reduce fatigue severity in QFS patients compared to placebo. Clinical Trials Registration: NCT01318356.</p>
<p><b>Kennedy C(1) (2) , Ryan SA(3) , Kane T(4) , Costello RW(5) (4) , Conlon PJ(5) (6) .</b></p>	<p>Royal College of Surgeons in Ireland, Dublin, Ireland. Kennedyclaire@gmail.com. (2) Department of Nephrology, Beaumont Hospital, Dublin 9, Ireland. Kennedyclaire@gmail.com. (3) Department</p>	<p>The impact of change of renal replacement therapy modality on sleep quality in patients with end-stage renal disease: a systematic review and meta-analysis.</p>	<p>J Nephrol. 2018 Feb;31(1) :61-70.</p>	<p>BACKGROUND: Sleep disorders are common and multi-factorial in patients with advanced chronic kidney disease and end-stage renal disease (ESRD) . Sleep disorders and disturbance have a negative impact on wellbeing and quality of life. OBJECTIVE: To assess the impact of a change in renal replacement therapy (RRT) modality on sleep quality and sleep disturbance in patients with ESRD. DATA SOURCES: Multiple electronic databases were searched without publication type/period restrictions. The reference lists of all included articles were manually searched for additional citations. Non-published data was identified by hand searching key conference abstracts. STUDY ELIGIBILITY CRITERIA: Participants of interest were adult patients with ESRD requiring RRT [conventional haemodialysis (HD) , short daily HD, nocturnal HD, continuous ambulatory peritoneal dialysis (CAPD) , continuous cycler-assisted peritoneal dialysis (CCPD) or transplantation]. The exposure or intervention of interest was switch of RRT modality. STUDY APPRAISAL: Two reviewers independently assessed all studies for inclusion and extracted relevant data. RESULTS: Sixteen studies with a combined total of 670 patients and 191 controls were included for review and</p>

	<p>of Neurology, Beaumont Hospital, Dublin 9, Ireland. (4) Department of Respiratory and Sleep Medicine, Beaumont Hospital, Dublin 9, Ireland. (5) Royal College of Surgeons in Ireland, Dublin, Ireland. (6) Department of Nephrology, Beaumont Hospital, Dublin 9, Ireland.</p>			<p>described in detail. Looking specifically at restless leg syndrome, symptoms resolved in over 60% of affected patients with a switch to increased intensity RRT (either intensive HD, CCPD or transplant) . Meta-analysis of the nine studies that looked specifically at sleep apnoea parameters again favoured intensive RRT over standard/conventional RRT (conventional HD or CAPD) with statistical significance [Risk ratio 0.66 (95% CI 0.51-0.84) ]. Meta-analysis of all studies favoured a switch to increased intensity RRT in terms of overall sleep quality, with statistical significance [Risk ratio 0.58 (95% CI 0.40-8.83) ]. LIMITATIONS: Restriction to the English language may have introduced selection bias. Funnel plot analysis suggested there was also an element of publication bias. Studies were heterogeneous in terms of patient selection, means of sleep quality assessment and modality switch. CONCLUSIONS AND IMPLICATIONS OF KEY FINDINGS: Sleep disturbance, sleep apnoea and restless legs syndrome all tend to improve when a switch is made to intensive dialysis or transplant. This is important information for patients struggling with disturbed sleep and marked fatigue. This hypothesis-generating review highlights the need for more high quality prospective research in the area.</p>
<p><b>Kindlon T(1) .</b></p>	<p>Irish ME/CFS Association, Ireland.</p>	<p>Do graded activity therapies cause harm in chronic fatigue syndrome?</p>	<p>J Health Psychol. 2017 Aug;22(9) :1146-1154.</p>	<p>Reporting of harms was much better in the PACE (Pacing, graded Activity, and Cognitive behavioural therapy: a randomised Evaluation) trial than earlier chronic fatigue syndrome trials of graded exercise therapy and cognitive behavioural therapy. However, some issues remain. The trial's poor results on objective measures of fitness suggest a lack of adherence to the activity component of these therapies. Therefore, the safety findings may not apply in other clinical contexts. Outside of clinical trials, many patients report deterioration with cognitive behavioural therapy and particularly graded exercise therapy. Also, exercise physiology studies reveal abnormalities in chronic fatigue syndrome patients'</p>

				responses to exertion. Given these considerations, one cannot conclude that these interventions are safe and risk-free.
<b>Kirke KD.</b>		PACE investigators' response is misleading regarding patient survey results.	J Health Psychol. 2017 Aug;22(9) :1168-1176.	The PACE investigators' citation of a patient survey might mislead readers into thinking that the experience of people with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) supports PACE findings. In fact, patient survey evidence directly contradicts the results of the PACE trial. A review of survey data published between 2001 and 2015 reveals that for most patients, graded exercise therapy leads to worsening of symptoms, cognitive behavioural therapy leads to no change in symptoms, and pacing leads to improvement. The experience of people with ME/CFS as reflected in surveys is a rich source of information, made more compelling by the consistency of results. Consequently, patient survey evidence can be used to inform practice, research and guidelines. Misrepresentation of patient experience must be vigorously challenged, to ensure that patients and health professionals make decisions about therapies based on accurate information.
<b>Komaroff AL(1) .</b>	Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA 02115 komaroff@hms.harvard.edu.	Inflammation correlates with symptoms in chronic fatigue syndrome.	Proc Natl Acad Sci U S A. 2017 Aug 22;114(34) :8914-8916.	
<b>Köseoğlu Hİ(1) , İnanır A(2) , Kanbay A(3) , Okan S(2) , Demir O(4) , Çeçen O(2) , İnanır S(5) .</b>	Department of Pulmonary Diseases, Gaziosmanpaşa University School of Medicine,	Is There a Link Between Obstructive Sleep Apnea Syndrome and Fibromyalgia Syndrome?	Turk Thorac J. 2017 Apr;18(2) :40-46.	OBJECTIVES: Fibromyalgia syndrome (FMS) is characterized by complaints of chronic musculoskeletal pain, fatigue, and difficulty in falling asleep. Obstructive sleep apnea syndrome (OSAS) is associated with symptoms, such as morning fatigueness and unrefreshing sleep. We aimed to investigate the presence of OSAS and objectively demonstrate changes in sleep pattern in patients with FMS. MATERIAL AND METHODS: Polysomnographic

	<p>Tokat, Turkey. (2) Department of Physical Medicine and Rehabilitation, Gaziosmanpa ÅŸa University School of Medicine, Tokat, Turkey. (3) Department of Pulmonary Diseases, Medeniyet University, Å°stanbul, Turkey. (4) Department of Biostatistics and Medical Informatics, Gaziosmanpa ÅŸa University School of Medicine, Tokat, Turkey. (5) Department of Mental Health and Diseases, Gaziosmanpa ÅŸa University School of</p>			<p>investigations were performed on 24 patients with FMS. Patients were divided into two groups: patients with and without OSAS (Group 1 and Group 2, respectively) . A total of 40 patients without FMS who presented to the sleep disorders polyclinic with an initial diagnosis of OSAS were included in Group 3. Based on their apnea hypopnea index (AHI) , OSAS in the patients were categorized as mild (AHI, 5-15) , moderate (30) , or severe (&gt;30) . RESULTS: OSAS was detected in 50% of patients with FMS. The most prominent clinical findings were morning fatigue and sleep disorder, which were similar in three groups. In polysomnography (PSG) evaluation, patients with FMS had mild (33%) , moderate (25%) , and severe (42%) OSAS. In correlation analyses, negative correlations were observed between fibromyalgia impact questionnaire (FIQ) and mean oxygen saturation, visual analogue scale (VAS) , and minimum oxygen saturation, whereas a positive correlation was found between FIQ and desaturation times in patients with FMS. CONCLUSION: Detection of OSAS in 50% of the patients with FMS, and similar rates of complaints of sleep disorder and morning fatigue of OSAS and FMS cases are important results. Detection of correlation between the severity of hypoxemia and FIQ and VAS scores are significant because it signifies the contribution of increased tissue hypoxemia to the deterioration of clinical status. Diagnosis and treatment of OSAS associated with FMS are important because of their favorable contributions to the improvement of the clinical picture of FMS.</p>
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	Medicine, Tokat, Turkey.			
<b>Koyama F(1) , Yoda T(2) , Hirao T(2) .</b>	Department of Occupational Mental Health with Return to Work Support Services, Toho University Sakura Medical Center, Toho, JAPAN. (2) Department of Public Health, Faculty of Medicine, Kagawa University, 1750-1, Ikenobe, Miki-cho, Kagawa761-0793, JAPAN.	Insomnia and Depression: Japanese Hospital Workers Questionnaire Survey.	Open Med (Wars) . 2017 Dec 22;12:391-398.	Objectives: This study aimed to identify a correlation between insomnia and the occurrence of depression among Japanese hospital employees using the data obtained from a self-reported questionnaire. Methods: A self-administered questionnaire on sleeping patterns, depression, fatigue, lifestyle-related diseases, and chronic pain was given to 7690 employees aged 20-60 years, and 5,083 employees responded. Results: An insomnia score of >2 was observed in 840 (13%) respondents. Chronic insomnia correlated significantly with gender, occupation, overtime work, metabolic syndrome, chronic pain, fatigue, and depression. Moreover, significant negative effects on depression scores were observed in males aged 30-39 (partial regression coefficient: $b=0.357$ , $p=0.016$ ) , females aged 20-29 ( $b=0.494$ , $p<0.001$ ) , male administrative staff ( $b=0.475$ , $p=0.003$ ) , males with metabolic syndrome ( $b=0.258$ , $p=0.023$ ) , and both genders with chronic insomnia (male; $b=0.480$ , $p<0.001$ : female; $b=0.485$ , $p<0.001$ ) , and fatigue (male; $b=1.180$ , $p<0.001$ : female; $b=1.151$ , $p<0.001$ ) . Discussion: Insomnia is a risk factor for depression and for other lifestyle-related diseases. The insomnia score may be useful in preventative care settings because it is associated with a wide spectrum of diseases and serves as a valuable marker for early detection of depression. Thus, our future studies will focus on establishing a method for early detection of depression symptoms among workers across various job profiles.
<b>Kraaij V(1) , Bik J(1) , Garnefski N(1) .</b>	Leiden University, The Netherlands.	Cognitive and behavioral coping in people with Chronic fatigue syndrome: An exploratory study searching for intervention targets for depressive symptoms.	J Health Psychol. 2017 May 1:1359105317707259.	The aim of the study was to find relevant coping factors for the development of psychological interventions for people with chronic fatigue syndrome who suffer from depressive symptoms. A total of 30 adults with chronic fatigue syndrome filled in the Cognitive Emotion Regulation Questionnaire, the COPE and the Hospital Anxiety and Depression Scale. The findings suggested that cognitive coping strategies have a stronger influence than behavioral coping strategies on depressive symptoms. Especially, the cognitive coping strategies refocusing positive, positive reappraisal and catastrophizing were of importance. These findings suggest that

				these coping strategies should be part of psychological programs for people with chronic fatigue syndrome.
<b>Kumar B(1) , Lenert P(2) .</b>	Division of Immunology, University of Iowa, Iowa City. Electronic address: Bharat-Kumar@Ulowa.edu. (2) Division of Immunology, University of Iowa, Iowa City.	Joint Hypermobility Syndrome: Recognizing a Commonly Overlooked Cause of Chronic Pain.	Am J Med. 2017 Jun;130(6) :640-647.	Joint hypermobility syndrome, also known as benign hypermobility syndrome, is a connective tissue disease characterized by joint instability, chronic pain, and minor skin changes. It shares many clinical features of Ehlers-Danlos syndrome, Hypermobility Type; enough so that many authorities consider them as one disease process. Approximately 3% of the general population is believed to have joint hypermobility syndrome, but despite this high prevalence, due to lack of awareness, heterogeneity of clinical presentation, and reliance on physical examination for diagnosis, it is largely overlooked by primary care physicians as well as by specialists. This leads to delayed or missed opportunities for diagnosis, and inappropriate interventions that frustrate both providers and patients. We review the literature regarding the pathophysiology, diagnosis, treatment options, and prognosis of joint hypermobility syndrome, and advocate for primary care physicians to consider it in the differential diagnosis of patients with chronic pain.
<b>Kumon S(1) , Usui R, Kuzuhara S, Nitta K, Koike M.</b>	Division of Nephrology, Department of Medicine, Tokyo Women's Medical University Yachiyo Medical Center, Japan.	The Improvement of the Outcome of Osmotic Demyelination Syndrome by Plasma Exchange.	Intern Med. 2017;56(6) :733-736.	A 71-year-old Japanese woman presented with progressive fatigue, lethargy, dysarthria and a gait disorder. Her laboratory data revealed hyponatremia (Na 101 mEq/L) , and we started correcting her serum sodium level. Within a few days, she became comatose, bedridden, and was intubated. We diagnosed osmotic demyelination syndrome (ODS) and started performing plasma exchange (PE) on the 39th day of hospitalization. She fully recovered after starting PE, and was discharged on foot unassisted. PE can be a beneficial treatment in patients with chronic ODS.
<b>Kutch JJ(1) , Ichesco E, Hampson JP, Labus JS, Farmer MA, Martucci KT, Ness TJ, Deutsch G, Apkarian AV, Mackey SC, Klumpp DJ, Schaeffer AJ, Rodriguez LV, Kreder</b>	Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles, CA,	Brain signature and functional impact of centralized pain: a multidisciplinary approach to the study of chronic pelvic pain (MAPP) network study.	Pain. 2017 Oct;158(10) :1979-1991.	Chronic pain is often measured with a severity score that overlooks its spatial distribution across the body. This widespread pain is believed to be a marker of centralization, a central nervous system process that decouples pain perception from nociceptive input. Here, we investigated whether centralization is manifested at the level of the brain using data from 1079 participants in the Multidisciplinary Approach to the Study of Chronic Pelvic Pain Research Network (MAPP) study. Participants with a clinical



<p><b>KJ, Buchwald D, Andriole GL, Lai HH, Mullins C, Kusek JW, Landis JR, Mayer EA, Clemens JQ, Clauw DJ, Harris RE; MAPP Research Network.</b></p>	<p>USAbDepartment of Anesthesiology, Chronic Pain and Fatigue Research Center, University of Michigan, Ann Arbor, MI, USA</p>			<p>diagnosis of urological chronic pelvic pain syndrome (UCPPS) were compared to pain-free controls and patients with fibromyalgia, the prototypical centralized pain disorder. Participants completed questionnaires capturing pain severity, function, and a body map of pain. A subset (UCPPS N = 110; fibromyalgia N = 23; healthy control N = 49) underwent functional and structural magnetic resonance imaging. Patients with UCPPS reported pain ranging from localized (pelvic) to widespread (throughout the body). Patients with widespread UCPPS displayed increased brain gray matter volume and functional connectivity involving sensorimotor and insular cortices (<math>P &lt; 0.05</math> corrected). These changes translated across disease diagnoses as identical outcomes were present in patients with fibromyalgia but not pain-free controls. Widespread pain was also associated with reduced physical and mental function independent of pain severity. Brain pathology in patients with centralized pain is related to pain distribution throughout the body. These patients may benefit from interventions targeting the central nervous system.</p>
<p><b>Kutch JJ(1), Labus JS, Harris RE, Martucci KT, Farmer MA, Fenske S, Fling C, Ichesco E, Peltier S, Petre B, Guo W, Hou X, Stephens AJ, Mullins C, Clauw DJ, Mackey SC, Apkarian AV, Landis JR, Mayer EA; MAPP Research Network.</b></p>	<p>Southern California, Los Angeles, CA, USA bG Oppenheimer Center for Neurobiology of Stress and Resilience, Pain and Interoception Network (PAIN), David Geffen School of Medicine at UCLA, Los Angeles, CA, USA</p>	<p>Resting-state functional connectivity predicts longitudinal pain symptom change in urologic chronic pelvic pain syndrome: a MAPP network study.</p>	<p>Pain. 2017 Jun;158(6):1069-1082.</p>	<p>Chronic pain symptoms often change over time, even in individuals who have had symptoms for years. Studying biological factors that predict trends in symptom change in chronic pain may uncover novel pathophysiological mechanisms and potential therapeutic targets. In this study, we investigated whether brain functional connectivity measures obtained from resting-state functional magnetic resonance imaging at baseline can predict longitudinal symptom change (3, 6, and 12 months after scan) in urologic chronic pelvic pain syndrome. We studied 52 individuals with urologic chronic pelvic pain syndrome (34 women, 18 men) who had baseline neuroimaging followed by symptom tracking every 2 weeks for 1 year as part of the Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network study. We found that brain functional connectivity can make a significant prediction of short-term (3 month) pain reduction with 73.1% accuracy (69.2% sensitivity and 75.0% precision). In addition, we found that the brain regions with greatest contribution to the classification were preferentially aligned with the left frontoparietal network. Resting-state functional magnetic resonance imaging measures seemed to be less</p>

				informative about 6- or 12-month symptom change. Our study provides the first evidence that future trends in symptom change in patients in a state of chronic pain may be linked to functional connectivity within specific brain networks.
<b>Lacerda EM(1) , Bowman EW(1) , Cliff JM(2) , Kingdon CC(1) , King EC(2) , Lee JS(2) , Clark TG(3) , Dockrell HM(2) , Riley EM(2) , Curran H(1) , Nacul L(1) .</b>	CureME Research Team, International Centre for Evidence in Disability (ICED) , Department of Clinical Research (CRD) , Faculty of Infectious and Tropical Diseases at the London School of Hygiene & Tropical Medicine, Keppel St, London WC1E 7HT, UK.	The UK ME/CFS Biobank for biomedical research on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) and Multiple Sclerosis.	Open J Bioresour. 2017;4. pii: 4.	The UK ME/CFS Biobank was launched in August 2011 following extensive consultation with professionals and patient representatives. The bioresource aims to enhance research on myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) , related to pathophysiology, biomarkers and therapeutic approaches. The cohort includes 18-60 year olds, encompassing 284 clinically- confirmed ME/CFS cases, 60 neurologist-diagnosed multiple sclerosis (MS) cases, and 135 healthy individuals. The Biobank contains blood samples, aliquoted into serum, plasma, peripheral blood mononuclear cells (PBMC) , red blood cells/granulocyte pellet, whole blood, and RNA (totalling 29,863 aliquots) . Extensive dataset (700 clinical and socio-demographic variables/participant) enables comprehensive phenotyping. Potential reuse is conditional to ethical approval.
<b>Larkin D(1) , Martin CR(2) .</b>	School of Psychology, Edge Hill University, L39 4QP Ormskirk, Lancashire, UK. (2) Faculty of Society and Health,	The interface between chronic fatigue syndrome and depression: A psychobiological and neurophysiological conundrum.	Neurophysiol Clin. 2017 Apr;47(2) :123- 129.	The chronic fatigue syndrome (CFS) remains a contentious and controversial presentation despite decades of systematic research from a variety of medical specialties and associated disciplines. Variously championed as a condition of immunological, neurological, neurophysiological, psychiatric or psychological origin, consensus on a cogent and evidenced-based pathway has yet to be achieved. Irrespective of the ambiguity regarding aetiology, what is incontrovertible is the experience of significant depression, which often accompanies this most distressing clinical presentation. The current paper examines the potential underlying mechanisms, which

	Buckinghamshire New University, UB8 1NA Uxbridge, UK. Electronic address: colin.martin@bucks.ac.uk.			may determine and explain this relationship between CFS and depression. In doing so, it offers some insights, which may be of value in the development of evidence-based and scientifically-anchored interventions in individuals experiencing this diagnosis, to improve outcomes in relation to depression specifically and quality of life more generally.
<b>Larun L(1) , Brurberg KG(2) , Odgaard-Jensen J(3) , Price JR(4) .</b>	Norwegian Institute of Public Health, Postboks 4404 Nydalen, Oslo, Norway, N-0403. (2) Unit for Primary Care and Clinical Procedures, Norwegian Institute of Public Health, PO Box 4404, Nydalen, Oslo, Norway, 0403. (3) Biometrics, Link Medical Research AS, Box 4382 Nydalen, Oslo, Norway, N-0402. (4) Department of Psychiatry, University of Oxford, The	Exercise therapy for chronic fatigue syndrome. Update of Cochrane Database Syst Rev. 2016 Dec 20;12 :CD003200.	Cochrane Database Syst Rev. 2017 Apr 25;4:CD003200.	BACKGROUND: Chronic fatigue syndrome (CFS) is characterised by persistent, medically unexplained fatigue, as well as symptoms such as musculoskeletal pain, sleep disturbance, headaches and impaired concentration and short-term memory. CFS presents as a common, debilitating and serious health problem. Treatment may include physical interventions, such as exercise therapy, which was last reviewed in 2004. OBJECTIVES: The objective of this review was to determine the effects of exercise therapy (ET) for patients with CFS as compared with any other intervention or control.â€¢ Exercise therapy versus 'passive control' (e.g. treatment as usual, waiting-list control, relaxation, flexibility) .â€¢ Exercise therapy versus other active treatment (e.g. cognitive-behavioural therapy (CBT) , cognitive treatment, supportive therapy, pacing, pharmacological therapy such as antidepressants) .â€¢ Exercise therapy in combination with other specified treatment strategies versus other specified treatment strategies (e.g. exercise combined with pharmacological treatment vs pharmacological treatment alone) . SEARCH METHODS: We searched The Cochrane Collaboration Depression, Anxiety and Neurosis Controlled Trials Register (CCDANCTR) , the Cochrane Central Register of Controlled Trials (CENTRAL) and SPORTDiscus up to May 2014 using a comprehensive list of free-text terms for CFS and exercise. We located unpublished or ongoing trials through the World Health Organization (WHO) International Clinical Trials Registry Platform (to May 2014) . We screened reference lists of retrieved articles and contacted experts in the field for additional studies SELECTION CRITERIA: Randomised controlled trials involving adults with a primary diagnosis of CFS who were able to participate in exercise therapy. Studies had to compare exercise therapy with

	<p>Warneford Hospital, Headington, Oxford, UK, OX3 7JX.</p>			<p>passive control, psychological therapies, adaptive pacing therapy or pharmacological therapy. DATA COLLECTION AND ANALYSIS: Two review authors independently performed study selection, risk of bias assessments and data extraction. We combined continuous measures of outcomes using mean differences (MDs) and standardised mean differences (SMDs) . We combined serious adverse reactions and drop-outs using risk ratios (RRs) . We calculated an overall effect size with 95% confidence intervals (CIs) for each outcome. MAIN RESULTS: We have included eight randomised controlled studies and have reported data from 1518 participants in this review. Three studies diagnosed individuals with CFS using the 1994 criteria of the Centers for Disease Control and Prevention (CDC) ; five used the Oxford criteria. Exercise therapy lasted from 12 to 26 weeks. Seven studies used variations of aerobic exercise therapy such as walking, swimming, cycling or dancing provided at mixed levels in terms of intensity of the aerobic exercise from very low to quite rigorous, whilst one study used anaerobic exercise. Control groups consisted of passive control (eight studies; e.g. treatment as usual, relaxation, flexibility) or CBT (two studies) , cognitive therapy (one study) , supportive listening (one study) , pacing (one study) , pharmacological treatment (one study) and combination treatment (one study) . Risk of bias varied across studies, but within each study, little variation was found in the risk of bias across our primary and secondary outcome measures. Investigators compared exercise therapy with 'passive' control in eight trials, which enrolled 971 participants. Seven studies consistently showed a reduction in fatigue following exercise therapy at end of treatment, even though the fatigue scales used different scoring systems: an 11-item scale with a scoring system of 0 to 11 points (MD -6.06, 95% CI -6.95 to -5.17; one study, 148 participants; low-quality evidence) ; the same 11-item scale with a scoring system of 0 to 33 points (MD -2.82, 95% CI -4.07 to -1.57; three studies, 540 participants; moderate-quality evidence) ; and a 14-item scale with a scoring system of 0 to 42 points (MD -6.80, 95% CI -10.31 to -3.28; three studies, 152 participants; moderate-quality evidence) . Serious adverse reactions were rare in both groups (RR 0.99, 95% CI 0.14 to 6.97; one study, 319 participants; moderate-quality evidence) , but</p>
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				<p>sparse data made it impossible for review authors to draw conclusions. Study authors reported a positive effect of exercise therapy at end of treatment with respect to sleep (MD -1.49, 95% CI -2.95 to -0.02; two studies, 323 participants) , physical functioning (MD 13.10, 95% CI 1.98 to 24.22; five studies, 725 participants) and self-perceived changes in overall health (RR 1.83, 95% CI 1.39 to 2.40; four studies, 489 participants) . It was not possible for review authors to draw conclusions regarding the remaining outcomes. Investigators compared exercise therapy with CBT in two trials (351 participants) . One trial (298 participants) reported little or no difference in fatigue at end of treatment between the two groups using an 11-item scale with a scoring system of 0 to 33 points (MD 0.20, 95% CI -1.49 to 1.89) . Both studies measured differences in fatigue at follow-up, but neither found differences between the two groups using an 11-item fatigue scale with a scoring system of 0 to 33 points (MD 0.30, 95% CI -1.45 to 2.05) and a nine-item Fatigue Severity Scale with a scoring system of 1 to 7 points (MD 0.40, 95% CI -0.34 to 1.14) . Serious adverse reactions were rare in both groups (RR 0.67, 95% CI 0.11 to 3.96) . We observed little or no difference in physical functioning, depression, anxiety and sleep, and we were not able to draw any conclusions with regard to pain, self-perceived changes in overall health, use of health service resources and drop-out rate. With regard to other comparisons, one study (320 participants) suggested a general benefit of exercise over adaptive pacing, and another study (183 participants) a benefit of exercise over supportive listening. The available evidence was too sparse to draw conclusions about the effect of pharmaceutical interventions.</p> <p><b>AUTHORS' CONCLUSIONS:</b> Patients with CFS may generally benefit and feel less fatigued following exercise therapy, and no evidence suggests that exercise therapy may worsen outcomes. A positive effect with respect to sleep, physical function and self-perceived general health has been observed, but no conclusions for the outcomes of pain, quality of life, anxiety, depression, drop-out rate and health service resources were possible. The effectiveness of exercise therapy seems greater than that of pacing but similar to that of CBT. Randomised trials with low risk of bias are needed to</p>
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				investigate the type, duration and intensity of the most beneficial exercise intervention.
<b>Lattanzio SM(1) .</b>	Department of Biomedical Sciences, University of Padova, Padova, Italy.	Fibromyalgia Syndrome: A Metabolic Approach Grounded in Biochemistry for the Remission of Symptoms.	Front Med (Lausanne) . 2017 Nov 13;4:198.	Fibromyalgia syndrome (FMS) is a chronic, complex, and heterogeneous disorder of still poorly understood etiopathophysiology associated with important musculoskeletal widespread pain, fatigue, non-restorative sleep, and mood disturbances. It is estimated to afflict 2-3% of the worldwide population, with clean prevalence among women. The objective of this paper is to propose a novel treatment for symptomatic remission of FMS, grounded in biochemistry and consisting in the withdrawal from the diet of molecules that can indirectly trigger the symptoms. The hypothesis develops from the evidence that low serotonin levels are involved in FMS. Serotonin is synthesized starting from the essential amino acid tryptophan. The presence of non-absorbed molecules in the gut, primarily fructose, reduces tryptophan absorption. Low tryptophan absorption leads to low serotonin synthesis that triggers FMS symptoms. Moreover not-absorbed sugars could also produce a microbiota deterioration activating a positive feedback loop: the increasing microbiota deterioration reduces the functionality of absorption both of fructose and tryptophan in the gut, entering a vicious circle. The therapeutic idea is to sustain serotonin synthesis allowing the proper tryptophan absorption. The core of the cure treatment is the exclusion from the diet of some carbohydrates and the marked reduction of some others. The main target is the limitation of total dietary fructose as marked as possible. It could be an effective strategy to get the remission of symptoms acting on the impaired biochemical pathways. The straying from the treatment is expected to cause the reappear of the symptoms.
<b>Laws KR(1) .</b>	University of Hertfordshire, UK.	Distress signals: Does cognitive behavioural therapy reduce or increase distress in chronic fatigue syndrome/myalgic encephalomyelitis?	J Health Psychol. 2017 Aug;22(9) :1177-1180.	Reducing the psychological distress associated with chronic fatigue syndrome/myalgic encephalomyelitis is seen as a key aim of cognitive behavioural therapy. Although cognitive behavioural therapy is promoted precisely in this manner by the National Institute of Clinical Excellence, the evidence base on distress reduction from randomised controlled trials is limited, equivocal and poor quality. Crucially, data derived from multiple patient surveys point to worsening and increase distress; however, despite being

				invited, such data have been dismissed as second class by National Institute of Clinical Excellence. Crucially, the claim by National Institute of Clinical Excellence that cognitive behavioural therapy reduces distress in chronic fatigue syndrome/myalgic encephalomyelitis is not only at odds with what patients repeatedly report in surveys, but with their own gold-standard randomised controlled trial and meta-analytic data.
<b>Lechner J(1) , Huesker K(2) , Von Baehr V(3) .</b>	Clinic for Integrative Dentistry, Munich, Germany. (2) Endocrinology and Immunology Department, Institute for Medical Diagnostics, Berlin, Germany. (3) Compartment of Immunology and Allergology, Institute for Medical Diagnostics, Berlin, Germany.	Impact of Rantes from jawbone on Chronic Fatigue Syndrome.	J Biol Regul Homeost Agents. 2017 Apr-Jun;31(2) :321-327.	This study elucidates the question of whether chronic inflammation in the jawbone contributes to the development of Chronic Fatigue Syndrome (CFS) . Fatty degenerative osteonecrosis in jawbone (FDOJ) may contribute to CFS by induction of inflammatory mediators. We examined seven cytokines by multiplex analysis in jawbone samples from two groups of patients. In order to clarify neurological interrelations, specimens from 21 CFS patients were analyzed from areas of previous surgery in the retromolar wisdom tooth area. Each of the retromolar jawbone samples showed clinically fatty degenerated and osteonecrotic medullary changes. As control, healthy jawbone specimens from 19 healthy patients were analyzed. All fatty necrotic and osteolytic jawbone (FDOJ) samples showed high expression of RANTES and fibroblast growth factor (FGF) -2. FDOJ cohorts showed a 30-fold mean overexpression of RANTES and a 20-fold overexpressed level of FGF-2 when compared to healthy controls. As RANTES is discussed in the literature as a possible contributor to inflammatory diseases, we hypothesize that FDOJ in areas of improper and incomplete wound healing in the jawbone may hyperactivate signaling pathways. Constituting a hidden source of "silent inflammation" FDOJ may represent a hitherto unknown cause for the development of CFS.
<b>Lefaucheur JP(1) , Chalah MA(2) , Mhalla A(3) , Palm U(4) , Ayache SS(3) , Mylius V(5) .</b>	EA 4391, faculté de médecine de Créteil, université Paris Est	The treatment of fatigue by non-invasive brain stimulation.	Neurophysiol Clin. 2017 Apr;47(2) :173-184.	The use of non-invasive brain neurostimulation (NIBS) techniques to treat neurological or psychiatric diseases is currently under development. Fatigue is a commonly observed symptom in the field of potentially treatable pathologies by NIBS, yet very little data has been published regarding its treatment. We conducted a review of the literature until the end of February 2017 to analyze all the

	Créteil, Créteil, France			<p>studies that reported a clinical assessment of the effects of NIBS techniques on fatigue. We have limited our analysis to repetitive transcranial magnetic stimulation (rTMS) and transcranial direct current stimulation (tDCS) . We found only 15 studies on this subject, including 8 tDCS studies and 7 rTMS studies. Of the tDCS studies, 6 concerned patients with multiple sclerosis while 6 rTMS studies concerned fibromyalgia or chronic fatigue syndrome. The remaining 3 studies included patients with post-polio syndrome, Parkinson's disease and amyotrophic lateral sclerosis. Three cortical regions were targeted: the primary sensorimotor cortex, the dorsolateral prefrontal cortex and the posterior parietal cortex. In all cases, tDCS protocols were performed according to a bipolar montage with the anode over the cortical target. On the other hand, rTMS protocols consisted of either high-frequency phasic stimulation or low-frequency tonic stimulation. The results available to date are still too few, partial and heterogeneous as to the methods applied, the clinical profile of the patients and the variables studied (different fatigue scores) in order to draw any conclusion. However, the effects obtained, especially in multiple sclerosis and fibromyalgia, are really carriers of therapeutic hope.</p>
<b>Li J(1) , Xie J(2) , Pan Z(1) , Guo X(1) , Li Y(1) , Fu R(1) .</b>	Department of Acupuncture, Moxibustion and Tuina, Huzhou Chinese Medicine Hospital, Huzhou 313000, Zhejiang Province, China. (2) Department of Rehabilitation	[Chronic fatigue syndrome treated with transcutaneous electrical acupoint stimulation: a randomized controlled trial]. [Article in Chinese]	Zhongguo Zhen Jiu. 2017 Dec 12;37(12) :1276-9.	<p>OBJECTIVE: To evaluate the clinical therapeutic effects and safety of chronic fatigue syndrome treated with transcutaneous electrical acupoint stimulation (TEAS) on the conception vessel and the governor vessel. METHODS: Eighty-nine patients of chronic fatigue syndrome were randomized into an observation group (46 cases) and a control group (43 cases) . In the observation group, TEAS was applied at Dazhui (GV 14) and Mingmen (GV 4) , Shenque (CV 8) and Guanyuan (CV 4) [the current intensity: (14±2) mA]. In the control group, the simulated TEAS was applied at the same acupoints as the observation group (the current intensity: 1 mA) . The treatment was given for 30 min, once a day, 5 times a week and the treatment of 4 weeks was as 1 session in the two groups. One session of treatment was required. Before treatment and at the end of 1 session of treatment, the fatigue severity scale (FSS) was adopted to evaluate the fatigue symptoms and the somatic and psychological health report (SPHERE) was adopted to evaluate the potential symptoms and observe the safety of TEAS therapy. RESULTS: At the end of</p>



	of Huzhou First People's Hospital.			treatment, FSS score and SPHERE score in the control group were not different significantly as compared with those before treatment (both $P>0.05$ ) . FSS score and SPHERE score in the observation group were reduced significantly as compared with those before treatment (both $P<0.01$ ) . FSS score and SPHERE score in the observation group were reduced apparently as compared with those in the control group (both $P<0.001$ ) . In the entire process of treatment with TEAS, no any adverse reaction occurred. CONCLUSION: TEAS on the conception vessel and the governor vessel relieves fatigue symptoms and the potential symptoms in the patients of chronic fatigue syndrome. It is a safe therapy.
<b>Li K(1) (2) , Naviaux JC(1) (3) , Bright AT(1) (2) , Wang L(1) (2) , Naviaux RK(1) (2) (4) (5) .</b>	The Mitochondrial and Metabolic Disease Center, University of California, San Diego, School of Medicine, 214 Dickinson St., Bldg CTF, Rm C102, San Diego, CA	A robust, single-injection method for targeted, broad-spectrum plasma metabolomics.	Metabolomics. 2017;13(10) :122.	BACKGROUND: Metabolomics is a powerful emerging technology for studying the systems biology and chemistry of health and disease. Current targeted methods are often limited by the number of analytes that can be measured, and/or require multiple injections. METHODS: We developed a single-injection, targeted broad-spectrum plasma metabolomic method on a SCIEX Qtrap 5500 LC-ESI-MS/MS platform. Analytical validation was conducted for the reproducibility, linearity, carryover and blood collection tube effects. The method was also clinically validated for its potential utility in the diagnosis of chronic fatigue syndrome (CFS) using a cohort of 22 males CFS and 18 age- and sex-matched controls. RESULTS: Optimization of LC conditions and MS/MS parameters enabled the measurement of 610 key metabolites from 63 biochemical pathways and 95 stable isotope standards in a 45-minute HILIC method using a single injection without sacrificing sensitivity. The total imprecision (CV <sub>total</sub> ) of peak area was 12% for both the control and CFS pools. The 8 metabolites selected in our previous study (PMID: 27573827) performed well in a clinical validation analysis even when the case and control samples were analyzed 1.5 years later on a different instrument by a different investigator, yielding a diagnostic accuracy of 95% (95% CI 85-100%) measured by the area under the ROC curve. CONCLUSIONS: A reliable and reproducible, broad-spectrum, targeted metabolomic method was developed, capable of measuring over 600 metabolites in plasma in a single injection. The method might be a useful tool in helping the diagnosis of CFS or other complex diseases.

<p><b>Li SH(1) (2) , Sandler CX(1) (3) , Casson SM(1) , Cassar J(1) (3) , Bogg T(1) , Lloyd AR(3) , Barry BK(1) (4) (5) .</b></p>	<p>School of Medical Sciences, University of New South Wales, Sydney, Australia.</p>	<p>Randomised controlled trial of online continuing education for health professionals to improve the management of chronic fatigue syndrome: a study protocol.</p>	<p>BMJ Open. 2017 May 10;7(5) :e014133.</p>	<p>INTRODUCTION: Chronic fatigue syndrome (CFS) is a serious and debilitating illness that affects between 0.2%-2.6% of the world's population. Although there is level 1 evidence of the benefit of cognitive behaviour therapy (CBT) and graded exercise therapy (GET) for some people with CFS, uptake of these interventions is low or at best untimely. This can be partly attributed to poor clinician awareness and knowledge of CFS and related CBT and GET interventions. This trial aims to evaluate the effect of participation in an online education programme, compared with a wait-list control group, on allied health professionals' knowledge about evidence-based CFS interventions and their levels of confidence to engage in the dissemination of these interventions. METHODS AND ANALYSIS: A randomised controlled trial consisting of 180 consenting allied health professionals will be conducted. Participants will be randomised into an intervention group (n=90) that will receive access to the online education programme, or a wait-list control group (n=90) . The primary outcomes will be: 1) knowledge and clinical reasoning skills regarding CFS and its management, measured at baseline, postintervention and follow-up, and 2) self-reported confidence in knowledge and clinical reasoning skills related to CFS. Secondary outcomes include retention of knowledge and satisfaction with the online education programme. The influence of the education programme on clinical practice behaviour, and self-reported success in the management of people with CFS, will also be assessed in a cohort study design with participants from the intervention and control groups combined. ETHICS AND DISSEMINATION: The study protocol has been approved by the Human Research Ethics Committee at The University of New South Wales (approval number HC16419) . Results will be disseminated via peer-reviewed journal articles and presentations at scientific conferences and meetings.</p>
<p><b>Lian OS(1) , Grue J(2) .</b></p>	<p>Department of Community Medicine, Faculty of Health Sciences,</p>	<p>Generating a Social Movement Online Community through an Online Discourse: The Case of Myalgic Encephalomyelitis.</p>	<p>J Med Humanit. 2017 Jun;38(2) :173-189.</p>	<p>Online communities, created and sustained by people sharing and discussing texts on the internet, play an increasingly important role in social health movements. In this essay, we explore a collective mobilization in miniature through an in-depth analysis of two satiric texts from an online community for people with myalgic encephalomyelitis (ME) . By blending a sociological analysis with a</p>

	<p>University of Tromsø, - The Arctic University of Norway, 9037, Tromsø, Norway.          olaug.lian@uit.no. (2)          Department of Special Needs Education, University of Oslo, 0318, Oslo, Norway.</p>			<p>rhetorical exploration of these texts, our aim is to grasp the discursive generation of a social movement online community set up by sufferers themselves to negotiate and contest the dominating biomedical perception of their condition.</p>
<p><b>Lidbury BA(1) (2) , Kita B(3) , Lewis DP(4) , Hayward S(5) , Ludlow H(6) , Hedger MP(5) , de Kretser DM(5) (7) .</b></p>	<p>Pattern Recognition and Pathology, Department of Genome Sciences, The John Curtin School of Medical Research, The Australian National University, Canberra, ACT, 2601, Australia.          brett.lidbury@anu.edu.au.</p>	<p>Activin B is a novel biomarker for chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) diagnosis: a cross sectional study.</p>	<p>J Transl Med. 2017 Mar 16;15(1) :60.</p>	<p>BACKGROUND: Investigations of activin family proteins as serum biomarkers for chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) . CFS/ME is a disease with complex, wide-ranging symptoms, featuring persistent fatigue of 6 months or longer, particularly post exertion. No definitive biomarkers are available. METHODS: A cross-sectional, observational study of CFS/ME patients fulfilling the 2003 Canadian Consensus Criteria, in parallel with healthy non-fatigued controls, was conducted. Comparisons with a previously defined activin reference population were also performed. For the total study cohort the age range was 18-65 years with a female: male participant ratio of greater than 3:1. All participants were assessed via a primary care community clinic. Blood samples were collected for pathology testing after physical examination and orthostatic intolerance assessment. Cytokines, activin A, activin B and follistatin were also measured in sera from these samples. All data were compared between the CFS/ME and control cohorts, with the activins and follistatin also compared with previously defined reference intervals. RESULTS: Serum activin B levels for CFS/ME participants were significantly elevated when compared to the study controls, as well as the established reference interval. Serum activin A and follistatin were within their normal</p>

				<p>ranges. All routine and special pathology markers were within the normal laboratory reference intervals for the total study cohort, with no significant differences detected between CFS/ME and control groups. Also, no significant differences were detected for IL-2, IL-4, IL-6, IL-10, IL-17A, TNF or IFN-gamma. CONCLUSION: Elevated activin B levels together with normal activin A levels identified patients with the diagnostic symptoms of CFS/ME, thus providing a novel serum based test. The activins have multiple physiological roles and capture the diverse array of symptoms experienced by CFS/ME patients.</p>
<p><b>Limpawattana P(1) , Putraveepong S(2) , Inthasuwan P(2) , Boonsawat W(3) , Theerakulpisut D(4) , Chindaprasirt J(5) .</b></p>	<p>Division of Geriatric Medicine. (2) Department of Internal Medicine. (3) Division of Respiratory System, Department of Internal Medicine. (4) Division of Nuclear Medicine, Department of Radiology. (5) Division of Oncology Medicine, Department of Internal Medicine, Faculty of Medicine, Khon Kaen University,</p>	<p>Frailty syndrome in ambulatory patients with COPD.</p>	<p>Int J Chron Obstruct Pulmon Dis. 2017 Apr 18;12:1193-1198.</p>	<p>Frailty is a state of increased risk of unfavorable outcomes when exposed to stressors, and COPD is one of the several chronic illnesses associated with the condition. However, few studies have been conducted regarding the prevalence of COPD and its related factors in Southeast Asia. The objectives of this study were to determine the prevalence of frailty in COPD patients and to identify the associated factors in these populations. A cross-sectional study of COPD patients who attended a COPD clinic was conducted from May 2015 to December 2016. Baseline characteristics were collected, and the diagnosis of frailty was based on the FRAIL (fatigue, resistance, ambulation, illnesses, and loss of weight) scale. Descriptive statistics were used to analyze baseline data. Factors associated with frailty were analyzed using univariate and multivariate regression analyses. The results showed that the prevalence rates of frailty and pre-frailty were 6.6% (eight out of 121 cases) and 41.3% (50 out of 121 cases) , respectively, among COPD patients. Fatigue was the most common component of the FRAIL scale that was found more frequently in frail patients than in non-frail patients (odds ratio [OR] 91.9) . Factors associated with frailty according to multivariate analyses were comorbid cancer (adjusted OR [AOR] 45.8) , at least two instances of nonelective admission over the past 12 months (AOR 112.5) , high waist circumference (WC) (AOR 1.3) , and presence of sarcopenia (AOR 29.5) . In conclusion, frailty affected 6.6% of stable COPD patients. Cancer, two or more instances of nonelective hospitalization over the past 12 months, high WC, and presence of sarcopenia were associated with frailty. Early identification and intervention in high-risk patients is recommended to prevent or delay the adverse outcomes of frailty.</p>

	Khon Kaen, Thailand.			
<b>Lin Y(1) , Pan F(2) , Wang Y(3) , Chen Z(4) , Lin C(1) , Yao L(1) , Zhang X(1) , Zhou R(1) , Pan C(1) .</b>	Department of Gastroenterology, Mengchao Hepatobiliary Hospital of Fujian Medical University, Fuzhou, Fujian 350025, P.R. China.	Adefovir dipivoxil-induced Fanconi syndrome and its predictive factors: A study of 28 cases.	Oncol Lett. 2017 Jan;13(1) :307-314.	The aim of the present study was to identify monitoring and prevention measures as well as predictive factors for early detection of renal toxicity associated with long-term administration of adefovir dipivoxil in order to avoid progression to Fanconi syndrome. Clinical data of 28 patients with Fanconi syndrome caused by long-term administration of adefovir dipivoxil for the treatment of chronic hepatitis B virus (HBV) infection were collected pre-and post-administration for analysis. Patients presented with fatigue, progressive systemic pain in multiple bones and joints, as well as difficulty in walking and pathological fractures in a number of severe cases. Laboratory examinations revealed hypophosphatemia, elevated serum cystatin C (Cys-C) , elevated serum creatinine (SCr) , reduced glomerular filtration rate (GFR) , positive urinary protein, erythrocytes and glucose, as well as osteoporosis. In consequence, adefovir dipivoxil administration was stopped, and patients received concentrated divitamins, sodium phosphate syrup and calcitriol. Symptoms and abnormalities in laboratory examinations were significantly improved in all patients after 2-6 months. Therefore, serum phosphate, SCr, routine urine parameters, Cys-C and GFR should be monitored regularly in chronic HBV patients treated with adefovir dipivoxil. The following factors were identified as predictive of kidney damage and Fanconi syndrome: Age $\geq$ 40 years, living in rural areas, previous renal toxicity, estimated GFR (eGFR) <90 ml/min/1.73 m <sup>2</sup> , hypertension, diabetes, cirrhosis and duration of adefovir dipivoxil treatment exceeding 24 months. The present results indicate that timely termination of adefovir dipivoxil treatment and replacement with other antiviral agents is critical once renal impairment appears, and that it is necessary to change to other antiviral agents and prolong the interval of administration according to the eGFR level.
<b>Loades ME(1) , Chalder T(2) .</b>	Department of Psychology, University of Bath, Bath BA2	Same, Same But Different? Cognitive Behavioural Treatment Approaches for Paediatric CFS/ME and Depression.	Behav Cogn Psychother. 2017 Jul;45(4) :366-381.	BACKGROUND: Approximately one in three children and young people with chronic fatigue syndrome (CFS/ME) also have probable depression. Cognitive behaviour therapy (CBT) has a growing evidence base as an effective treatment approach for CFS/ME and for depression in this population. AIMS: Given the high degree of co-

	7AY. (2) Department of Psychological Medicine,Insti tute of Psychiatry,Psy chology and Neuroscience, King's CollegeLondo n.			morbidity, this discussion paper aims to compare and contrast CBT for CFS/ME and CBT for depression in children and young people. METHOD: The existing literature on CBT for depression and CBT for CFS/ME, in relation to children and young people was reviewed. RESULTS: Whilst there are commonalities to both treatments, the cognitive behavioural model of CFS/ME maintenance includes different factors and has a different emphasis to the cognitive behavioural model of depression, resulting in different intervention targets and strategies in a different sequence. CONCLUSIONS: A collaborative, formulation-driven approach to intervention should inform the intervention targets and treatment strategies.
<b>Loades ME(1) (2) , Rimes KA(3) , Ali S(4) , Lievesley K(3) , Chalder T(3) (4) .</b>	1 Department of Psychology, University of Bath, UK. (2) 2 School of Social and Community Medicine, University of Bristol, UK. (3) 3 Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK. (4) 4 South London and Maudsley NHS Foundation Trust, UK.	The presence of co-morbid mental health problems in a cohort of adolescents with chronic fatigue syndrome.	Clin Child Psychol Psychiatry. 2017 Oct 1:135910451773635 7.	OBJECTIVE: To report on the prevalence of mental health disorders in adolescents with chronic fatigue syndrome (CFS) and to compare the diagnoses identified by a brief clinician-administered psychiatric interview with self-report screening questionnaires. DESIGN: Cross-sectional study. SETTING: Consecutive attenders to specialist CFS clinics in the United Kingdom. PATIENTS: Nâ€‰=â€‰52 adolescents, age 12-18â€‰years with CFS. MEASURES: Self-report questionnaires and a brief structured psychiatric diagnostic interview, administered by a researcher. RESULTS: On the psychiatric interview, 34.6% met a diagnosis of major depressive disorder and 28.8% had an anxiety disorder. Of these, 15% had co-morbid anxiety and depression. Those with a depression diagnosis reported significantly greater interference on the school and social adjustment scale. They also scored significantly higher on trait anxiety, but not on state anxiety. There were no differences between those who had an anxiety disorder and those who did not on fatigue, disability or depressive symptoms. Children's Depression Inventory (CDI) score was associated with a depression diagnosis on the psychiatric interview. However, neither the state nor the trait subscale of the State-Trait Anxiety Inventory (STAI) was associated with an anxiety diagnosis. CONCLUSION: Clinicians should assess for the presence of anxiety and depressive disorders in adolescents with CFS using a validated psychiatric interview. Treatment should be flexible enough to accommodate fatigue, depression and anxiety. Transdiagnostic

				approaches may suit this purpose. Goals should include pleasurable activities particularly for those who are depressed.
<b>Loebel M(1) , Eckey M(2) , Sotzny F(1) , Hahn E(1) , Bauer S(1) , Grabowski P(1) , Zerweck J(2) , Holenya P(2) , Hanitsch LG(1) , Wittke K(1) , Borchmann P(3) , RÄ½ffler JU(4) , Hiepe F(5) , Ruprecht K(6) , Behrends U(7) (8) (9) , Meindl C(7) (8) , Volk HD(1) (10) , Reimer U(2) , Scheibenbogen C(1) (10) .</b>	Virchow, Berlin, Germany	Serological profiling of the EBV immune response in Chronic Fatigue Syndrome using a peptide microarray.	PLoS One. 2017 Jun 12;12(6) :e0179124.	BACKGROUND: Epstein-Barr-Virus (EBV) plays an important role as trigger or cofactor for various autoimmune diseases. In a subset of patients with Chronic Fatigue Syndrome (CFS) disease starts with infectious mononucleosis as late primary EBV-infection, whereby altered levels of EBV-specific antibodies can be observed in another subset of patients. METHODS: We performed a comprehensive mapping of the IgG response against EBV comparing 50 healthy controls with 92 CFS patients using a microarray platform. Patients with multiple sclerosis (MS) , systemic lupus erythematosus (SLE) and cancer-related fatigue served as controls. 3054 overlapping peptides were synthesised as 15-mers from 14 different EBV proteins. Array data was validated by ELISA for selected peptides. Prevalence of EBV serotypes was determined by qPCR from throat washing samples. RESULTS: EBV type 1 infections were found in patients and controls. EBV seroarray profiles between healthy controls and CFS were less divergent than that observed for MS or SLE. We found significantly enhanced IgG responses to several EBNA-6 peptides containing a repeat sequence in CFS patients compared to controls. EBNA-6 peptide IgG responses correlated well with EBNA-6 protein responses. The EBNA-6 repeat region showed sequence homologies to various human proteins. CONCLUSION: Patients with CFS had a quite similar EBV IgG antibody response pattern as healthy controls. Enhanced IgG reactivity against an EBNA-6 repeat sequence and against EBNA-6 protein is found in CFS patients. Homologous sequences of various human proteins with this EBNA-6 repeat sequence might be potential targets for antigenic mimicry.
<b>Loriot M(1) .</b>	Institutions et dynamiques historiques de l'Ä©conomie et de la sociÄ©tÄ© (IDHES) , universitÄ© Paris 1	A sociological stance on fatigue and tiredness: Social inequalities, norms and representations.	Neurophysiol Clin. 2017 Apr;47(2) :87-94.	Fatigue is complex, representing simultaneously a physiological, psychological and social phenomenon. The sociological approach attempts to understand the experience of fatigue and its characterization at diverse periods and in various social contexts. After giving a sociological history of different forms of fatigue through the ages (acedia, melancholy, neurasthenia, chronic fatigue syndrome, etc.) , this article proposes a social epidemiology of fatigue in the current period. Objectification of working and living conditions allows us to illustrate social inequalities in fatigue and

	PanthÃ©on-Sorbonne, 16, boulevard Carnot, 92340 Bourg-La-Reine, France. Electronic address: marc.loriol@orange.fr.			exhaustion, but seems to contradict dominant social representations of fatigue today. It invites a critical discussion of contemporary theories of fatigue (such those of Alain Ehrenberg or Byung-Chul Han) , which consider that fatigue is a condition of modern man, overwhelmed by his freedom. More modestly, analysis of the fatigue presented here rests on the capacity to be able to find a good balance between too much investment in work or life (which is exhausting) and not enough investment (which leads to boredom and lack of self-fulfillment) . This balance depends on fragile and specific social norms in different professional or social circles and cannot be defined a priori.
<b>Lou Z(1) .</b>	Department of Otorhinolaryngology, the affiliated Yiwu Hospital, Yiwu City, 322000, Zhejiang Province, China. Electronic address: louzhengcai@163.com.	It is vital to identify the underlying cause of chronic laryngopharyngeal neuropathy.	Am J Otolaryngol. 2018 Jan - Feb;39(1) :74-75.	
<b>Lubet S(1) .</b>	Northwestern University, USA.	Defense of the PACE trial is based on argumentation fallacies.	J Health Psychol. 2017 Aug;22(9) :1201-1205.	In defense of the PACE trial, Petrie and Weinman employ a series of misleading or fallacious argumentation techniques, including circularity, blaming the victim, bait and switch, non-sequitur, setting up a straw person, guilt by association, red herring, and the parade of horrors. These are described and explained.
<b>Lubet S(1) .</b>	Northwestern University, USA.	Investigator bias and the PACE trial.	J Health Psychol. 2017 Aug;22(9) :1123-1127.	The PACE investigators reject Geraghty's suggestion that the cognitive behavior therapy/graded exercise therapy trial could have been better left to researchers with no stake in the theories under study. The potential sources and standards for determining researcher bias are considered, concluding that the PACE investigators "impartiality might reasonably be questioned."



<p><b>Maccallini P(1) , Bonin S(2) , Trevisan G(3) .</b></p>	<p>Department of Mechanical Engineering, Sapienza University of Rome, Rome, Italy. (2) DSM- Department of Medical Sciences-Unit of Dermatology-University of Trieste, Trieste, Italy. Electronic address: sbonin@units.it. (3) DSM- Department of Medical Sciences-Unit of Dermatology-University of Trieste, Trieste, Italy.</p>	<p>Autoimmunity against a glycolytic enzyme as a possible cause for persistent symptoms in Lyme disease.</p>	<p>Med Hypotheses. 2018 Jan;110:1-8.</p>	<p>Some patients with a history of <i>Borrelia burgdorferi</i> infection develop a chronic symptomatology characterized by cognitive deficits, fatigue, and pain, despite antibiotic treatment. The pathogenic mechanism that underlines this condition, referred to as post-treatment Lyme disease syndrome (PTLDS) , is currently unknown. A debate exists about whether PTLDS is due to persistent infection or to post-infectious damages in the immune system and the nervous system. We present the case of a patient with evidence of exposure to <i>Borrelia burgdorferi</i> sI and a long history of debilitating fatigue, cognitive abnormalities and autonomic nervous system issues. The patient had a positive Western blot for anti-basal ganglia antibodies, and the autoantigen has been identified as <math>\hat{I}^3</math> enolase, the neuron-specific isoenzyme of the glycolytic enzyme enolase. Assuming <i>Borrelia</i> own surface exposed enolase as the source of this autoantibody, through a mechanism of molecular mimicry, and given the absence of sera reactivity to <math>\hat{I}^{\pm}</math> enolase, a bioinformatical analysis was carried out to identify a possible cross-reactive conformational B cell epitope, shared by <i>Borrelia</i> enolase and <math>\hat{I}^3</math> enolase, but not by <math>\hat{I}^{\pm}</math> enolase. Taken that evidence, we hypothesize that this autoantibody interferes with glycolysis in neuronal cells, as the physiological basis for chronic symptoms in at least some cases of PTLDS. Studies investigating on the anti-<math>\hat{I}^3</math> enolase and anti-<i>Borrelia</i> enolase antibodies in PTLDS are needed to confirm our hypotheses.</p>
<p><b>Maclachlan L(1) , Watson S(2) (3) , Gallagher P(2) , Finkelmeyer A(2) , Jason LA(4) , Sunnquist M(4) , Newton JL(1) (5) .</b></p>	<p>Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, United Kingdom. (2)</p>	<p>Are current chronic fatigue syndrome criteria diagnosing different disease phenotypes?</p>	<p>PLoS One. 2017 Oct 20;12(10) :e0186885.</p>	<p>IMPORTANCE: Chronic fatigue syndrome (CFS) is characterised by a constellation of symptoms diagnosed with a number of different polythetic criteria. Heterogeneity across these diagnostic criteria is likely to be confounding research into the as-yet-unknown pathophysiology underlying this stigmatised and debilitating condition and may diagnose a disease spectrum with significant implications for clinical management. No studies to date have objectively investigated this possibility using a validated measure of CFS symptoms-the DePaul Symptom Questionnaire (DSQ) .</p>

	<p>Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, United Kingdom. (3) Northumberland Tyne and Wear NHS Foundation Trust, Newcastle upon Tyne, United Kingdom. (4) DePaul University, Chicago, IL, United States of America. (5) Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, United Kingdom.</p>			<p>OBJECTIVE: To examine whether current CFS diagnostic criteria are identifying different disease phenotypes using the DSQ. DESIGN: Case control study. SETTING: Clinical Research Facility of the Royal Victoria Infirmary, Newcastle upon Tyne, UK. PARTICIPANTS: 49 CFS subjects and ten matched, sedentary community controls, excluded for co-morbid depression. MAIN OUTCOMES AND MEASURES: Self-reported autonomic and cognitive features were assessed with the Composite Autonomic Symptom Score (COMPASS) and Cognitive Failures Questionnaire (COGFAIL) respectively. Objective autonomic cardiovascular parameters were examined using the Task Force® Monitor and a battery of neuropsychological tests administered for objective cognitive assessment. RESULTS: Self-reported autonomic and cognitive symptoms were significantly greater in CFS subjects compared to controls. There were no statistically significant differences in objective autonomic measures between CFS and controls. There were clinically significant differences between DSQ subgroups on objective autonomic testing. Visuospatial memory, verbal memory and psychomotor speed were significantly different between DSQ subgroups. CONCLUSIONS AND RELEVANCE: The finding of no significant differences in objective autonomic testing between CFS and control subjects may reflect the inclusion of sedentary controls or exclusion for co-morbid depression. Consistent exclusion criteria would enable better delineation of these two conditions and their presenting symptoms. Findings across CFS subgroups suggest subjects have a different disease burden on subjective and objective measures of function, autonomic parameters and cognitive impairment when categorised using the DSQ. Different CFS criteria may at best be diagnosing a spectrum of disease severities and at worst different CFS phenotypes or even different diseases. This complicates research and disease management and may contribute to the significant stigma associated with the condition.</p>
<p><b>Mahjoub F(1) , Salari R(1) , Noras MR(1) , Yousefi M(1) .</b></p>	<p>1 Mashhad University of Medical Sciences,</p>	<p>Are Traditional Remedies Useful in Management of Fibromyalgia and Chronic Fatigue Syndrome? A Review Study.</p>	<p>J Evid Based Complementary Altern Med. 2017 Oct;22(4) :1011-1016.</p>	<p>Fibromyalgia and chronic fatigue syndrome are disorders that often occur simultaneously and are characterized by widespread pain and persistent fatigue. The patients are associated with disability and impairment social and physical functions. There are many remedies in traditional Persian medicine suggested for management of the</p>

	Mashhad, Iran.			disease complaints. The aim of this study was to investigate the clinical presentations and pathophysiology of disorders with the basic and principal textbook of traditional Persian medicine written by Avicenna ( Canon of Medicine) . According to Persian medicine, the term E'aya can be matched by mentioned disorders. Avicenna believed that strenuous activities play an important role in the beginning of some types of fatigue. He classified fatigue into 4 groups, and in each type the clinical symptoms varied. The multifaceted entity of fibromyalgia and chronic fatigue syndrome in Persian medicine and conventional medicine suggests multidisciplinary therapies in management of these disabling disorders.
<b>Malatji BG(1) , Meyer H(2) , Mason S(1) , Engelke UFH(3) , Wevers RA(3) , van Reenen M(1) , Reinecke CJ(4) .</b>	Centre for Human Metabolomics , Faculty of Natural Sciences, North-West University (Potchefstroom Campus) , Private Bag X6001, Potchefstroom, South Africa.	A diagnostic biomarker profile for fibromyalgia syndrome based on an NMR metabolomics study of selected patients and controls.	BMC Neurol. 2017 May 11;17(1) :88.	BACKGROUND: Fibromyalgia syndrome (FMS) is a chronic pain syndrome. A plausible pathogenesis of the disease is uncertain and the pursuit of measurable biomarkers for objective identification of affected individuals is a continuing endeavour in FMS research. Our objective was to perform an explorative metabolomics study (1) to elucidate the global urinary metabolite profile of patients suffering from FMS, and (2) to explore the potential of this metabolite information to augment existing medical practice in diagnosing the disease. METHODS: We selected patients with a medical history of persistent FMS (n = 18) , who described their recent state of the disease through the Fibromyalgia Impact Questionnaire (FIQR) and an in-house clinical questionnaire (IHCQ) . Three control groups were used: first-generation family members of the patients (n = 11) , age-related individuals without any indications of FMS or related conditions (n = 10) , and healthy young (18-22 years) individuals (n = 20) . All subjects were female and the biofluid under investigation was urine. Correlation analysis of the FIQR showed the FMS patients represented a well-defined disease group for this metabolomics study. Spectral analyses of urine were conducted using a 500 MHz <sup>1</sup> H nuclear magnetic resonance (NMR) spectrometer; data processing and analyses were performed using Matlab, R, SPSS and SAS software. RESULTS AND DISCUSSION: Unsupervised and supervised multivariate analyses distinguished all three control groups and the FMS patients, and significant increases in metabolites related to the gut microbiome (hippuric, succinic and

				lactic acids) were observed. We have developed an algorithm for the diagnosis of FMS consisting of three metabolites - succinic acid, taurine and creatine - that have a good level of diagnostic accuracy (Receiver Operating Characteristic (ROC) analysis - area under the curve 90%) and on the pain and fatigue symptoms for the selected FMS patient group. CONCLUSION: Our data and comparative analyses indicated an altered metabolic profile of patients with FMS, analytically detectable within their urine. Validation studies may substantiate urinary metabolites to supplement information from medical assessment, tender-point measurements and FIQR questionnaires for an improved objective diagnosis of FMS.
<b>Malfliet A Pt MSc(1) (2) (3) , Van Oosterwijck J Pt PhD(1) (2) (4) , Meeus M Pt PhD(1) (4) (5) , Cagnie B Pt PhD(4) , Danneels L Pt PhD(4) , Dolphens M Pt PhD(4) , Buyl R Pt PhD(6) , Nijs J Pt PhD(1) (2) (3) .</b>	Pain in Motion Research Group , University of Antwerp , Antwerp , Belgium.	Kinesiophobia and maladaptive coping strategies prevent improvements in pain catastrophizing following pain neuroscience education in fibromyalgia/chronic fatigue syndrome: An explorative study.	Physiother Theory Pract. 2017 Aug;33(8) :653-660.	Many patients with chronic fatigue syndrome(CFS) and/or fibromyalgia(FM) have little understanding of their condition, leading to maladaptive pain cognitions and coping strategies. These should be tackled during therapy, for instance by pain neurophysiology education (PNE) . Although positive effects of PNE are well-established, it remains unclear why some patients benefit more than others. This paper aims at exploring characteristics of patients responding poor to PNE to further improve its effectiveness. Data from two RCT's were pooled to search for baseline predictors. Subjects (n = 39) suffering from CFS/FM, as defined by the American College of Rheumatology, underwent PNE treatment. The Pain Catastrophizing Scale (PCS) ; Pain Coping Inventory (PCI) ; and Tampa Scale of Kinesiophobia (TSK) were defined as outcome measures. There was a significant negative relationship between baseline TSK and the change in both PCS total score (r = -0.584; p < 0.001) and PCS rumination (r = -0.346; p < 0.05) . There was a significant negative relationship between the change in PCS total score and baseline PCI worrying (r = -0.795; p < 0.001) and retreating (r = -0.356; p < 0.05) . FM/CFS patients who tend to worry a lot about their pain and with high levels of kinesiophobia are likely to experience less reductions in catastrophizing following PNE. It seems that PNE alone is insufficient to reduce catastrophic thinking regarding pain, and supplementary treatment is needed.
<b>Maroti D(1) , Molander P(2) (3) ,</b>	Department of Clinical Sciences,	Differences in alexithymia and emotional awareness in	Scand J Psychol. 2017 Feb;58(1) :52-61.	Symptoms of Exhaustion Syndrome (ES) and Chronic Fatigue Syndrome (CFS) are overlapping and create difficulties of differential diagnosis. Empirical studies comparing ES and CFS are scarce. This

<p><b>Bileviciute-Ljungar I(1) (2) .</b></p>	<p>Karolinska Institutet and Department of Rehabilitation Medicine, Danderyd Hospital, Stockholm, Sweden. (2) Department of Medical and Health Sciences, Linköping University and Region Östergötland, Linköping, Sweden. (3) Department of Behavioral Sciences and Learning, Linköping University, Linköping, Sweden.</p>	<p>exhaustion syndrome and chronic fatigue syndrome.</p>		<p>study aims to investigate if there are any emotional differences between ES and CFS. This cross-sectional study compared self-reported alexithymia and observer-rated emotional awareness in patients with ES (n = 31), CFS (n = 38) and healthy controls (HC) (n = 30). Self-reported alexithymia was measured with the Toronto Alexithymia Scale-20 (TAS-20) and emotional awareness with an observer-rated performance test, the Level of Emotional Awareness Scale (LEAS). Additionally, depression and anxiety were scored by the Hospital Anxiety and Depression Scale (HADS). Results show that patients with ES expressed higher self-reported alexithymia in the TAS-20 compared to HC, but had similar emotional awareness capacity in the observer-rated performance test, the LEAS. Patients with CFS expressed more difficulties in identifying emotions compared to HCs, and performed significantly worse in the LEAS-total and spent more time completing the LEAS as compared to HC. Correlation and multiple regressions analyses revealed that depression and anxiety positively correlated with and explained part of the variances in alexithymia scores, while age and group explained the major part of the variance in LEAS. Findings of this study indicate that emotional status is different in patients with ES and CFS with respect to both self-reported alexithymia and observer-rated emotional awareness. Emotional parameters should be approached both in clinical investigation and psychotherapy for patients with ES and CFS.</p>
<p><b>Martínez-Laván M(1) (2) , Amezcua-Guerra L(3) (4) .</b></p>	<p>Rheumatology Department, National Institute of Cardiology, Juan Badiano 1, 14080, Mexico City,</p>	<p>Serious adverse events after HPV vaccination: a critical review of randomized trials and post-marketing case series.</p>	<p>Clin Rheumatol. 2017 Oct;36(10) :2169-2178.</p>	<p>This article critically reviews HPV vaccine serious adverse events described in pre-licensure randomized trials and in post-marketing case series. HPV vaccine randomized trials were identified in PubMed. Safety data were extracted. Post-marketing case series describing HPV immunization adverse events were reviewed. Most HPV vaccine randomized trials did not use inert placebo in the control group. Two of the largest randomized trials found significantly more severe adverse events in the tested HPV vaccine arm of the study. Compared to 2871 women receiving aluminum</p>

	<p>Mexico. drmartinezlavin@gmail.com. (2) Immunology Department, National Institute of Cardiology, Juan Badiano 1, 14080, Mexico City, Mexico. drmartinezlavin@gmail.com. (3) Rheumatology Department, National Institute of Cardiology, Juan Badiano 1, 14080, Mexico City, Mexico. (4) Immunology Department, National Institute of Cardiology, Juan Badiano 1, 14080, Mexico City, Mexico.</p>			<p>placebo, the group of 2881 women injected with the bivalent HPV vaccine had more deaths on follow-up (14 vs. 3, <math>p = 0.012</math>). Compared to 7078 girls injected with the 4-valent HPV vaccine, 7071 girls receiving the 9-valent dose had more serious systemic adverse events (3.3 vs. 2.6%, <math>p = 0.01</math>). For the 9-valent dose, our calculated number needed to seriously harm is 140 (95% CI, 79-653). The number needed to vaccinate is 1757 (95% CI, 131 to infinity). Practically, none of the serious adverse events occurring in any arm of both studies were judged to be vaccine-related. Pre-clinical trials, post-marketing case series, and the global drug adverse reaction database (VigiBase) describe similar post-HPV immunization symptom clusters. Two of the largest randomized HPV vaccine trials unveiled more severe adverse events in the tested HPV vaccine arm of the study. Nine-valent HPV vaccine has a worrisome number needed to vaccinate/number needed to harm quotient. Pre-clinical trials and post-marketing case series describe similar post-HPV immunization symptoms.</p>
<p><b>Maxmen A.</b></p>	<p>Comment on JCI Insight. 2016 Dec</p>	<p>Biological underpinnings of chronic fatigue syndrome begin to emerge.</p>	<p>Nature. 2017 Mar 28;543(7647):602.</p>	

	22;1(2:e89376 .			
<b>McBride RL(1) , Horsfield S(1) , Sandler CX(1) , Cassar J(1) , Casson S(1) , Cvejic E(2) , Vollmer- Conna U(3) , Lloyd AR(4) .</b>	UNSW Fatigue Clinic, School of Medical Sciences, University of New South Wales, Sydney, NSW 2052, Australia. (2) School of Psychiatry, University of New South Wales, Sydney, NSW 2052, Australia; University of Sydney, School of Public Health,Â Cam perdown, NSW 2006, Australia. Electronic address: erin.cvejic@sy dney.edu.au. (3) School of Psychiatry, University of New South	Cognitive remediation training improves performance in patients with chronic fatigue syndrome.	Psychiatry Res. 2017 Nov;257:400-405.	Neurocognitive disturbance with subjectively-impaired concentration and memory is a common, disabling symptom reported by patients with chronic fatigue syndrome (CFS) . We recently reported preliminary evidence for benefits of cognitive remediation as part of an integrated cognitive-behavioral therapy (CBT) / graded exercise therapy (GET) program. Here, we describe a contemporaneous, case-control trial evaluating the effectiveness of an online cognitive remediation training program (cognitive exercise therapy; CET) in addition to CBT/GET (n=36) , compared to CBT/GET alone (n=36) . The study was conducted in an academic, tertiary referral outpatient setting over 12 weeks (11 visits) with structured, home-based activities between visits. Participants self-reported standardized measures of symptom severity and functional status before and after the intervention. Those in the CET arm also completed standardized neurocognitive assessment before, and following, treatment. The addition of formal CET led to significantly greater improvements in self-reported neurocognitive symptoms compared to CBT/GET alone. Subjective improvement was predicted by CET group and lower baseline mood disturbance. In the CET group, significant improvements in objectively-measured executive function, processing speed, and working memory were observed. These subjective and objective performance improvements suggest that a computerized, home-based cognitive training program may be an effective intervention for patients with CFS, warranting randomized controlled trials.

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<p><b>McInnes K(1) (2) , Friesen CL(1) (3) , MacKenzie DE(2) (4) , Westwood DA(2) (3) (5) , Boe SG(1) (2) (3) (5) .</b></p>	<p>Laboratory for Brain Recovery and Function, Dalhousie University, Halifax, Nova Scotia, (2) School of Physiotherapy , Dalhousie</p>	<p>Mild Traumatic Brain Injury (mTBI) and chronic cognitive impairment: A scoping review.</p>	<p>PLoS One. 2017 Apr 11;12(4) :e0174847.</p>	<p>Mild traumatic brain injury (mTBI) , or concussion, is the most common type of traumatic brain injury. With mTBI comes symptoms that include headaches, fatigue, depression, anxiety and irritability, as well as impaired cognitive function. Symptom resolution is thought to occur within 3 months post-injury, with the exception of a small percentage of individuals who are said to experience persistent post-concussion syndrome. The number of individuals who experience persistent symptoms appears to be low despite clear evidence of longer-term pathophysiological changes resulting from mTBI. In light of the incongruency between these longer-term changes in brain pathology and the number of individuals with longer-term mTBI-related symptoms, particularly impaired cognitive</p>



	<p>University, Halifax, Nova Scotia, Canada. (3) Department of Psychology and Neuroscience, Dalhousie University, Halifax, Nova Scotia, Canada. (4) School of Occupational Therapy, Dalhousie University, Halifax, Nova Scotia, Canada. (5) School of Health and Human Performance, Dalhousie University, Halifax, Nova Scotia, Canada.</p>			<p>function, we performed a scoping review of the literature that behaviourally assessed short- and long-term cognitive function in individuals with a single mTBI, with the goal of identifying the impact of a single concussion on cognitive function in the chronic stage post-injury. CINAHL, Embase, and Medline/Ovid were searched July 2015 for studies related to concussion and cognitive impairment. Data relating to the presence/absence of cognitive impairment were extracted from 45 studies meeting our inclusion criteria. Results indicate that, in contrast to the prevailing view that most symptoms of concussion are resolved within 3 months post-injury, approximately half of individuals with a single mTBI demonstrate long-term cognitive impairment. Study limitations notwithstanding, these findings highlight the need to carefully examine the long-term implications of a single mTBI.</p>
<p><b>McManimen SL(1) , Jason LA(1) .</b></p>	<p>Center for Community Research, DePaul University, Chicago, IL, USA.</p>	<p>Differences in ME and CFS Symptomology in Patients with Normal and Abnormal Exercise Test Results.</p>	<p>Int J Neurol Neurother. 2017;4(1) . pii: 066.</p>	<p>Post-exertional malaise (PEM) is a cardinal symptom of myalgic encephalomyelitis (ME) and chronic fatigue syndrome (CFS) , which often distinguishes patients with this illness from healthy controls or individuals with exclusionary illnesses such as depression. However, occurrence rates for PEM fluctuate from subject to how the symptom is operationalized. One commonly utilized method is exercise testing, maximal or submaximal. Many patients with ME</p>

				and CFS experience PEM after participating in these tests, and often show abnormal results. However, some patients still exhibit normal results after participating in the exercise testing. This study examined the differences between two patient groups with ME and CFS, those with normal results and those with abnormal results, on several PEM-related symptoms and illness characteristics. The results suggest those that displayed abnormal results following testing have more frequent and severe PEM, worse overall functioning, and are more likely to be bedbound than those that displayed normal results.
<b>McManimen SL(1) , Jason LA(1) .</b>	Center for Community Research, DePaul University, 990 W Fullerton Avenue, Suite 3100, Chicago, IL USA.	Post-Exertional Malaise in Patients with ME and CFS with Comorbid Fibromyalgia.	SRL Neurol Neurosurg. 2017;3(1) :22-27. Epub 2017 Mar 10.	BACKGROUND: Myalgic encephalomyelitis (ME) and chronic fatigue syndrome (CFS) share some similar symptoms with fibromyalgia (FM) . Prior research has found increased illness severity when patients have FM that is comorbid with ME and CFS. For example, post-exertional malaise (PEM) has been shown to be more severe in those with comorbid FM. However, PEM can be separated into two factors, Muscle and General PEM. It is unknown if the more severe PEM findings in comorbid FM are due to the Muscle or General PEM factor. PURPOSE: The purpose of this study was to determine if the PEM differences seen between patients with and without comorbid FM exist for the Muscle or General PEM factors. METHOD: An international convenience sample was collected via an online questionnaire. The questionnaire assessed the frequency and severity of several PEM-related symptoms. Additionally, participants provided information regarding the course and characteristics of their illness. RESULTS: Participants that indicated a comorbid diagnosis of FM displayed significantly more frequent and severe PEM symptoms in the Muscle and General PEM factors. The FM group also indicated significantly worse physical functioning compared to the group without comorbid FM. DISCUSSION: The secondary diagnosis of FM in addition to ME and CFS appears to amplify the PEM symptomatology and worsen patients' physical functioning. The findings of this study have notable implications on the inclusion of patients with comorbid FM in ME and CFS research studies.
<b>McPhee G(1) .</b>	Independent Scholar, UK.	Cognitive behaviour therapy and objective assessments in chronic fatigue syndrome.	J Health Psychol. 2017	Most evaluations of cognitive behavioural therapy to treat people with chronic fatigue syndrome/myalgic encephalomyelitis rely exclusively on subjective self-report outcomes to evaluate whether

			Aug;22(9) :1181-1186.	treatment is effective. Few studies have used measures appropriate to assessing whether cognitive behavioural therapy changes in more objective measures. A review of studies incorporating objective measures suggests that there is a lack of evidence that cognitive behavioural therapy produces any improvement in a patient's physical capabilities or other objective measures such as return to work. Future studies of chronic fatigue syndrome/myalgic encephalomyelitis should include some objective assessments as primary outcomes. If this is to include activity monitors, we first need a sound baseline dataset.
<b>Melidis C(1) , Denham SL(2) , Hyland ME(3) .</b>	School of Computing, Electronics and Mathematics, United Kingdom; University of Plymouth, United Kingdom. (2) School of Psychology, United Kingdom; University of Plymouth, United Kingdom. (3) School of Psychology, United Kingdom; University of Plymouth, United Kingdom.	A test of the adaptive network explanation of functional disorders using a machine learning analysis of symptoms.	Biosystems. 2017 Dec 24;165:22-30.	The classification and etiology of functional disorders is controversial. Evidence supports both psychological and biological (disease) models that show, respectively, that functional disorders should be classified as one (bodily distress syndrome) and many (e.g., irritable bowel syndrome (IBS) , fibromyalgia syndrome (FMS) , and chronic fatigue syndrome (CFS) ) . Two network models (symptom network and adaptive network) can explain the specificity and covariation of symptomatology, but only the adaptive network model can explain the covariation of the somatic symptoms of functional disorders. The adaptive network model is based on the premise that a network of biological mechanisms has emergent properties and can exhibit adaptation. The purpose of this study was to test the predictions that symptom similarity increases with pathology and that network connection strengths vary with pathology, as this would be consistent with the notion that functional disorder pathology arises from network adaptation. We conducted a symptom internet survey followed by machine learning analysis. Participants were 1751 people reporting IBS, FMS or CFS diagnosis who completed a 61-item symptom questionnaire. Eleven symptom clusters were identified. Differences in symptom clusters between IBS, FMS and CFS groups decreased as overall symptom frequency increased. The strength of outgoing connections between clusters varied as a function of symptom frequency and single versus multiple diagnoses. The findings suggest that the pathology of functional disorders involves an increase in the activity and causal connections between several symptom causing mechanisms. The data provide support for the proposal that the body is capable of

	Electronic address: mhyland@plymouth.ac.uk.			complex adaptation and that functional disorders result when rules that normally improve adaptation create maladaptive change.
<b>Mensah FKF(1) , Bansal AS(2) , Ford B(2) , Cambridge G(3) .</b>	<p>Department of Rheumatology Research, Division of Medicine, University College of London, Rayne Building, 5, University Street, WC1E 6JF London, United Kingdom.</p> <p>Electronic address: f.mensah@ucl.ac.uk. (2)</p> <p>Department of Immunology, Epsom and St-Helier University Hospitals NHS Trust, London, United Kingdom. (3)</p> <p>Department of Rheumatology</p>	Chronic fatigue syndrome and the immune system: Where are we now?	Neurophysiol Clin. 2017 Apr;47(2) :131-138.	<p>Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is characterised by multiple symptoms including fatigue, headaches and cognitive impairment, which have a significantly adverse effect on the normal functioning and well-being of the individual. These symptoms are often triggered or worsened following physical or mental exertion. ME/CFS has long been thought of as having a significant immunological component, but reports describing changes in immune function are often inconsistent between study groups. Although the wide range of physical, neurocognitive and autonomic symptoms reported have seriously hampered attempts to understand pathophysiological pathways, investment in biomedical research in ME/CFS is finally increasing with a number of novel and promising investigations being published. The onset of ME/CFS may often be linked to (viral) infections which would be consistent with a variety of alterations in natural killer (NK) cell function as described by a number of different groups. Consistency in cytokine data has been lacking so far, although recently more sophisticated approaches have led to more robust data from large patient cohorts. New hope has also been given to sufferers with the possibility that therapies that deplete BÀ cells can result in clinical improvement. To understand the pathogenic mechanism in this complex condition, it is important to consider repeated analysis in different cohorts. In this review, we will discuss the potential of different components of the immune system to be involved in the pathogenesis of ME/CFS.</p>

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<b>Milrad SF(1) , Hall DL(2) , Jutagir DR(1) , Lattie EG(3) , Czaja SJ(4) , Perdomo DM(4) , Fletcher MA(5) , Klimas N(5) , Antoni MH(6) .</b>	Department of Psychology, University of Miami, United States.	Depression, evening salivary cortisol and inflammation in chronic fatigue syndrome: A psychoneuroendocrinological structural regression model.	Int J Psychophysiol. 2017 Sep 14. pii: S0167-8760(17) 30162-9.	INTRODUCTION: Chronic Fatigue Syndrome (CFS) is a poorly understood illness that is characterized by diverse somatic symptoms, hypothalamic pituitary adrenal (HPA) axis dysfunction and heightened inflammatory indicators. These symptoms are often exacerbated and accompanied by psychological distress states and depression. Since depression is known to be associated with HPA axis dysfunction and greater inflammation, a psychoneuroendocrinological (PNE) model of inflammation was examined in persons diagnosed with CFS in order to uncover underlying biopsychosocial mechanisms in this poorly understood chronic illness. METHODS: Baseline data were drawn from two randomized controlled trials testing the efficacy of different forms of psychosocial intervention, and included psychological questionnaires, di-urnal salivary cortisol, and blood samples. Data were analyzed with structural equation modeling (SEM) . RESULTS: The sample (N=265) was mostly middle-aged (Mage=49.36±10.9, range=20-73years) , Caucasian (67.7%) , female (81.7%) , highly educated (85.5% completed some college, college, or graduate program) , and depressed (CES-D M=23.87±12.02, range 2-57) . The SEM supporting a psychoneuroendocrinological model of immune dysregulation in CFS fit the data $\chi^2(12) = 17.725, p = 0.1243, RMSEA = 0.043, CFI = 0.935, SRMR = 0.036$ . Depression was directly related to evening salivary cortisol and inflammation, such that higher evening cortisol predicted greater depressive symptoms

				( $\hat{I}^2=0.215$ , $p<0.01$ ) and higher pro-inflammatory cytokines (interleukin-2 [IL-2], IL-6, and tumor necrosis factor-alpha [TNF- $\hat{I}^2$ ] levels ( $\hat{I}^2=0.185$ , $p<0.05$ ), when controlling for covariates. DISCUSSION: Results highlight the role of depression, cortisol and inflammation in possible biological mechanisms involved in the pathophysiology of CFS. Time-lagged, longitudinal analyses are needed to fully explore these relationships.
<b>Milrad SF(1) , Hall DL(2) , Jutagir DR(1) , Lattie EG(3) , Ironson GH(1) , Wohlgemuth W(4) , Nunez MV(5) , Garcia L(6) , Czaja SJ(6) , Perdomo DM(6) , Fletcher MA(5) , Klimas N(5) , Antoni MH(7) .</b>	Department of Psychology, University of Miami, 5665 Ponce de Leon Blvd., Miami, FL 33133, USA	Poor sleep quality is associated with greater circulating pro-inflammatory cytokines and severity and frequency of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) symptoms in women.	J Neuroimmunol. 2017 Feb 15;303:43-50.	OBJECTIVE: Poor sleep quality has been linked to inflammatory processes and worse disease outcomes in the context of many chronic illnesses, but less is known in conditions such as chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) . This study examines the relationships between sleep quality, pro-inflammatory cytokines, and CFS/ME symptoms. METHODS: Sixty women diagnosed with CFS/ME were assessed using the Pittsburgh Sleep Quality Index (PSQI) , Fatigue Symptom Inventory (FSI) and Center for Disease Control and Prevention (CDC) -based CFS/ME symptom questionnaires. Circulating plasma pro-inflammatory cytokine levels were measured by ELISA. Multiple regression analyses examined associations between sleep, cytokines and symptoms, controlling for age, education, and body mass index. RESULTS: Poor sleep quality (PSQI global score) was associated with greater pro-inflammatory cytokine levels: interleukin-1 $\hat{I}^2$ (IL-1 $\hat{I}^2$ ) ( $\hat{I}^2=0.258$ , $p=0.043$ ) , IL-6 ( $\hat{I}^2=0.281$ , $p=0.033$ ) , and tumor necrosis factor-alpha (TNF- $\hat{I}^2$ ) ( $\hat{I}^2=0.263$ , $p=0.044$ ) . Worse sleep quality related to greater fatigue severity ( $\hat{I}^2=0.395$ , $p=0.003$ ) and fatigue-related interference with daily activities ( $\hat{I}^2=0.464$ , $p<0.001$ ) , and more severe and frequent CDC-defined core CFS/ME symptoms ( $\hat{I}^2=0.499$ , $p<0.001$ , and $\hat{I}^2=0.556$ , $p<0.001$ , respectively) . CONCLUSIONS: Results underscore the importance of managing sleep-related difficulties in this patient population. Further research is needed to identify the etiology of sleep disruptions in CFS/ME and mechanistic factors linking sleep quality to symptom severity and inflammatory processes.
<b>Minami M(1) (2) , Muta T(1) , Adachi M(3) , Higuchi M(4) , Aoki K(3) , Ogawa R(3) .</b>	Department of Hematology/Oncology, Japan Community	Bilateral Adrenal Hemorrhage in a Patient with Antiphospholipid Syndrome During Chronic Graft-versus-host Disease.	Intern Med. 2017 Dec 27.	We present the case of a 56-year-old man with an upper respiratory infection followed by fatigue, hypotension, and hyponatremia. Bilateral adrenal hemorrhage was confirmed, based on T2-weighted magnetic resonance imaging. The patient had previously undergone allogeneic hematopoietic stem cell transplantation and had been

	<p>Health Care Organization (JCHO) Kyushu Hospital, Japan. (2) Department of Medicine and Biosystemic Science, Kyushu University Graduate School of Medicine, Japan. (3) Department of Endocrinology, Japan Community Health Care Organization (JCHO) Kyushu Hospital, Japan. (4) Department of Hematology, JR Kyushu Hospital, Japan.</p>			<p>diagnosed with antiphospholipid syndrome (APS) during the development of chronic graft-versus-host disease. A prompt diagnosis and steroid replacement, in addition to anticoagulant therapy, resulted in a favorable outcome. Once the diagnosis of APS has been confirmed, which might be the sign of bilateral adrenal hemorrhage, the initial manifestations of adrenal insufficiency should never be overlooked.</p>
<p><b>Mitra A(1) , Sur TK(2) , Upadhyay S(3) , Bhattacharyya D(2) , Hazra J(3) .</b></p>	<p>National Research Institute of Ayurvedic</p>	<p>Effect of Swarna Jibanti (Coelogyne cristata Lindley) in alleviation of chronic fatigue syndrome in aged Wistar rats.</p>	<p>J Ayurveda Integr Med. 2017 Nov 1. pii: S0975-9476(17)30217-6.</p>	<p>BACKGROUND: Swarna Jibanti scientifically known as Coelogyne cristata Lindley (Orchidaceae) , an orchid mentioned in Ayurvedic medicine is used to promote healthy life span. OBJECTIVE: The present work was planned to study the efficacy of hydro-alcoholic</p>

	<p>Drug Development, Kolkata Under CCRAS, Min. of AYUSH, Government of India, 4 CN Block, Sector-V, Bidhan Nagar, Kolkata, 700 091, India.</p>			<p>extract of pseudobulbs of <i>C.cristata</i> (CCE) to assess its role on chronic fatigue syndrome (CFS) induced behavioural and biochemical changes in aged Wistar rats compared to Panax ginseng (PG), a prototype anti-stress agent. MATERIALS AND METHODS: CFS was induced by forced swimming for consecutive 21 days for fixed duration (15 min sessions). The criteria of CFS due to fatigue were counted using locomotor activity, depression and anxiety through automated photactometer, immobility time and plus maze activity respectively. Acute toxicity study of CCE (upto 2 g/kg, Limit test) was also performed. For CFS, animals were divided into five groups, naive control, control, CCE treated (25 mg/kg b.w., 250 mg/kg b.w.) and standard PG treated (100 mg/kg b.w.) groups. All drugs were given orally for consecutive 21 days along with CFS. After assessing behavioural parameters, all animals were sacrificed at day 21 and in vivo antioxidant potential of CCE was determined by lipid peroxides, nitrite, catalase (CAT) and superoxide dismutase (SOD) in brain tissue. RESULTS: CCE was found to be non-toxic. CCE treated aged rats significantly improved (<math>p &lt; 0.001</math>) the spontaneous locomotor movement with respect to control rats, while, decreased the mobility period or depression score. In CFS, CCE also enhanced the time spent (<math>p &lt; 0.001</math>) in open arms while reducing the time spent in closed arm as compared to CFS control, indicating lowering anxiety score. Moreover, marked diminution in lipid peroxidation, nitrite and SOD level was exhibited after CCE treatment and significantly enhanced catalase level significantly (<math>p &lt; 0.01</math>) with respect to CFS control. PG also showed similar actions. CONCLUSION: The results confirmed the potential therapeutic actions of CCE against experimentally induced CFS in aged rats that might be due to its CNS mediatory antioxidant properties.</p>
<p><b>Miwa K(1)</b> .</p>	<p>Miwa Naika Clinic, Toyama, Japan. Electronic address: info@miwa-naika.com.</p>	<p>Down-regulation of renin-aldosterone and antidiuretic hormone systems in patients with myalgic encephalomyelitis/chronic fatigue syndrome.</p>	<p>J Cardiol. 2017 Apr;69(4) :684-688.</p>	<p>BACKGROUND: Central nervous system dysfunction associated with myalgic encephalomyelitis (ME) has been postulated as the cause of chronic fatigue syndrome (CFS). A small heart or reduced left ventricular volume with reduced cardiac output has been reported to be common in patients with ME. The main circulatory blood volume regulators may be down-regulated. METHODS: Plasma levels of the neurohumoral factors that regulate circulatory blood volume were determined in 18 patients with ME and 15 healthy subjects</p>



				<p>(Controls) . RESULTS: The echocardiographic examination revealed that the mean values for the left ventricular end-diastolic diameters, stroke volume index, and cardiac index as well as the mean blood pressure were all significantly smaller in the ME group than in the Controls. The mean plasma renin activity (<math>1.6\pm 1.0</math> ng/ml/h vs. <math>2.5\pm 1.5</math> ng/ml/h, <math>p=0.06</math>) was considerably lower in the ME group than in the Controls. Both the mean plasma aldosterone (<math>104\pm 37</math> pg/ml vs. <math>157\pm 67</math> pg/ml, <math>p=0.004</math>) and antidiuretic hormone (ADH) (<math>2.2\pm 1.0</math> pg/ml vs. <math>3.3\pm 1.5</math> pg/ml, <math>p=0.02</math>) concentrations were significantly lower in the ME group than in the Controls. Desmopressin (<math>120\mu\text{g}</math>), a synthetic version of arginine vasopressin, was orally administered for five successive days to 10 patients with ME. In five patients (50%), the symptoms of orthostatic intolerance during a 10min active standing test were ameliorated in association with a significant increase in urinary osmotic pressure and decrease in heart rate. Furthermore, in five patients (50%), the performance status scores for the activities of daily living were improved. CONCLUSIONS: Both the renin-aldosterone and ADH systems were down-regulated despite the existence of reduction in cardiac preload and output in patients with ME. Desmopressin improved symptoms in half of the patients.</p>
<p><b>Montoya JG(1) (2) (3) , Holmes TH(2) (3) (4) , Anderson JN(1) (2) , Maecker HT(3) (4) (5) , Rosenberg-Hasson Y(3) (4) , Valencia IJ(2) , Chu L(2) , Younger JW(6) , Tato CM(3) (4) , Davis MM(7) (4) (5) (8) .</b></p>	<p>Department of Medicine, Stanford University School of Medicine, Stanford, CA 94305.</p>	<p>Cytokine signature associated with disease severity in chronic fatigue syndrome patients.</p>	<p>Proc Natl Acad Sci U S A. 2017 Aug 22;114(34) :E7150-E7158.</p>	<p>Although some signs of inflammation have been reported previously in patients with myalgic encephalomyelitis or chronic fatigue syndrome (ME/CFS), the data are limited and contradictory. High-throughput methods now allow us to interrogate the human immune system for multiple markers of inflammation at a scale that was not previously possible. To determine whether a signature of serum cytokines could be associated with ME/CFS and correlated with disease severity and fatigue duration, cytokines of 192 ME/CFS patients and 392 healthy controls were measured using a 51-multiplex array on a Luminex system. Each cytokine's preprocessed data were regressed on ME/CFS severity plus covariates for age, sex, race, and an assay property of newly discovered importance: nonspecific binding. On average, TGF-<math>\beta</math><sup>2</sup> was elevated (<math>P = 0.0052</math>) and resistin was lower (<math>P = 0.0052</math>) in patients compared with controls. Seventeen cytokines had a statistically significant upward linear trend that correlated with ME/CFS severity: CCL11 (Eotaxin-1),</p>

				CXCL1 (GRO $\beta$ ), CXCL10 (IP-10), IFN- $\gamma$ , IL-4, IL-5, IL-7, IL-12p70, IL-13, IL-17F, leptin, G-CSF, GM-CSF, LIF, NGF, SCF, and TGF- $\beta$ . Of the 17 cytokines that correlated with severity, 13 are proinflammatory, likely contributing to many of the symptoms experienced by patients and establishing a strong immune system component of the disease. Only CXCL9 (MIG) inversely correlated with fatigue duration.
<b>Morita F(1), Hirai Y(1), Suzuki K(1), Uehara Y(1), Mitsuhashi K(1), Amano A(2), Naito T(1).</b>	Department of General Medicine, Juntendo University Faculty of Medicine, Tokyo, Japan. (2) Department of Cardiovascular Surgery, Juntendo University Faculty of Medicine, Tokyo, Japan.	Infective endocarditis and Sjögren's syndrome diagnosed simultaneously.	IDCases. 2016 Nov 22;7:6-8. eCollection 2017.	Poor dentition and/or dental infection due to insufficient oral care are presumed to be risk factors for infective endocarditis (IE). We present a case of endocarditis caused by <i>Granulicatella adiacens</i> and Sjögren's syndrome (SS) with oral complications diagnosed simultaneously. A 67-year-old woman was admitted to our hospital with fever, general fatigue, arthralgia, and back pain. She was diagnosed with primary SS according to the criteria of the American-European Consensus Group. Transthoracic echocardiography carried out to examine her persistent fever revealed vegetation formation (14 $\times$ 5 mm) on the aortic valve and her blood cultures were positive for <i>G. adiacens</i> . According to modified Duke's criteria, she was also diagnosed with IE. She underwent aortic valve replacement and was administered ampicillin with gentamicin for 6 weeks following surgery. <i>G. adiacens</i> , which is formerly known as one of the nutritionally variant streptococci, is found as part of the normal microbiota of the oral cavity. The patient had chronic periodontitis associated with SS that likely predisposed to <i>G. adiacens</i> bacteremia and subsequent seeding of the aortic valve. Patients with SS may be at risk of IE because of the increased risk of bacteremia from oral complications such as dental caries or periodontal disease. An association between SS and IE has not yet been reported. Our case indicates that SS may be the underlying pathology in patients with IE due to an oral bacterium.
<b>Moro A(1), Munhoz RP(2), Moscovich M(3), Arruda WO(3), Raskin S(4), Silveira-Moriyama L(5), Ashizawa T(6), Teive HAG(3).</b>	Movement Disorders Unit, Neurology Service, Internal Medicine Department,	Nonmotor Symptoms in Patients with Spinocerebellar Ataxia Type 10.	Cerebellum. 2017 Dec;16(5-6):938-944.	Nonmotor symptoms (NMS) have been described in several neurodegenerative diseases but have not been systematically evaluated in spinocerebellar ataxia type 10 (SCA10). The objective of the study is to compare the frequency of NMS in patients with SCA10, Machado-Joseph disease (MJD), and healthy controls. Twenty-eight SCA10, 28 MJD, and 28 healthy subjects were prospectively assessed using validated screening tools for chronic pain, autonomic symptoms, fatigue, sleep disturbances, psychiatric

	Hospital de Cl�nicas, Federal University of Paran�i, General Carneiro, 181, Curitiba, PR, 80060-900, Brazil.			disorders, and cognitive function. Chronic pain was present with similar prevalence among SCA10 patients and healthy controls but was more frequent in MJD. Similarly, autonomic symptoms were found in SCA10 in the same proportion of healthy individuals, while the MJD group had higher frequencies. Restless legs syndrome and REM sleep behavior disorder were uncommon in SCA10. The mean scores of excessive daytime sleepiness were worse in the SCA10 group. Scores of fatigue were higher in the SCA10 sample compared to healthy individuals, but better than in the MJD. Psychiatric disorders were generally more prevalent in both spinocerebellar ataxias than among healthy controls. The cognitive performance of healthy controls was better compared with SCA10 patients and MJD, which showed the worst scores. Although NMS were present among SCA10 patients in a higher proportion compared to healthy controls, they were more frequent and severe in MJD. In spite of these comparisons, we were able to identify NMS with significant functional impact in patients with SCA10, indicating the need for their systematic screening aiming at optimal treatment and improvement in quality of life.
<b>Morris G(1) , Berk M(2) (3) (4) (5) , Klein H(6) , Walder K(7) , Galecki P(8) , Maes M(9) (10) (11) (12) (13) .</b>	Tir Na Nog, Bryn Road seaside 87, Llanelli, SA152LW, Wales, UK.	Nitrosative Stress, Hypernitrosylation, and Autoimmune Responses to Nitrosylated Proteins: New Pathways in Neuroprogressive Disorders Including Depression and Chronic Fatigue Syndrome.	Mol Neurobiol. 2017 Aug;54(6) :4271- 4291.	Nitric oxide plays an indispensable role in modulating cellular signaling and redox pathways. This role is mainly effected by the readily reversible nitrosylation of selective protein cysteine thiols. The reversibility and sophistication of this signaling system is enabled and regulated by a number of enzymes which form part of the thioredoxin, glutathione, and pyridoxine antioxidant systems. Increases in nitric oxide levels initially lead to a defensive increase in the number of nitrosylated proteins in an effort to preserve their function. However, in an environment of chronic oxidative and nitrosative stress (O&NS) , nitrosylation of crucial cysteine groups within key enzymes of the thioredoxin, glutathione, and pyridoxine systems leads to their inactivation thereby disabling denitrosylation and transnitrosylation and subsequently a state described as "hypernitrosylation." This state leads to the development of pathology in multiple domains such as the inhibition of enzymes of the electron transport chain, decreased mitochondrial function, and altered conformation of proteins and amino acids leading to loss of immune tolerance and development of autoimmunity.

				<p>Hypernitrosylation also leads to altered function or inactivation of proteins involved in the regulation of apoptosis, autophagy, proteomic degradation, transcription factor activity, immune-inflammatory pathways, energy production, and neural function and survival. Hypernitrosylation, as a consequence of chronically elevated O&amp;NS and activated immune-inflammatory pathways, can explain many characteristic abnormalities observed in neuroprogressive disease including major depression and chronic fatigue syndrome/myalgic encephalomyelitis. In those disorders, increased bacterial translocation may drive hypenitrosylation and autoimmune responses against nitrosylated proteins.</p>
<p><b>Morris G(1) , Berk M(2) (3) (4) (5) , Puri BK(6) .</b></p>	<p>Tir Na Nog, Bryn Road Seaside 87, Llanelli, Wales, SA15 2LW, UK.</p>	<p>A Comparison of Neuroimaging Abnormalities in Multiple Sclerosis, Major Depression and Chronic Fatigue Syndrome (Myalgic Encephalomyelitis) : is There a Common Cause?</p>	<p>Mol Neurobiol. 2017 May 17.</p>	<p>There is copious evidence of abnormalities in resting-state functional network connectivity states, grey and white matter pathology and impaired cerebral perfusion in patients afforded a diagnosis of multiple sclerosis, major depression or chronic fatigue syndrome (CFS) (myalgic encephalomyelitis) . Systemic inflammation may well be a major element explaining such findings. Inter-patient and inter-illness variations in neuroimaging findings may arise at least in part from regional genetic, epigenetic and environmental variations in the functions of microglia and astrocytes. Regional differences in neuronal resistance to oxidative and inflammatory insults and in the performance of antioxidant defences in the central nervous system may also play a role. Importantly, replicated experimental findings suggest that the use of high-resolution SPECT imaging may have the capacity to differentiate patients afforded a diagnosis of CFS from those with a diagnosis of depression. Further research involving this form of neuroimaging appears warranted in an attempt to overcome the problem of aetiologically heterogeneous cohorts which probably explain conflicting findings produced by investigative teams active in this field. However, the ionising radiation and relative lack of sensitivity involved probably preclude its use as a routine diagnostic tool.</p>
<p><b>Munemoto T(1) (2) , Soejima Y(1) (3) , Masuda A(4) , Nakabeppu Y(5) , Tei C(1) (6) .</b></p>	<p>Department of Cardiovascular , Respiratory and Metabolic</p>	<p>Increase in the Regional Cerebral Blood Flow following Waon Therapy in Patients with Chronic Fatigue Syndrome: A Pilot Study.</p>	<p>Intern Med. 2017;56(14) :1817-1824.</p>	<p>Objective Chronic fatigue syndrome (CFS) is a complex disorder, with no consensus on therapeutic options. However, Waon therapy has been reported to be an effective treatment. The purpose of this study was to evaluate changes in the cerebral blood flow (CBF) before and after Waon therapy in CFS patients and to investigate the</p>

	<p>Medicine, Graduate School of Medicine, Kagoshima University, Japan. (2)  Kagoshima Women's College, Japan. (3)  National Institute of Fitness and Sports in Kanoya, Japan. (4)  Masuda Clinic, Japan. (5)  Department of Radiology, Graduate School of Medicine, Kagoshima University, Japan. (6)  Waon Therapy Research Institute, Japan.</p>			<p>correlation between such changes and the therapeutic efficacy of Waon therapy. Methods Eleven patients (2 men and 9 women, mean age 27 years old) diagnosed with CFS participated in the study. The disease duration was 8-129 months, and the performance status was 5-8 (on a scale of 0-9) . All patients underwent CBF scintigraphy using brain single-photon emission computed tomography (SPECT) with technetium-99m ethyl cysteinate dimer (99mTc-ECD) before and after Waon therapy. CBF changes after Waon therapy were evaluated using a statistical analysis of imaging data, which was performed with a statistical parametric mapping software program (SPM5) . Results Waon therapy reduced symptoms in all 11 patients. We also observed an increase in the CBF within the prefrontal region, orbitofrontal region, and right temporal lobe. These results indicated that an improvement in clinical symptoms was linked to an increase in the CBF. Conclusion The results indicated abnormalities of the cerebral function in the prefrontal region, orbitofrontal region, and right temporal lobe in CFS patients and that Waon therapy improved the cerebral function and symptoms in CFS patients by increasing the regional CBF. To our knowledge, this is the first report to clarify the CBF changes in CFS patients before and after Waon therapy.</p>
<p><b>Murdaca G(1) ,  Negri S(1) , Magnani O(1) , Penza E(1) ,  Pellecchio M(1) , Gulli R(2) , Mandich P(2) ,  Puppo F(1) .</b></p>	<p>a Department of Internal Medicine, Scleroderma Unit, Clinical Immunology</p>	<p>Update upon efficacy and safety of etanercept for the treatment of spondyloarthritis and juvenile idiopathic arthritis.</p>	<p>Mod Rheumatol. 2017 Aug 24:1-15.</p>	<p>TNF-<math>\alpha</math> inhibitors have demonstrated efficacy both as monotherapy and in combination with disease-modifying anti-rheumatic drugs (DMARDs) in the treatment of chronic inflammatory immune-mediated diseases such as rheumatoid arthritis, Crohn's disease, ulcerative colitis, ankylosing spondylitis (AS) , psoriasis (Ps) and/or psoriatic arthritis (PsA) and may be administered off-label to treat</p>

	<p>Unit , University of Genova and IRCCS-Azienda Ospedaliera Universitaria San Martino , Genova , Italy. (2) b Department of Neuroscience, Rehabilitation, Ophthalmolog y, Genetics and Maternal Child Health, Section of Medical Genetics , University of Genova and IRCCS-Azienda Ospedaliera Universitaria San Martino , Genova , Italy.</p>			<p>disseminated granuloma annulare, systemic lupus erythematosus and systemic sclerosis. There are several TNF-<math>\pm</math> inhibitors available for clinical use including infliximab, adalimumab, golimumab, certolizumab pegol and etanercept. In this article, we discuss the efficacy and safety of etanercept in the treatment of spondyloarthritis and juvenile idiopathic arthritis (JIA) . Etanercept is effective in the treatment of PsA, AS, JIA and uveitis. Independent predictors of achieving a sustained clinical improvement or MDA in children with JIA include shorter disease duration, no concurrent oral corticosteroid use, history of chronic anterior uveitis and age &lt;9Â years. IBD incidence was lower in patients receiving etanercept plus MTX. Intra-articular administration of etanercept seems to favor a prompt target joint improvement without serious adverse events. Etanercept improve endothelial function reducing the risk of acute cardiovascular and/or cerebrovascular events. The most commonly reported adverse events were nasopharyngitis, epidermal and dermal conditions, upper respiratory tract infection, cough, headache and fatigue.</p>
<p><b>Murdock KW(1) , Wang XS(2) , Shi Q(3) , Cleeland CS(3) , Fagundes CP(1) (3) , Vernon SD(4) .</b></p>	<p>Department of Psychology, Rice University, Houston, TX, USA.</p>	<p>The utility of patient-reported outcome measures among patients with myalgic encephalomyelitis/chronic fatigue syndrome.</p>	<p>Qual Life Res. 2017 Apr;26(4) :913-921.</p>	<p>PURPOSE: Debilitating fatigue is a core symptom of myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) ; however, the utility of patient-reported symptom outcome measures of fatigue for ME/CFS patients is problematic due to ceiling effects and issues with reliability and validity. We sought to evaluate the performance of three patient-reported symptom measures in a sample of ME/CFS patients and matched controls. METHODS: Two hundred and forty ME/CFS patients and 88 age, sex, race, and zip code matched controls participated in the study. Participants completed the Multidimensional Fatigue Inventory-20, DePaul</p>

				<p>Symptom Questionnaire, and RAND SF-36. RESULTS: The general and physical fatigue subscales on Multidimensional Fatigue Inventory-20, as well as the role of physical health on the RAND SF-36, demonstrated questionable or unacceptable internal consistency and problematic ceiling effects. The DePaul Symptom Questionnaire demonstrated excellent internal reliability, and less than 5% of participants were at the ceiling on each subscale. The post-exertional malaise subscale on the DePaul Symptom Questionnaire demonstrated excellent clinical utility as it was able to differentiate between ME/CFS patients and controls (OR 1.23, <math>p &lt; .001</math>) and predicted ceiling effects on other patient-reported outcome subscales. A score of 20 on the post-exertional malaise subscale of the DePaul Symptom Questionnaire optimally differentiated between patients and controls. CONCLUSIONS: Significant ceiling effects and concerns with reliability and validity were observed among Multidimensional Fatigue Inventory-20 and RAND SF-36 subscales for ME/CFS patients. The DePaul Symptom Questionnaire addresses a number of concerns typically identified when using patient-reported outcome measures with ME/CFS patients; however, an improved multidimensional patient-reported outcome tool for measuring ME/CFS-related symptoms is warranted.</p>
<p><b>Nacul L(1) , Kingdon CC(1) , Bowman EW(1) , Curran H(1) , Lacerda EM(1) .</b></p>	<p>London School of Hygiene &amp; Tropical Medicine, Faculty of Infectious &amp; Tropical Diseases, Department of Clinical Research, International Centre for Evidence in Disability,</p>	<p>Differing case definitions point to the need for an accurate diagnosis of myalgic encephalomyelitis/chronic fatigue syndrome.</p>	<p>Fatigue. 2017;5(1) :1-4.</p>	

	Keppel Street, London UK, WC1E 7 HT.			
<b>Nacul L(1) , Lacerda EM(1) , Kingdon CC(1) , Curran H(1) , Bowman EW(1) .</b>	London School of Hygiene and Tropical Medicine, UK.	How have selection bias and disease misclassification undermined the validity of myalgic encephalomyelitis/chronic fatigue syndrome studies?	J Health Psychol. 2017 Mar 1:135910531769580 3.	Myalgic encephalomyelitis/chronic fatigue syndrome has been a controversial diagnosis, resulting in tensions between patients and professionals providing them with care. A major constraint limiting progress has been the lack of a 'gold standard' for diagnosis; with a number of imperfect clinical and research criteria used, each defining different, though overlapping, groups of people with myalgic encephalomyelitis or chronic fatigue syndrome. We review basic epidemiological concepts to illustrate how the use of more specific and restrictive case definitions could improve research validity and drive progress in the field by reducing selection bias caused by diagnostic misclassification.
<b>Nagy-Szakal D(1) , Williams BL(1) , Mishra N(1) , Che X(1) , Lee B(1) , Bateman L(2) , Klimas NG(3) (4) , Komaroff AL(5) , Levine S(6) , Montoya JG(7) , Peterson DL(8) , Ramanan D(9) , Jain K(1) , Eddy ML(1) , Hornig M(1) , Lipkin WI(10) .</b>	Center for Infection and Immunity, Columbia University Mailman School of Public Health, 722 W 168th Street 17th Floor, New York,, NY, 10032, USA.	Fecal metagenomic profiles in subgroups of patients with myalgic encephalomyelitis/chronic fatigue syndrome.	Microbiome. 2017 Apr 26;5(1) :44.	BACKGROUND: Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is characterized by unexplained persistent fatigue, commonly accompanied by cognitive dysfunction, sleeping disturbances, orthostatic intolerance, fever, lymphadenopathy, and irritable bowel syndrome (IBS) . The extent to which the gastrointestinal microbiome and peripheral inflammation are associated with ME/CFS remains unclear. We pursued rigorous clinical characterization, fecal bacterial metagenomics, and plasma immune molecule analyses in 50 ME/CFS patients and 50 healthy controls frequency-matched for age, sex, race/ethnicity, geographic site, and season of sampling. RESULTS: Topological analysis revealed associations between IBS co-morbidity, body mass index, fecal bacterial composition, and bacterial metabolic pathways but not plasma immune molecules. IBS co-morbidity was the strongest driving factor in the separation of topological networks based on bacterial profiles and metabolic pathways. Predictive selection models based on bacterial profiles supported findings from topological analyses indicating that ME/CFS subgroups, defined by IBS status, could be distinguished from control subjects with high predictive accuracy. Bacterial taxa predictive of ME/CFS patients with IBS were distinct from taxa associated with ME/CFS patients without IBS. Increased abundance of unclassified Alistipes and decreased Faecalibacterium emerged as the top biomarkers of



				<p>ME/CFS with IBS; while increased unclassified Bacteroides abundance and decreased Bacteroides vulgatus were the top biomarkers of ME/CFS without IBS. Despite findings of differences in bacterial taxa and metabolic pathways defining ME/CFS subgroups, decreased metabolic pathways associated with unsaturated fatty acid biosynthesis and increased atrazine degradation pathways were independent of IBS co-morbidity. Increased vitamin B6 biosynthesis/salvage and pyrimidine ribonucleoside degradation were the top metabolic pathways in ME/CFS without IBS as well as in the total ME/CFS cohort. In ME/CFS subgroups, symptom severity measures including pain, fatigue, and reduced motivation were correlated with the abundance of distinct bacterial taxa and metabolic pathways. CONCLUSIONS: Independent of IBS, ME/CFS is associated with dysbiosis and distinct bacterial metabolic disturbances that may influence disease severity. However, our findings indicate that dysbiotic features that are uniquely ME/CFS-associated may be masked by disturbances arising from the high prevalence of IBS co-morbidity in ME/CFS. These insights may enable more accurate diagnosis and lead to insights that inform the development of specific therapeutic strategies in ME/CFS subgroups.</p>
<p><b>Natelson BH(1) , Mao X(2) , Stegner AJ, Lange G(3) , Vu D(3) , Blate M(3) , Kang G(2) , Soto E(4) , Kapusuz T(4) , Shungu DC(2) .</b></p>	<p>Department of Neurology, Mount Sinai Beth Israel, New York, NY, United States.</p>	<p>Multimodal and simultaneous assessments of brain and spinal fluid abnormalities in chronic fatigue syndrome and the effects of psychiatric comorbidity.</p>	<p>J Neurol Sci. 2017 Apr 15;375:411-416.</p>	<p>The purpose of this study was to investigate whether CFS patients without comorbid psychiatric diagnoses differ from CFS patients with comorbid psychiatric diagnoses and healthy control subjects in neuropsychological performance, the proportion with elevated spinal fluid protein or white cell counts, cerebral blood flow (CBF) , brain ventricular lactate and cortical glutathione (GSH) . The results of the study did not show any differences in any of the outcome measures between CFS patients with and without psychiatric comorbidity, thus indicating that psychiatric status may not be an exacerbating factor in CFS. Importantly, significant differences were found between the pooled samples of CFS compared to controls. These included lower GSH and CBF and higher ventricular lactate and rates of spinal fluid abnormalities in CFS patients compared to healthy controls. Thirteen of 26 patients had abnormal values on two or more of these 4 brain-related variables. These findings, which replicate the results of several of our prior studies, support the presence of a number of neurobiological and spinal fluid</p>

				abnormalities in CFS. These results will lead to further investigation into objective biomarkers of the disorder to advance the understanding of CFS.
<p><b>Natelson BH(1) , Vu D(1) , Coplan JD(2) , Mao X(3) , Blate M(1) , Kang G(3) , Soto E(4) , Kapusuz T(4) , Shungu DC(3) .</b></p>	<p>Department of Neurology, Mount Sinai Beth Israel, New York, NY. (2)</p> <p>Department of Psychiatry &amp; Behavioral Sciences, State University of New York-Downstate Medical Center, Brooklyn NY. (3)</p> <p>Department of Radiology, Weill Medical College of Cornell University, New York, NY. (4)</p> <p>Department of Pain Medicine, Mount Sinai Beth Israel, New York, NY.</p>	<p>Elevations of Ventricular Lactate Levels Occur in Both Chronic Fatigue Syndrome and Fibromyalgia.</p>	<p>Fatigue. 2017;5(1) :15-20.</p>	<p>Background: Chronic fatigue syndrome (CFS) and fibromyalgia (FM) frequently have overlapping symptoms, leading to the suggestion that the same disease processes may underpin the two disorders - the unitary hypothesis. However, studies investigating the two disorders have reported substantial clinical and/or biological differences between them, suggesting distinct pathophysiological underpinnings. Purpose: The purpose of this study was to further add to the body of evidence favoring different disease processes in CFS and FM by comparing ventricular cerebrospinal fluid lactate levels among patients with CFS alone, FM alone, overlapping CFS and FM symptoms, and healthy control subjects. Methods: Ventricular lactate was assessed in vivo with proton magnetic resonance spectroscopic imaging (1H MRSI) with the results normed across the 2 studies in which the data were collected. Results: Mean CSF lactate levels in CFS, FM and CFS+FM did not differ among the three groups, but were all significantly higher than the mean values for control subjects. Conclusion: While patients with CFS, FM and comorbid CFS and FM can be differentiated from healthy subjects based on measures of CFS lactate, this neuroimaging outcome measure is not a viable biomarker for differentiating CFS from FM or from patients in whom symptoms of the two disorders overlap.</p>

<b>Naviaux RK(2) (3) (4) , Gordon E(5) .</b>	Author information: (1) The Mitochondrial and Metabolic Disease Center, University of California, San Diego School of Medicine, San Diego, CA 92103-8467; rnaviaux@ucsd.edu. (2) Department of Medicine, University of California, San Diego School of Medicine, San Diego, CA 92103-8467. (3) Department of Pediatrics, University of California, San Diego School of Medicine, San Diego, CA 92103-8467. (4) Department of Pathology, University of California, San	Reply to Roerink et al.: Metabolomics of chronic fatigue syndrome.	Proc Natl Acad Sci U S A. 2017 Feb 7;114(6) :E911-E912.	
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	Diego School of Medicine, San Diego, CA 92103-8467. (5) Gordon Medical Associates, Santa Rosa, CA 95403.			
<b>Neblett R(1) , Hartzell MM(1) , Mayer TG(2) , Cohen H(3) , Gatchel RJ(4) .</b>	PRIDE Research Foundation, Dallas, Texas, U.S.A. (2) Department of Orthopedic Surgery, University of Texas Southwestern Medical Center at Dallas, Dallas, Texas, U.S.A. (3) Graduate School of Nursing, University of Texas at Arlington, Arlington, Texas, U.S.A. (4) Department of Psychology, University of Texas at	Establishing Clinically Relevant Severity Levels for the Central Sensitization Inventory.	Pain Pract. 2017 Feb;17(2) :166-175.	OBJECTIVES: The aim of this study was to create and validate severity levels for the central sensitization inventory (CSI) , a valid and reliable patient-reported outcome instrument designed to identify patients whose presenting symptoms may be related to a central sensitivity syndrome (CSS; eg, fibromyalgia, chronic fatigue syndrome, irritable bowel syndrome) , with a proposed common etiology of central sensitization (CS) . METHODS: Based on CSI score means and standard deviations from previously published subject samples, the following CSI severity levels were established: subclinical = 0 to 29; mild = 30 to 39; moderate = 40 to 49; severe = 50 to 59; and extreme = 60 to 100. The concurrent validity of the CSI severity levels was then confirmed in a separate chronic pain patient sample (58% with a CSS diagnosis and 42% without) by demonstrating associations between CSI scores and (1) the number of physician-diagnosed CSSs; (2) CSI score distributions in both CSS and non-CSS patient samples; (3) patient-reported history of CSSs; and (4) patient-reported psychosocial measures, which are known to be associated with CSSs. RESULTS: Compared to the non-CSS patient subsample, the score distribution of the CSS patient subsample was skewed toward the higher severity ranges. CSI mean scores moved into higher severity levels as the number of individual CSS diagnoses increased. Patients who scored in the extreme CSI severity level were more likely to report previous diagnoses of fibromyalgia, chronic fatigue syndrome, temporomandibular joint disorder, tension/migraine headaches, and anxiety or panic attacks (P < 0.01) . CSI severity levels were also associated with patient-reported depressive symptoms, perceived disability, sleep disturbance, and pain intensity (P = 0.02) . CONCLUSION: This

	Arlington, Arlington, Texas, U.S.A.			study provides support for these CSI severity levels as a guideline for healthcare providers and researchers in interpreting CSI scores and evaluating treatment responsiveness.
<b>Nes LS(1) (2) , Ehlers SL(1) , Whipple MO(3) , Vincent A(3) .</b>	Department of Psychiatry and Psychology, Mayo Clinic, Rochester, Minnesota, USA. (2) Center for Shared Decision Making and Collaborative Care Research, Division of Medicine, Oslo University Hospital, Oslo, Norway. (3) Division of General Internal Medicine, Mayo Clinic, Rochester, Minnesota, USA.	Self-Regulatory Fatigue: A Missing Link in Understanding Fibromyalgia and Other Chronic MultiSymptom Illnesses.	Pain Pract. 2017 Apr;17(4) :460-469.	OBJECTIVE: Patients with chronic multisymptom illnesses such as fibromyalgia syndrome (FMS) are experiencing a multitude of physical and mental challenges. Facing such challenges may drain capacity to self-regulate, and research suggests patients with these illnesses may experience self-regulatory fatigue (SRF) . This study sought to examine whether SRF can be associated with quality of life (QoL) in patients with FMS. METHODS: Patients (N = 258) diagnosed with FMS completed self-report measures related to demographics, SRF (Self-Regulatory Fatigue 18 [SRF-18]) , anxiety (Generalized Anxiety Disorder questionnaire [GAD-7]) , depression (Patient Health Questionnaire [PHQ-9]) , physical fatigue (Multidimensional Fatigue Inventory [MFI]) , symptoms related to FMS (Fibromyalgia Impact Questionnaire [FIQ]) , and QoL (36-Item Short-Form Health Survey [SF-36]) . RESULTS: Hierarchical regressions showed higher SRF to be associated with lower QoL in terms of lower overall physical QoL, with subscales related to physical functioning, role limitations-physical, bodily pain, and general health (all P's > 0.001) , as well as lower overall mental QoL, with subscales related to vitality, social functioning, role limitations-emotional, and mental health (all P's > 0.001) . Including traditional predictors such as anxiety, depression, physical fatigue, and FMS-related symptoms as covariates in the analyses reduced the link between SRF and QoL somewhat, but the associations remained generally strong, particularly for SRF and mental QoL. CONCLUSION: This is the first study to show higher SRF relating to lower QoL for patients with FMS. Results suggest that SRF is distinct from anxiety, depression, and fatigue, and predicts QoL above and beyond these traditional factors in the area of chronic multisymptom illnesses such as FMS. SRF may be a "missing link" in understanding the complex nature of chronic multisymptom illnesses.
<b>Ng WF(1) ,</b>	Musculoskeletal Research Group, Institute of	Physical activity but not sedentary activity is reduced in primary Sjögren's syndrome.	Rheumatol Int. 2017 Apr;37(4) :623-631.	The aim of the study was to evaluate the levels of physical activity in individuals with primary Sjögren's syndrome (PSS) and its relationship to the clinical features of PSS. To this cross-sectional study, self-reported levels of physical activity from 273 PSS patients

	Cellular Medicine and NIHR Biomedical Research Centre for Ageing and Chronic Disease, Newcastle University, Newcastle upon Tyne, UK			<p>were measured using the International Physical Activity Questionnaire-short form (IPAQ-SF) and were compared with healthy controls matched for age, sex and body mass index. Fatigue and other clinical aspects of PSS including disease status, dryness, daytime sleepiness, dysautonomia, anxiety and depression were assessed using validated tools. Individuals with PSS had significantly reduced levels of physical activity [median (interquartile range, IQR) 1572 (594-3158) versus 3708 (1732-8255) metabolic equivalent of task (MET) <math>\hat{A}</math> <math>\hat{A}</math>—<math>\hat{A}</math> min/week, <math>p\hat{A}</math> <math>&lt;\hat{A}</math> 0.001], but similar levels of sedentary activity [median (IQR) min 300 (135-375) versus 343 (223-433) (MET) <math>\hat{A}</math> <math>\hat{A}</math>—<math>\hat{A}</math> min/week, <math>p\hat{A}</math> <math>=\hat{A}</math> 0.532] compared to healthy individuals. Differences in physical activity between PSS and controls increased at moderate [median (IQR) 0 (0-480) versus 1560 (570-3900) MET <math>\hat{A}</math> <math>\hat{A}</math>—<math>\hat{A}</math> min/week, <math>p\hat{A}</math> <math>&lt;\hat{A}</math> 0.001] and vigorous intensities [median (IQR) 0 (0-480) versus 480 (0-1920) MET <math>\hat{A}</math> <math>\hat{A}</math>—<math>\hat{A}</math> min/week, <math>p\hat{A}</math> <math>&lt;\hat{A}</math> 0.001]. Correlation analysis revealed a significant association between physical activity and fatigue, orthostatic intolerance, depressive symptoms and quality of life. Sedentary activity did not correlate with fatigue. Stepwise linear regression analysis identified symptoms of depression and daytime sleepiness as independent predictors of levels of physical activity. Physical activity is reduced in people with PSS and is associated with symptoms of depression and daytime sleepiness. Sedentary activity is not increased in PSS. Clinical care teams should explore the clinical utility of targeting low levels of physical activity in PSS.</p>
<p><b>Nguyen CB(1) (2) , AlsÅ_e L(3) , Lindvall JM(4) , Sulheim D(5) , Fagermoen E(6) , Winger A(7) , KaarbÅ, M(8) , Nilsen H(3) , Wyller VB(9) (10) .</b></p>	<p>Department of Paediatrics and Adolescent Health, Akershus University Hospital, 1478, LÅ_renskog, Norway.</p>	<p>Whole blood gene expression in adolescent chronic fatigue syndrome: an exploratory cross-sectional study suggesting altered B cell differentiation and survival.</p>	<p>J Transl Med. 2017 May 11;15(1) :102.</p>	<p>BACKGROUND: Chronic fatigue syndrome (CFS) is a prevalent and disabling condition affecting adolescents. The pathophysiology is poorly understood, but immune alterations might be an important component. This study compared whole blood gene expression in adolescent CFS patients and healthy controls, and explored associations between gene expression and neuroendocrine markers, immune markers and clinical markers within the CFS group. METHODS: CFS patients (12-18Å years old) were recruited nationwide to a single referral center as part of the NorCAPITAL project. A broad case definition of CFS was applied, requiring 3Å months of unexplained, disabling chronic/relapsing fatigue of new onset, whereas no accompanying symptoms were necessary. Healthy</p>

				<p>controls having comparable distribution of gender and age were recruited from local schools. Whole blood samples were subjected to RNA sequencing. Immune markers were blood leukocyte counts, plasma cytokines, serum C-reactive protein and immunoglobulins. Neuroendocrine markers encompassed plasma and urine levels of catecholamines and cortisol, as well as heart rate variability indices. Clinical markers consisted of questionnaire scores for symptoms of post-exertional malaise, inflammation, fatigue, depression and trait anxiety, as well as activity recordings. RESULTS: A total of 29 CFS patients and 18 healthy controls were included. We identified 176 genes as differentially expressed in patients compared to controls, adjusting for age and gender factors. Gene set enrichment analyses suggested impairment of B cell differentiation and survival, as well as enhancement of innate antiviral responses and inflammation in the CFS group. A pattern of co-expression could be identified, and this pattern, as well as single gene transcripts, was significantly associated with indices of autonomic nervous activity, plasma cortisol, and blood monocyte and eosinophil counts. Also, an association with symptoms of post-exertional malaise was demonstrated. CONCLUSION: Adolescent CFS is characterized by differential gene expression pattern in whole blood suggestive of impaired B cell differentiation and survival, and enhanced innate antiviral responses and inflammation. This expression pattern is associated with neuroendocrine markers of altered HPA axis and autonomic nervous activity, and with symptoms of post-exertional malaise. Trial registration Clinical Trials NCT01040429.</p>
<p><b>Nguyen T(1) (2) , Johnston S(1) (2) , Chacko A(1) (2) , Gibson D(1) (2) , Cepon J(1) (2) , Smith P(1) (2) , Staines D(1) (2) , Marshall- Gradisnik S(1) (2) .</b></p>	<p>School of Medical Science, Griffith University, Gold Coast, QLD, Australia. (2) The National Centre for Neuroimmuno</p>	<p>Novel characterisation of mast cell phenotypes from peripheral blood mononuclear cells in chronic fatigue syndrome/myalgic encephalomyelitis patients.</p>	<p>Asian Pac J Allergy Immunol. 2017 Jun;35(2) :75-81.</p>	<p>BACKGROUND: Mast cells (MCs) mediate inflammation through neuropeptides and cytokines, along with histamine and reactive oxygen species (ROS) . Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME) is an illness characterized by an unexplained disabling fatigue with multiple physiological impairments as well as dysregulated cytokine profiles. OBJECTIVE: To determine mast cell phenotypes in isolated human PBMCs, in healthy controls and in CFS/ME patients. Second, determine receptor expression of RAGE and its ligand high mobility group box 1 protein (HMGB1) . METHOD: Moderately severe CFS/ME patients (n=12, mean age 39.25 <math>\hat{\pm}</math> SD3.52 years) , severe CFS/ME patients</p>

	<p>logy and Emerging Diseases, Menzies Health Institute Queensland, Griffith University, Gold Coast, QLD Australia.</p>			<p>(n=6, mean age 43.00 <math>\pm</math> SD4.02 years) and healthy controls (n=13, mean age 42.69 <math>\pm</math> SD3.87 years) were included in this study. CFS/ME patients were classified according to the 2011 International Consensus Criteria. LSRFortessa X-20 Flow cytometry was used for the identification of phenotypic peripheral mast cell population in PBMCs using an exclusion marker Lin2 cocktail (anti-CD3, anti-CD14, anti-CD19, anti-CD20 and anti-CD56) and inclusion markers (CD117, CD34, FC<math>\mu</math>RI, chymase, HLA-DR and CD154) following comparative investigation. HMGB1 and soluble RAGE expression in plasma was measured by sandwich ELISA assay. RESULTS: There was a significant increase in CD117<math>\mu</math>CD34<math>\mu</math>FC<math>\mu</math>RI-chymase- mast cell populations in moderate and severe CFS/ME patients compared with healthy controls. There was a significant increase in CD40 ligand and MHC-II receptors on differentiated mast cell populations in the severe CFS/ME compared with healthy controls and moderate CFS/ME. There were no significant differences between groups for HMGB1 and sRAGE. CONCLUSIONS: This preliminary study investigates mast cell phenotypes from PBMCs in healthy controls. We report significant increase of na<math>\tilde{v}</math>e MCs in moderate and severe CFS/ME patients compared with healthy controls. Moreover, a significant increase in CD40 ligand and MHC-II receptors on differentiated mast cells in severe CFS/ME patients. Peripheral MCs may be present in CFS/ME pathology however, further investigation to determine their role is required.</p>
<p><b>Nguyen T(1) (2) , Johnston S(1) (2) , Clarke L(1) (2) , Smith P(1) , Staines D(1) (2) , Marshall-Gradisnik S(1) (2) .</b></p>	<p>The National Centre for Neuroimmunology and Emerging Diseases, Menzies Health Institute, Gold Coast, QLD, Australia. (2) School of Medical</p>	<p>Impaired calcium mobilization in natural killer cells from chronic fatigue syndrome/myalgic encephalomyelitis patients is associated with transient receptor potential melastatin 3 ion channels.</p>	<p>Clin Exp Immunol. 2017 Feb;187(2) :284-293.</p>	<p>Transient receptor potential melastatin subfamily 3 (TRPM3) ion channels play a role in calcium (Ca<math>^{2+}</math>) cell signalling. Reduced TRPM3 protein expression has been identified in chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) patients. However, the significance of TRPM3 and association with intracellular Ca<math>^{2+}</math> mobilization has yet to be determined. Fifteen CFS/ME patients (mean age 48<math>\cdot</math>82<math>\pm</math>9<math>\cdot</math>83 years) and 25 healthy controls (mean age 39<math>\cdot</math>2<math>\pm</math>12<math>\cdot</math>12 years) were examined. Isolated natural killer (NK) cells were labelled with fluorescent antibodies to determine TRPM3, CD107a and CD69 receptors on CD56dim CD16+ NK cells and CD56bright CD16dim/- NK cells. Ca<math>^{2+}</math> flux and NK cytotoxicity activity was measured under various stimulants, including pregnenolone sulphate (PregS) , thapsigargin (TG) , 2-</p>



	<p>Science, Griffith University, Gold Coast, QLD, Australia.</p>			<p>aminoethoxydiphenyl borate (2APB) and ionomycin. Unstimulated CD56bright CD16dim/- NK cells showed significantly reduced TRPM3 receptors in CFS/ME compared with healthy controls (HC) . Ca2+ flux showed no significant difference between groups. Moreover, PregS-stimulated CD56bright CD16dim/- NK cells showed a significant increase in Ca2+ flux in CFS/ME patients compared with HC. By comparison, unstimulated CD56dim CD16+ NK cells showed no significant difference in both Ca2+ flux and TRPM3 expression. PregS-stimulated CD56dim CD16+ NK cells increased TRPM3 expression significantly in CFS/ME, but this was not associated with a significant increase in Ca2+ flux. Furthermore, TG-stimulated CD56dim CD16+ NK cells increased K562 cell lysis prior to PregS stimulation in CFS/ME patients compared with HC. Differential expression of TRPM3 and Ca2+ flux between NK cell subtypes may provide evidence for their role in the pathomechanism involving NK cell cytotoxicity activity in CFS/ME.</p>
<p><b>Nilsson MKL(1) , Zachrisson O(2) , Gottfries CG(2) , Matousek M(2) , Peilot B(2) , Forsmark S(2) , Schuit RC(3) , Carlsson ML(1) , Kloberg A(4) , Carlsson A(1) .</b></p>	<p>1Department of Clinical Neuroscience, Institute of Neuroscience and Physiology,Sahlgrenska Academy,University of Gothenburg,Gothenburg,Sweden. (2) 2Gottfries Clinic, affiliated with Institute of Neuroscience and Physiology,Sahlgrenska</p>	<p>A randomised controlled trial of the monoaminergic stabiliser (-)-OSU6162 in treatment of myalgic encephalomyelitis/chronic fatigue syndrome.</p>	<p>Acta Neuropsychiatr. 2017 Dec 7:1-10.</p>	<p>OBJECTIVE: The monoaminergic stabiliser (-)-OSU6162 has in previous studies shown promising effects on mental fatigue after stroke and traumatic brain injury. This study investigated the safety and effectiveness of (-)-OSU6162 in patients with myalgic encephalomyelitis/chronic fatigue syndrome. METHODS: A total of 62 patients were randomly assigned to placebo or (-)-OSU6162. Primary outcomes were assessment on the mental fatigue scale (MFS) and the clinical global impression of change (CGI-C) scale. Secondary outcomes were results on the FibroFatigue scale (FF) , the Beck Depression Inventory (BDI) , the pain visual analogue scale and neuropsychological tests. Assessments were performed at baseline, after 1 and 2 weeks of treatment and at follow-up after 6 weeks. RESULTS: MFS and CGI-C showed significant improvements for both treatment groups after treatment but not at follow-up; a similar pattern was seen for FF and BDI. However, significant differences between groups could not be demonstrated. On the other hand, correlation analyses showed a significant correlation between (-)-OSU6162 concentration and change in MFS, FF, and BDI score within the concentration interval 0.1-0.7 µM. Exploratory subgroup analyses showed a larger treatment effect with (-)-OSU6162 in improving MFS and FF symptoms in patients on antidepressant</p>

	<p>Academy, University of Gothenburg, Gothenburg, Sweden. (3)          Department of Radiology and Nuclear Medicine, VU University Medical Centre, Amsterdam, The Netherlands.          (4) 4A Carlsson Research AB, Sahlgrenska Science Park, Gothenburg, Sweden.</p>			<p>therapy compared to those without antidepressant treatment.  <b>CONCLUSION:</b> (-) -OSU6162 was found to be safe and well tolerated. When analysing the entire material (-) -OSU6162 was not found to differ significantly from placebo in alleviating fatigue in ME patients but was superior to placebo in counteracting fatigue in a subgroup of ME patients who received concomitant pharmacological treatment for depression.</p>
<p><b>Norris T(1) , Deere K(2) , Tobias JH(2) , Crawley E(3) .</b></p>	<p>Centre for Child and Adolescent Health, School of Social and Community Medicine, Bristol, United Kingdom.          Electronic address: tom.norris@bristol.ac.uk.          (2)          Musculoskeletal Research</p>	<p>Chronic Fatigue Syndrome and Chronic Widespread Pain in Adolescence: Population Birth Cohort Study.</p>	<p>J Pain. 2017 Mar;18(3) :285-294.</p>	<p>Although many studies have investigated the overlap between pain phenotypes and chronic fatigue syndrome (CFS) in adults, little is known about the relationship between these conditions in adolescents. The study's aim was therefore to identify whether a relationship exists between chronic widespread pain (CWP) and CFS in adolescents and investigate whether the two share common associations with a set of covariates. A questionnaire was administered to offspring of the Avon Longitudinal Study of Parents and Children (ALSPAC) at age 17, asking about site, duration, and pain intensity, from which participants with CWP were identified. At the same research clinic, a computer-based Revised Clinical Interview Schedule was filled out, from which a classification of CFS was obtained. The relationship between selected covariates and CFS and CWP was investigated using a variety of logistic, ordinal logistic, and multinomial regressions. We identified 3,214 adolescents with complete data for all outcomes and covariates. There were 82 (2.6%)</p>

	Unit, School of Clinical Sciences, Bristol, United Kingdom. (3) Centre for Child and Adolescent Health, School of Social and Community Medicine, Bristol, United Kingdom.			individuals classified as CFS and 145 (4.5%) as CWP. A classification of CFS resulted in an increased likelihood of having CWP (odds ratio = 3.87; 95% confidence interval, 2.05-7.31) . Female adolescents were approximately twice as likely to have CFS or CWP, with multinomial regression revealing a greater sex effect for CWP compared with CFS. Those with exclusive CFS were more likely to report higher levels of pain and greater effect of pain compared with those without CFS, although associations attenuated to the null after adjustment for covariates, which did not occur in those with exclusive CWP. Multinomial regression revealed that relative to having neither CFS nor CWP, a 1-unit increase in the depression and anxiety scales increased the risk of having exclusive CFS and, to a greater extent, the risk of having comorbid CFS and CWP, but not exclusive CWP, which was only related to anxiety.PERSPECTIVE: In this cohort, 14.6% of adolescents with CFS have comorbid CWP. The likely greater proportion of more mild cases observed in this epidemiological study means that prevalence of overlap may be underestimated compared with those attending specialist services. Clinicians should be aware of the overlap between the 2 conditions and carefully consider treatment options offered.
<b>Norris T(1) , Hawton K(2) , Hamilton-Shield J(2) , Crawley E(3) .</b>	School of Social & Community Medicine, University of Bristol, Bristol, UK. (2) NIHR Bristol Biomedical Research Unit in Nutrition and University of Bristol, Bristol, UK. (3) Centre for Child and Adolescent	Obesity in adolescents with chronic fatigue syndrome: an observational study.	Arch Dis Child. 2017 Jan;102(1) :35-39.	OBJECTIVE: Identify the prevalence of obesity in patients with chronic fatigue syndrome (CFS) compared with healthy adolescents, and those identified with CFS in a population cohort. DESIGN: Cross-sectional analysis of multiple imputed data. SETTING: Data from UK paediatric CFS/myalgic encephalomyelitis (CFS/ME) services compared with data collected at two time points in the Avon Longitudinal Study of Parents and Children (ALSPAC) . PATIENTS: 1685 adolescents who attended a CFS/ME specialist service between 2004 and 2014 and 13978 adolescents aged approximately 13 years and 16 years participating in the ALSPAC study. MAIN OUTCOME MEASURES: Body mass index (BMI) (kg/m2) , sex-specific and age-specific BMI Z-scores (relative to the International Obesity Task Force cut-offs) and prevalence of obesity (%) . RESULTS: Adolescents who had attended specialist CFS/ME services had a higher prevalence of obesity (age 13 years: 9.28%; age 16 years: 16.43%) compared with both adolescents classified as CFS/ME in ALSPAC (age 13 years: 3.72%; age 16 years: 5.46%) and those non-

	Health, School of Social and Community Medicine, University of Bristol, Bristol, UK.			CFS in ALSPAC (age 13 years: 4.18%; age 16 years: 4.46%) . The increased odds of obesity in those who attended specialist services (relative to non-CFS in ALSPAC) was apparent at both 13 years (OR: 2.31 (1.54 to 3.48) ) and 16 years, with a greater likelihood observed at 16 years (OR: 4.07 (2.04 to 8.11) ) . CONCLUSIONS: We observed an increased prevalence of obesity in adolescents who were affected severely enough to be referred to a specialist CFS/ME service. Further longitudinal research is required in order to identify the temporal relationship between the two conditions.
<b>Norris T(1) (2) , Collin SM(1) (2) , Tilling K(2) , Nuevo R(3) , Stansfeld SA(4) , Sterne JA(2) , Heron J(2) , Crawley E(1) (2) .</b>	Centre for Child and Adolescent Health, University of Bristol, Bristol, UK. (2) School of Social & Community Medicine, University of Bristol, Bristol, UK. (3) CIBER Epidemiología y Salud Pública (CIBERESP) , Instituto de Salud Carlos III, Madrid, Spain. (4) Wolfson Institute of Preventive Medicine, Queen Mary University of London, UK.	Natural course of chronic fatigue syndrome/myalgic encephalomyelitis in adolescents.	Arch Dis Child. 2017 Jun;102(6) :522-528.	OBJECTIVE: Little is known about persistence of or recovery from chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) in adolescents. Previous studies have small sample sizes, short follow-up or have focused on fatigue rather than CFS/ME or, equivalently, chronic fatigue, which is disabling. This work aimed to describe the epidemiology and natural course of CFS/ME in adolescents aged 13-18 years. DESIGN: Longitudinal follow-up of adolescents enrolled in the Avon Longitudinal Study of Parents and Children. SETTING: Avon, UK. PARTICIPANTS: We identified adolescents who had disabling fatigue of >6 months duration without a known cause at ages 13, 16 and 18 years. We use the term 'chronic disabling fatigue' (CDF) because CFS/ME was not verified by clinical diagnosis. We used multiple imputation to obtain unbiased estimates of prevalence and persistence. RESULTS: The estimated prevalence of CDF was 1.47% (95% CI 1.05% to 1.89%) at age 13, 2.22% (1.67% to 2.78%) at age 16 and 2.99% (2.24% to 3.75%) at age 18. Among adolescents with CDF of 6 months duration at 13 years 75.3% (64.0% to 86.6%) were not classified as such at age 16. Similar change was observed between 16 and 18 years (75.0% (62.8% to 87.2%) ) . Of those with CDF at age 13, 8.02% (0.61% to 15.4%) presented with CDF throughout the duration of adolescence. CONCLUSIONS: The prevalence of CDF lasting 6 months or longer (a proxy for clinically diagnosed CFS/ME) increases from 13 to 18 years. However, persistent CDF is rare in adolescents, with approximately 75% recovering after 2-3 years.

<p><b>O'connor K(1) , Sunnquist M(1) , Nicholson L(1) , Jason LA(1) , Newton JL(2) , Strand EB(3) .</b></p>	<p>1 Center for Community Research, DePaul University, Chicago, IL, USA. (2) 2 Newcastle University, Tyne and Wear, UK. (3) 3 Oslo University Hospital, Oslo, Norway.</p>	<p>Energy envelope maintenance among patients with myalgic encephalomyelitis and chronic fatigue syndrome: Implications of limited energy reserves.</p>	<p>Chronic Illn. 2017 Jan 1:174239531774647 0.</p>	<p>Objective The Energy Envelope Theory of myalgic encephalomyelitis and chronic fatigue syndrome postulates that individuals with myalgic encephalomyelitis and chronic fatigue syndrome may experience some increase in functioning if their level of exertion consistently remains within the limits of their available energy. Findings of several studies support this theory; however, the current study is the first to explore how an individual's initial level of available energy may influence the relation between energy envelope maintenance and level of functioning. Method The functioning, activity, and symptomatology of six groups of individuals with myalgic encephalomyelitis and chronic fatigue syndrome were compared. Groups were created based upon level of available energy (higher or lower) and energy envelope adherence (underextended, within, overextended) . Results Results indicate that, as expected, individuals with myalgic encephalomyelitis and chronic fatigue syndrome who had higher available energy also had better functioning than individuals with lower available energy; however, this relation was less pronounced for individuals who were overexerting themselves. Discussion These results are consistent with the Energy Envelope Theory, and they suggest that overexertion was particularly impactful for individuals with higher levels of available energy.</p>
<p><b>O'Halloran KD(1) , Lewis P(2) , McDonald F(3) .</b></p>	<p>Department of Physiology, University College Cork, Cork, Ireland. Electronic address: k.ohalloran@ucc.ie. (2) Department of Physiology, University College Cork, Cork, Ireland; Institute and</p>	<p>Sex, stress and sleep apnoea: Decreased susceptibility to upper airway muscle dysfunction following intermittent hypoxia in females.</p>	<p>Respir Physiol Neurobiol. 2017 Nov;245:76-82.</p>	<p>Obstructive sleep apnoea syndrome (OSAS) is a devastating respiratory control disorder more common in men than women. The reasons for the sex difference in prevalence are multifactorial, but are partly attributable to protective effects of oestrogen. Indeed, OSAS prevalence increases in post-menopausal women. OSAS is characterized by repeated occlusions of the pharyngeal airway during sleep. Dysfunction of the upper airway muscles controlling airway calibre and collapsibility is implicated in the pathophysiology of OSAS, and sex differences in the neuro-mechanical control of upper airway patency are described. It is widely recognized that chronic intermittent hypoxia (CIH) , a cardinal feature of OSAS due to recurrent apnoea, drives many of the morbid consequences characteristic of the disorder. In rodents, exposure to CIH-related redox stress causes upper airway muscle weakness and fatigue, associated with mitochondrial dysfunction. Of interest, in adults,</p>

	<p>Policlinic for Occupational Medicine, Environmental Medicine and Preventative Research, University of Cologne, Germany. (3)          Physiology, School of Medicine, University College Dublin, Dublin, Ireland;          School of Clinical Sciences, Bristol University, Bristol, United Kingdom.</p>			<p>there is female resilience to CIH-induced muscle dysfunction. Conversely, exposure to CIH in early life, results in upper airway muscle weakness equivalent between the two sexes at 3 and 6 weeks of age. Ovariectomy exacerbates the deleterious effects of exposure to CIH in adult female upper airway muscle, an effect partially restored by oestrogen replacement therapy. Intriguingly, female advantage intrinsic to upper airway muscle exists with evidence of substantially greater loss of performance in male muscle during acute exposure to severe hypoxic stress. Sex differences in upper airway muscle physiology may have relevance to human OSAS. The oestrogen-oestrogen receptor <math>\pm</math> axis represents a potential therapeutic target in OSAS, particularly in post-menopausal women.</p>
<p><b>Oka T(1) , Wakita H(2) , Kimura K(2) .</b></p>	<p>Department of Psychosomatic Medicine, Graduate School of Medical Sciences, Kyushu University, Maidashi 3-1-1, Higashi-ku,</p>	<p>Development of a recumbent isometric yoga program for patients with severe chronic fatigue syndrome/myalgic encephalomyelitis: A pilot study to assess feasibility and efficacy.</p>	<p>Biopsychosoc Med. 2017 Mar 3;11:5.</p>	<p>BACKGROUND: Our previous randomized controlled trial demonstrated that isometric yoga in a sitting position reduces fatigue in patients with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) . However, some patients experience difficulties sitting or practicing isometric yoga in a sitting position for long periods. To date, therapeutic interventions for patients with severe symptoms have not been established. Therefore, we developed a recumbent isometric yoga program, which takes approximately 20 min to complete, designed to reduce fatigue in patients with severe CFS/ME. The aim of this pilot study was to assess the feasibility, safety, and usefulness of this program. METHODS: This pilot study included 12 adult patients with CFS/ME.</p>

	<p>Fukuoka, 812-8582 Japan.  (2) Japan Yoga Therapy Society,  Sanbonmatsu 1-2-24,  Yonago,  Tottori 683-0842 Japan.</p>			<p>Six patients were reluctant to practice isometric yoga in a sitting position because of the severity of their fatigue (group 1) . The remaining six patients had previously practiced isometric yoga in a sitting position (group 2) . For 3 months, the patients of both groups practiced recumbent isometric yoga every 2 to 4 weeks with a yoga instructor and at home on other days if they could. The short-term effects of isometric yoga on fatigue were assessed using the Profile of Mood Status (POMS) questionnaire immediately before and after their final session with the yoga instructor. The long-term effects of isometric yoga on fatigue were assessed using the Chalder Fatigue Scale (FS) questionnaire before and after the intervention period. Adverse events, satisfaction with the program, and preference of yoga position (sitting or recumbent) were also recorded. RESULTS: All subjects completed the intervention. In both groups, the POMS fatigue score was significantly decreased after practicing the 20-min yoga program and the Chalder FS score was decreased significantly after the 3-month intervention period. There were no serious adverse events. All subjects in group 2 preferred the recumbent isometric yoga program over a sitting yoga program. CONCLUSIONS: This study suggests that recumbent isometric yoga is a feasible and acceptable treatment for patients with CFS/ME, even for patients who experience difficulty practicing isometric yoga in the sitting position.</p>
<p><b>Olteanu C(1) , Shear NH(2) (3) , Chew HF(4) , Hashimoto R(5) , Alhusayen R(5) , Whyte-Croasdaile S(6) , Finkelstein Y(7) , Burnett M(8) , Ziv M(9) , Sade S(10) , Jeschke MG(8) , Dodiuk-Gad RP(5) (9) .</b></p>	<p>Division of Dermatology, Department of Medicine, University of Alberta, 8-112 Clinical Sciences Building, Edmonton, AB, T6G 2G3, Canada.</p>	<p>Severe Physical Complications among Survivors of Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis.</p>	<p>Drug Saf. 2017 Oct 19.</p>	<p>INTRODUCTION: Few studies have reported the physical complications among Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) survivors. OBJECTIVE: The aim of this study was to comprehensively characterize the physical complications among SJS/TEN survivors and to learn about patients' perspectives of surviving SJS/TEN. METHODS: SJS/TEN survivors older than 18 years of age were assessed by different methods: a medical interview; a questionnaire assessing patients' perspectives; thorough skin, oral mucous membrane, and ophthalmic examinations; and a retrospective assessment of medical records. RESULTS: Our cohort consisted of 17 patients with a mean time of 51.6 months (median 9, range 1-228) following SJS/TEN. The most common physical complications identified in the medical examination were post-inflammatory skin changes (77%) , cutaneous</p>

				<p>scars (46%) , dry eyes (44%) , symblepharon, and chronic ocular surface inflammation (33% each) . Novel physical sequelae included chronic fatigue (76%) and pruritus (53%) . We also found a novel association between the number of mucous membranes affected in the acute phase of SJS/TEN and hair loss during the 6 months following hospital discharge; hair loss was reported in 88% of the group of patients who had three or more mucous membranes affected versus 29% of patients who had less than three mucous membranes involved (p = 0.0406) . Following hospital discharge due to SJS/TEN, 59% of patients were followed by a dermatologist, although 88% had dermatological complications; 6% were followed by an ophthalmologist, even though 67% had ophthalmological complications; and 6% of female survivors were followed by a gynecologist, even though 27% had gynecological complications. CONCLUSION: Survivors of SJS/TEN suffer from severe physical complications impacting their health and lives that are mostly under recognized and not sufficiently treated by medical professionals.</p>
<p><b>Oosterwijck JV, Marusic U(1) , De Wandele I(2) , Paul L(3) , Meeus M(4) , Moorkens G(5) , Lambrecht L(6) , Danneels L(2) , Nijs J(7) .</b></p>	<p>Science and Research Centre, Institute for Kinesiology Research, University of Primorska, Koper, Slovenia</p>	<p>The Role of Autonomic Function in Exercise-induced Endogenous Analgesia: A Case-control Study in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome and Healthy People.</p>	<p>Pain Physician. 2017 Mar;20(3) :E389-E399.</p>	<p>BACKGROUND: Patients with myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS) are unable to activate brain-orchestrated endogenous analgesia (or descending inhibition) in response to exercise. This physiological impairment is currently regarded as one factor explaining post-exertional malaise in these patients. Autonomic dysfunction is also a feature of ME/CFS. OBJECTIVES: This study aims to examine the role of the autonomic nervous system in exercise-induced analgesia in healthy people and those with ME/CFS, by studying the recovery of autonomic parameters following aerobic exercise and the relation to changes in self-reported pain intensity. STUDY DESIGN: A controlled experimental study. SETTING: The study was conducted at the Human Physiology lab of a University. METHODS: Twenty women with ME/CFS- and 20 healthy, sedentary controls performed a submaximal bicycle exercise test known as the Aerobic Power Index with continuous cardiorespiratory monitoring. Before and after the exercise, measures of autonomic function (i.e., heart rate variability, blood pressure, and respiration rate) were performed continuously for 10 minutes and self-reported pain levels were registered. The relation between autonomous parameters and self-reported pain</p>



				<p>parameters was examined using correlation analysis. RESULTS: Some relationships of moderate strength between autonomic and pain measures were found. The change (post-exercise minus pre-exercise score) in pain severity was correlated (<math>r = .580, P = .007</math>) with the change in diastolic blood pressure in the healthy group. In the ME/CFS group, positive correlations between the changes in pain severity and low frequency (<math>r = .552, P = .014</math>), and between the changes in bodily pain and diastolic blood pressure (<math>r = .472, P = .036</math>), were seen. In addition, in ME/CHFS the change in headache severity was inversely correlated (<math>r = -.480, P = .038</math>) with the change in high frequency heart rate variability. LIMITATIONS: Based on the cross-sectional design of the study, no firm conclusions can be drawn on the causality of the relations. CONCLUSIONS: Reduced parasympathetic reactivation during recovery from exercise is associated with the dysfunctional exercise-induced analgesia in ME/CFS. Poor recovery of diastolic blood pressure in response to exercise, with blood pressure remaining elevated, is associated with reductions of pain following exercise in ME/CFS, suggesting a role for the arterial baroreceptors in explaining dysfunctional exercise-induced analgesia in ME/CFS patients. Key words: Aerobic exercise, aerobic power index, autonomic nervous system, exercise-induced analgesia, exercise-induced hypoalgesia, fibromyalgia, heart rate variability, stress-induced analgesia, pain.</p>
<b>Owe J, Næss H, Tysnes OB</b>		[Who should investigate chronic fatigue?].	Tidsskr Nor Laegeforen. 2017 Jan 10;137(1):21-22.	
<b>Pachman DR(1), Dockter T(2), Zekan PJ(3), Fruth B(2), Ruddy KJ(1), Ta LE(4), Lafky JM(1), Dentchev T(5), Le-Lindqwister NA(6), Sikov WM(7), Staff N(4), Beutler AS(1), Loprinzi CL(8)</b>	Department of Oncology, Mayo Clinic, 200 First Street, SW, Rochester, MN, 55905, USA. (2) Department of Statistics, Mayo Clinic,	A pilot study of minocycline for the prevention of paclitaxel-associated neuropathy: ACCRU study RU221408I.	Support Care Cancer. 2017 Nov;25(11):3407-3416.	PURPOSE: Paclitaxel is associated with both an acute pain syndrome (P-APS) and chronic chemotherapy-induced peripheral neuropathy (CIPN). Given that extensive animal data suggest that minocycline may prevent chemotherapy-induced neurotoxicity, the purpose of this pilot study was to investigate the efficacy of minocycline for the prevention of CIPN and the P-APS. METHODS: Patients with breast cancer were enrolled prior to initiating neoadjuvant or adjuvant weekly paclitaxel for 12 weeks and were randomized to receive minocycline 200 mg on day 1 followed by 100 mg twice daily or a matching placebo. Patients completed (1) an acute pain syndrome questionnaire daily during chemotherapy to measure P-APS and (2)

	<p>Rochester, MN, USA. (3)  Novant Health Forsyth Medical Center, Winston-Salem, NC, USA. (4)  Department of Neurology, Mayo Clinic, Rochester, MN, USA. (5)  Altru Health System, Grand Forks, ND, USA. (6)  Illinois CancerCare-Peoria, Peoria, IL, USA. (7)  Women &amp; Infants Hospital of Rhode Island, Providence, RI, USA. (8)  Department of Oncology, Mayo Clinic, 200 First Street, SW, Rochester, MN, 55905, USA.</p>			<p>the EORTC QLQ-CIPN20 questionnaire at baseline, prior to each dose of paclitaxel, and monthly for 6 months post treatment, to measure CIPN. RESULTS: Forty-seven patients were randomized. There were no remarkable differences noted between the minocycline and placebo groups for the overall sensory neuropathy score of the EORTC QLQ-CIPN20 or its individual components, which evaluate tingling, numbness and shooting/burning pain in hands and feet. However, patients taking minocycline had a significant reduction in the daily average pain score attributed to P-APS (<math>p = 0.02</math>). Not only were no increased toxicities reported with minocycline, but there was a significant reduction in fatigue (<math>p = 0.02</math>). CONCLUSIONS: Results of this pilot study do not support the use of minocycline to prevent CIPN, but suggest that it may reduce P-APS and decrease fatigue; further study of the impact of this agent on those endpoints may be warranted.</p>
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<b>Pajediene E(1) , Bileviciute-Ljungar I(2) (3) (4) , Friberg D(5) .</b>	Department of Neurology, Kaunas Clinics, Hospital of Lithuanian University of Health Sciences, Kaunas, Lithuania. (2) Department of Clinical Sciences, Karolinska Institutet, Stockholm, Sweden. (3) Department of Rehabilitation Medicine, Danderyd University Hospital, Stockholm, Sweden. (4) Department of Medical and Health Sciences, Faculty of Medicine and Health Sciences, Linköping	Sleep patterns among patients with chronic fatigue: A polysomnography-based study.	Clin Respir J. 2017 Jul 28.	OBJECTIVES: The purpose of this study was to detect treatable sleep disorders among patients complaining of chronic fatigue by using sleep questionnaires and polysomnography. METHODS: Patients were referred to hospital for investigations and rehabilitation because of a suspected diagnosis of myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) . The criteria for further referral to full-night polysomnography (PSG) were symptoms of excessive daytime sleepiness and/or tiredness in the questionnaires. RESULTS: Of a total of 381 patients, 78 (20.5%) patients underwent PSG: 66 women and 12 men, mean age 48.6 years, standard deviation $\pm 9.9$ years. On the basis of the PSG, 31 (40.3%) patients were diagnosed with obstructive sleep apnoea, 7 (8.9%) patients with periodic limb movement disorder, 32 (41.0%) patients with restless legs syndrome and 54 (69.3%) patients had one or more other sleep disorder. All patients were grouped into those who fulfilled the diagnostic criteria for ME/CFS (n = 55, 70.5%) and those who did not (n = 23, 29.5%) . The latter group had significantly higher respiratory (P = .01) and total arousal (P = .009) indexes and a higher oxygen desaturation index (P = .009) . CONCLUSIONS: More than half of these chronic fatigue patients, who also have excessive daytime sleepiness and/or tiredness, were diagnosed with sleep disorders such as obstructive sleep apnoea, periodic limb movement disorder and/or restless legs syndrome. Patients with such complaints should undergo polysomnography, fill in questionnaires and be offered treatment for sleep disorders before the diagnose ME/CFS is set.

	<p>University, Pain and Rehabilitation Centre, Anaesthetics, Operations and Specialty Surgery Centre, Region Å- stergotland, LinkÅping, Sweden. (5) Department of Clinical Science, Intervention and Technology (CLINTEC) , Division of Otorhinolaryn- gology, Karolinska University Hospital, Stockholm, Sweden.</p>			
<b>Panelli MC(1) .</b>	<p>University of Pittsburgh Cancer Institute, Pittsburgh, USA. panellim@gm- ail.com.</p>	<p>JTM advances in uncharted territories: diseases and disorders of unknown etiology.</p>	<p>J Transl Med. 2017 Sep 13;15(1) :192.</p>	<p>We are delighted to announce a new section in the Journal of Translational Medicine, 'Illnesses of Unknown Etiology'. This section aims to provide a translational medicine forum for the publication of research on illnesses, multisystem diseases and syndromes of unknown etiology. Examples of these include Myalgic Encephalomyelitis/Chronic Fatigue Syndrome and Fibromyalgia Syndrome.</p>

<p><b>Panelli S(1) (2) , Lorusso L(3) , Balestrieri A(4) , Lupo G(1) (2) , Capelli E(1) (2) .</b></p>	<p>Department of Earth and Environmental Sciences, Section of Animal Biology, University of Pavia, Pavia, Italy. (2) Centre for Health Technologies (C.H.T.) , University of Pavia, Pavia, Italy. (3) Neurology Unit, A.S.S.T. Franciacorta, Chiari (Brescia) , Italy. (4) Department of Biosciences, University of Milano, Milano, Italy.</p>	<p>XMRV and Public Health: The Retroviral Genome Is Not a Suitable Template for Diagnostic PCR, and Its Association with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome Appears Unreliable.</p>	<p>Front Public Health. 2017 May 22;5:108.</p>	<p>A few years ago, a highly significant association between the xenotropic murine leukemia virus-related virus (XMRV) and myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) , a complex debilitating disease of poorly understood etiology and no definite treatment, was reported in Science, raising concern for public welfare. Successively, the failure to reproduce these findings, and the suspect that the diagnostic PCR was vitiated by laboratory contaminations, led to the retraction of the paper. Notwithstanding, XMRV continued to be the subject of researches and public debates. Occasional positivity in humans was also detected recently, even if the data always appeared elusive and non-reproducible. In this study, we discuss the current status of this controversial association and propose that a major role in the unreliability of the results was played by the XMRV genomic composition in itself. In this regard, we present bioinformatic analyses that show: (i) aspecific, spurious annealings of the available primers in multiple homologous sites of the human genome; (ii) strict homologies between whole XMRV genome and interspersed repetitive elements widespread in mammalian genomes. To further detail this scenario, we screen several human and mammalian samples by using both published and newly designed primers. The experimental data confirm that available primers are far from being selective and specific. In conclusion, the occurrence of highly conserved, repeated DNA sequences in the XMRV genome deeply undermines the reliability of diagnostic PCRs by leading to artifactual and spurious amplifications. Together with all the other evidences, this makes the association between the XMRV retrovirus and CFS totally unreliable.</p>
<p><b>Park J(1) , Gilmour H(1) .</b></p>	<p>Health Analysis Division, Statistics Canada, Ottawa, Ontario.</p>	<p>Medically unexplained physical symptoms (MUPS) among adults in Canada: Comorbidity, health care use and employment.</p>	<p>Health Rep. 2017 Mar 15;28(3) :3-8.</p>	<p>Based on data from the 2014 Canadian Community Health Survey and the 2012 Canadian Community Health Survey-Mental Health, this study provides estimates of the prevalence of medically unexplained physical symptoms (MUPS) in the household population aged 25 or older. MUPS are examined in relation to sociodemographic characteristics, physical and mental comorbidity, health care use and unmet needs, labour force participation and productivity. In 2014, 5.5% of Canadian adults-an estimated 1.3 million - reported having chronic fatigue syndrome (1.6%) ,</p>

				<p>fibromyalgia (2.0%) and/or multiple chemical sensitivity (2.7%) . Half (51%) of people with MUPS reported other chronic physical conditions, compared with 8% of those without MUPS. Similarly, mental comorbidities were more prevalent among those with MUPS. Higher health care use was observed among people with MUPS, but 25% of them reported unmet health care needs, compared with 11% of those without MUPS. People with MUPS were more likely than those without MUPS to be permanently unable to work or to not have a job; fewer than half (45%) were employed. Among those who were employed, 18% had missed work because of a chronic condition, compared with 5% of workers without MUPS.</p>
<p><b>Parslow RM(1) , Harris S(2) , Broughton J(2) , Alattas A(1) , Crawley E(1) , Haywood K(3) , Shaw A(4) .</b></p>	<p>Centre for Child and Adolescent Health, School of Social &amp; Community Medicine, University of Bristol, Bristol, UK. (2) Department of Psychology, University of Bath, Bath, UK. (3) Royal College of Nursing Research Institute, Warwick Medical School, University of Warwick, Health Sciences,</p>	<p>Children's experiences of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) : a systematic review and meta-ethnography of qualitative studies.</p>	<p>BMJ Open. 2017 Jan 13;7(1) :e012633.</p>	<p>OBJECTIVE: To synthesis the qualitative studies of children's experiences of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) . DESIGN: Systematic review and meta-ethnography. BACKGROUND: CFS/ME is an important disabling illness, with uncertain cause and prognosis. As a result, children with CFS/ME can find themselves living with greater uncertainty and stigma, exacerbating the impact of the condition. There is a growing body of qualitative research in CFS/ME, yet there has been no attempt to systematically synthesis the studies involving children. METHODS: Studies exploring the experiences of children diagnosed with CFS/ME, published or unpublished, using qualitative methods were eligible. MEDLINE, EMBASE, PsycINFO and CINAHL databases were searched as well as grey literature, reference lists and contacting authors. Quality assessment was done independently using the Critical Appraisal Skills Programme (CASP) checklist. Studies were synthesised using techniques of meta-ethnography. RESULTS: Ten studies involving 82 children with CFS/ME aged 8-18 were included. Our synthesis describes four third-order constructs within children's experiences: (1) disruption and loss: physical, social and the self; (2) barriers to coping: suspension in uncertainty, problems with diagnosis and disbelief; (3) facilitators to coping: reducing uncertainty, credible illness narratives, diagnosis and supportive relationships and (4) hope, personal growth and recovery. CFS/ME introduces profound biographical disruption through its effects on children's ability to socialise, perform school and therefore how they see their future. Unfamiliarity of the condition, problems with</p>

	Coventry, UK. (4) Centre for Primary Care Research, School of Social & Community Medicine, University of Bristol, Bristol, UK.			diagnosis and felt stigma prevent children from forming a new illness identity. Children adopt coping strategies such as building credible explanations for their illness. CONCLUSIONS: Physical, social, emotional and self-dimensions of life should be included when treating and measuring outcomes from healthcare in paediatric CFS/ME. There is a need for greater recognition and diagnosis of childhood CFS/ME, specialist advice on activity management and improved communication between health and education providers to help children cope with their condition.
<b>Parslow RM(1) , Shaw A(2) , Haywood KL(3) , Crawley E(4) .</b>	Centre for Child and Adolescent Health, School of Social & Community Medicine, University of Bristol, Barley House, Oakfield Grove, Bristol, BS8 2BN, UK. roxanne.parslow@bristol.ac.uk.	Important factors to consider when treating children with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) : perspectives of health professionals from specialist services.	BMC Pediatr. 2017 Feb 1;17(1) :43.	BACKGROUND: Paediatric Chronic Fatigue Syndrome (CFS) /Myalgic Encephalomyelitis (ME) is relatively common and disabling. Improving treatment requires the development of Patient Reported Outcome Measures (PROMs) that enable clinicians and researchers to collect patient-centred evidence on outcomes. Health professionals are well placed to provide clinical insight into the condition, its treatment and possible outcomes. This study aimed to understand the perspectives of specialist paediatric CFS/ME health professionals and identify outcomes that are clinically important. METHODS: Focus groups and interviews were held with 15 health professionals involved in the care of children with CFS/ME from the four largest specialist paediatric CFS/ME services in the NHS in England. A range of clinical disciplines were included and experience in paediatric CFS/ME ranged from 2Â months to 25Â years. Ten participants (67%) were female. Focus groups and interviews were recorded, transcribed verbatim and data were analysed using thematic analysis. RESULTS: All health professionals identified the impact of CFS/ME across multiple aspects of health. Health professionals described four areas used to assess the severity of the illness and outcome in children: 1) symptoms; 2) physical function; 3) participation (school, activities and social life) ; and 4) emotional wellbeing. They also described the complexity of the condition, contextual factors and considerations for treatment to help children to cope with the condition. CONCLUSIONS: Clinically important outcomes in paediatric CFS/ME involve a range of aspects of health. Health professionals consider increases in physical function yet

				maintaining school functioning and participation more widely as important outcomes from treatment. The results are similar to those described by children in a recent study and will be combined to develop a new child-specific PROM that has strong clinical utility and patient relevance.
<b>Pastuszek A(1) , Stępień A(2) , Tomczykiewicz K(3) , Piusińska-Macoch R(4) , Galbarczyk D(5) , Rolewska A(6) .</b>	Medicine, Warsaw, Poland. Electronic address: zanna.pastusz ak@hotmail.c om.	Post-polio syndrome. Cases report and review of literature.	Neurol Neurochir Pol. 2017 Mar - Apr;51(2) :140-145.	It is estimated that around 15 million people survived polio infection worldwide since early twentieth century. In 1950 effective vaccination was used for first time. Since that time number of affected people decreased. The last epidemic of Haine-Medine disease in Poland was in 1950s. Another rare cases of infections were observed till 1970s. About at least 15 years after polio virus infection, slowly progressive muscle limbs paresis with muscle atrophy, joints pain, paresthesia were observed in polio survivors. That constellation of symptoms was called post-polio syndrome (PPS) . PPS frequency among people after paralytic and nonparalytic polio infectious is ranged from 30% to 80%. Fatigue that leads to physical and mental activity deterioration is another important symptom that is observed in 90% of patients with PPS. Etiology of disease remains elusive. Probably it is an effect of spine frontal horns motoneurons damage during acute virus polio infection that leads to overloading and degeneration of remaining ones. The most important risk factors of PPS are female sex and respiratory symptoms during acute polio infection. Electromyography is an important part of PPS diagnostic process. Electrophysiological abnormalities are seen in clinically affected and unaffected muscles. The most frequent are fasciculations and fibrillations during rest activity, extension of motor unit area, time duration and amplitude. In this study we described three cases of people who developed PPS years after Haine-Medine disease and correlation between their EMG results and clinical status. We also analyzed electromyography results both after one month since first PPS signs occurred as well as after few years. Presentation of dynamic changes in EMG was the most important aim of that study.
<b>Payne C(1) , Wiffen PJ(2) , Martin S(3) .</b>	All Ireland Institute of Hospice and Palliative	WITHDRAWN: Interventions for fatigue and weight loss in adults with advanced progressive illness. Update of Cochrane	Cochrane Database Syst Rev. 2017 Apr 7;4:CD008427.	BACKGROUND: Fatigue and unintentional weight loss are two of the commonest symptoms experienced by people with advanced progressive illness. Appropriate interventions may bring considerable improvements in function and quality of life to



	<p>Care, School of Health Sciences, University of Ulster, Belfast, Northern Ireland, UK.</p> <p>(2) Pain Research and Nuffield Department of Clinical Neurosciences (Nuffield Division of Anaesthetics) , University of Oxford, Pain Research Unit, Churchill Hospital, Oxford, Oxfordshire, UK, OX3 7LE.</p> <p>(3) Faculty of Life and Health Sciences, University of Ulster, Shore Road, Newtownabbey, Co. Antrim Northern Ireland, UK, BT37 0QB.</p>	<p>Database Syst Rev. 2012 Jan 18;1:CD008427</p>		<p>seriously ill people and their families, reducing physical, psychological and spiritual distress. OBJECTIVES: To conduct an overview of the evidence available on the efficacy of interventions used in the management of fatigue and/or unintentional weight loss in adults with advanced progressive illness by reviewing the evidence contained within Cochrane reviews. METHODS: We searched the Cochrane Database of Systematic Reviews (CDSR) for all systematic reviews evaluating any interventions for the management of fatigue and/or unintentional weight loss in adults with advanced progressive illness (The Cochrane Library 2010, Issue 8) . We reviewed titles of interest by abstract. Where the relevance of a review remained unclear we reached a consensus regarding the relevance of the participant group and the outcome measures to the overview. Two overview authors extracted the data independently using a data extraction form. We used the measurement tool AMSTAR (Assessment of Multiple SysTemAtic Reviews) to assess the methodological quality of each systematic review. MAIN RESULTS: We included 27 systematic reviews (302 studies with 31,833 participants) in the overview. None of the included systematic reviews reported quantitative data on the efficacy of interventions to manage fatigue or weight loss specific to people with advanced progressive illness. All of the included reviews apart from one were deemed of high methodological quality. For the remaining review we were unable to ascertain the methodological quality of the research strategy as it was described. None of the systematic reviews adequately described whether conflict of interests were present within the included studies. Management of fatigueAmyotrophic lateral sclerosis/motor neuron disease (ALS/MND) - we identified one systematic review (two studies and 52 participants) ; the intervention was exercise.Cancer - we identified five systematic reviews (116 studies with 17,342 participants) ; the pharmacological interventions were eicosapentaenoic acid (EPA) and any drug therapy for the management of cancer-related fatigue and the non pharmacological interventions were exercise, interventions by breast care nurses and psychosocial interventions.Chronic obstructive pulmonary disease (COPD) - we identified three systematic reviews (59 studies and 4048 participants) ; the interventions were self</p>
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				<p>management education programmes, nutritional support and pulmonary rehabilitation. Cystic fibrosis - we identified one systematic review (nine studies and 833 participants) ; the intervention was physical training. Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) - we identified two systematic reviews (21 studies and 748 participants) ; the interventions were progressive resistive exercise and aerobic exercise. Multiple sclerosis (MS) - we identified five systematic reviews (23 studies and 1502 participants) ; the pharmacological interventions were amantadine and carnitine. The non pharmacological interventions were diet, exercise and occupational therapy. Mixed conditions in advanced stages of illness - we identified one systematic review (five studies and 453 participants) ; the intervention was medically assisted hydration. Management of weight loss ALS/MND - we identified one systematic review but no studies met the inclusion criteria for the systematic review; the intervention was enteral tube feeding. Cancer - we identified three systematic reviews with a fourth systematic review also containing extractable data on cancer (66 studies and 5601 participants) ; the pharmacological interventions were megestrol acetate and eicosapentaenoic acid (EPA) (this systematic review is also included in the cancer fatigue section above) . The non pharmacological interventions were enteral tube feeding and non invasive interventions for patients with lung cancer. COPD - we identified one systematic review (59 studies and 4048 participants) ; the intervention was nutritional support. This systematic review is also included in the COPD fatigue section. Cystic fibrosis - we identified two systematic reviews (three studies and 131 participants) ; the interventions were enteral tube feeding and oral calorie supplements. HIV/AIDS - we identified four systematic reviews (42 studies and 2071 participants) ; the pharmacological intervention was anabolic steroids. The non pharmacological interventions were nutritional interventions, progressive resistive exercise and aerobic exercise. Both of the systematic reviews on exercise interventions were also included in the HIV/AIDS fatigue section. MS - we found no systematic reviews which considered interventions to manage unintentional weight loss for people with a clinical diagnosis of</p>
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				<p>multiple sclerosis at any stage of illness. Mixed conditions in advanced stages of illness - we identified two systematic reviews (32 studies and 4826 participants) ; the interventions were megestrol acetate and medically assisted nutrition. AUTHORS' CONCLUSIONS: There is a lack of robust evidence for interventions to manage fatigue and/or unintentional weight loss in the advanced stage of progressive illnesses such as advanced cancer, heart failure, lung failure, cystic fibrosis, multiple sclerosis, motor neuron disease, Parkinson's disease, dementia and AIDS. The evidence contained within this overview provides some insight into interventions which may prove of benefit within this population such as exercise, some pharmacological treatments and support for self management. Researchers could improve the methodological quality of future studies by blinding of outcome assessors. Adopting uniform reporting mechanisms for fatigue and weight loss outcome measures would also allow the opportunity for meta-analysis of small studies. Researchers could also improve the applicability of recommendations for interventions to manage fatigue and unintentional weight loss in advanced progressive illness by including subgroup analysis of this population within systematic reviews of applicable interventions. More research is required to ascertain the best interventions to manage fatigue and/or weight loss in advanced illness. There is a need for standardised reporting of these symptoms and agreement amongst researchers of the minimum duration of studies and minimum percentage change in symptom experience that proves the benefits of an intervention. There are, however, challenges in providing meaningful outcome measurements against a background of deteriorating health through disease progression. Interventions to manage these symptoms must also be mindful of the impact on quality of life and should be focused on patient-orientated rather than purely disease-orientated experiences for patients. Systematic reviews and primary intervention studies should include the impact of the interventions on standardised validated quality of life measures.</p>
<p><b>Pedersen M(1) (2) , Ekstedt M(3) (4) , Småstuen MC(5) ,</b></p>	<p>Institute of Clinical Medicine,</p>	<p>Sleep-wake rhythm disturbances and perceived</p>	<p>J Sleep Res. 2017 Oct;26(5) :595-601.</p>	<p>Chronic fatigue syndrome (CFS) is characterized by long-lasting, disabling and unexplained fatigue that is often accompanied by unrefreshing sleep. The aim of this cross-sectional study was to</p>

<p><b>Wyller VB(1) (2) , Sulheim D(6) , Fagermoen E(7) , Winger A(5) , Pedersen E(8) , Hrubos-StrÅ,m H(9) .</b></p>	<p>University of Oslo, Oslo, Norway.</p>	<p>sleep in adolescent chronic fatigue syndrome.</p>		<p>investigate sleep-wake rhythm and perceived sleep in adolescent CFS patients compared to healthy individuals. We analysed baseline data on 120 adolescent CFS patients and 39 healthy individuals included in the NorCAPITAL project. Activity measures from a uniaxial accelerometer (activPAL) were used to estimate mid-sleep time (mid-point of a period with sleep) and time in bed. Scores from the Karolinska Sleep Questionnaire (KSQ) were also assessed. The activity measures showed that the CFS patients stayed significantly longer in bed, had a significantly delayed mid-sleep time and a more varied sleep-wake rhythm during weekdays compared with healthy individuals. On the KSQ, the CFS patients reported significantly more insomnia symptoms, sleepiness, awakening problems and a longer sleep onset latency than healthy individuals. These results might indicate that disrupted sleep-wake phase could contribute to adolescent CFS; however, further investigations are warranted.</p>
<p><b>Petrie KJ(1) , Weinman J(2) .</b></p>	<p>1 University of Auckland, New Zealand. (2) 2 King's College London, UK.</p>	<p>The PACE trial: It's time to broaden perceptions and move on.</p>	<p>J Health Psychol. 2017 Aug;22(9) :1198-1200.</p>	<p>The continued critiques of the PACE trial highlight how differing beliefs about the causes of chronic fatigue syndrome still influence how scientific studies in this area are accepted and evaluated. Causal beliefs about chronic fatigue syndrome and a modern version of Cartesian dualism are important in understanding the reaction to the PACE trial. The continued debate on the PACE trial seems to miss the fact that science is incremental. An unfortunate outcome of the PACE controversy and intimidation of researchers may be less research in the area. It is time to move on from criticism and collect more data on effective treatments.</p>
<p><b>Petrovics G(1) , Ondrejovicova A(1) .</b></p>	<p>Institute of Traditional Chinese medicine, Faculty of Medicine, Slovak Medical University, Bratislava, Slovak</p>	<p>Multiple sclerosis in an acupuncture practice.</p>	<p>Neuro Endocrinol Lett. 2017 May;38(2) :87-90.</p>	<p>Multiple sclerosis (MS) is a severe autoimmune demyelinating disease that affects nervous system, has high morbidity and mortality and no effective targeted therapies are available. We present aÅ case of 66-year-old female patient who has been treated by both conventional and Chinese traditional medicine after diagnosis was confirmed in 2008 as MS and antiphospholipid syndrome associated with CNS vasculitis. After diagnosis with clinical image confirmed with CT and MRI scan, where demyelinating zones were present, she started pharmacological therapy without major improvement. Patient suffered with fatigue, walking difficulties, weakness, was unable to articulate due to vocal cords spasms. We started acupuncture treatment in 2010 with herbal supplement</p>

	Republic. , Slovakia.			therapy as well and patient had in total of 197 sessions with 10 session's cycle and 2-3 months pause. Patient's mobility was significantly improved after therapy, as well as vocal cord spasms and she gained back her articulation. Subjectively, patient also reported pain relief, mobility and fatigue improvement. Traditional Chinese medicine showed to be effective tool for pain and spasm relieving and can be powerful complementary tool in patients with chronic diseases, such as MS.
<b>Picariello F(1) (2) , Ali S(2) , Foubister C(1) (2) , Chalder T(2) (3) .</b>	Institute of Psychiatry, Psychology, and Neuroscience, King's College London, UK. (2) South London and Maudsley NHS Foundation Trust, London, UK. (3) Department of Psychological Medicine, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK.	'It feels sometimes like my house has burnt down, but I can see the sky': A qualitative study exploring patients' views of cognitive behavioural therapy for chronic fatigue syndrome.	Br J Health Psychol. 2017 Sep;22(3) :383-413.	OBJECTIVES: Cognitive behavioural therapy (CBT) is currently a first-line treatment for chronic fatigue syndrome (CFS) . Even though the results from trials are promising, there is variability in patient outcomes. The aim of this study was to explore the experiences of patients with CFS who undertook CBT at a specialist service for CFS. DESIGN: This was a qualitative study. METHODS: Thirteen patients with CFS, approaching the end of CBT, participated in semi-structured interviews. In addition, participants were asked to rate their satisfaction with CBT and perceived level of improvement. The data were analysed using inductive thematic analysis. RESULTS: The majority of participants were satisfied with treatment and reported marked improvements. This was evident from the ratings and corroborated by the qualitative data, yet recovery was in general incomplete. Participants often disclosed mixed feelings towards CBT prior to its start. Behavioural aspects of treatment were found useful, while participants were more ambivalent towards the cognitive aspects of treatment. The tailored nature of CBT and therapist contact were important components of treatment, which provided participants with support and validation. Engagement and motivation were crucial for participants to benefit from CBT, as well as the acceptance of a bio-psychosocial model of CFS. Illness beliefs around CFS were also discussed throughout the interviews, possibly impeding engagement with therapy. CONCLUSIONS: The results suggest that various factors may moderate the effectiveness of CBT, and a greater understanding of these factors may help to maximize benefits gained from CBT. Statement of contribution What is already known on this subject? CBT is effective in reducing CFS symptoms, but not all patients report marked improvements following treatment. Predictors of outcome have been explored in the

				literature. Few studies have looked at the experience of adult patients with CFS who have had CBT. What does this study add? Findings provide insights as to why variability in CBT-related improvements exists. Beliefs about CFS and CBT may shape engagement and consequently contribute to post-treatment outcomes. Flexibility and sensitivity are necessary from therapists throughout treatment to ensure full engagement.
<b>Pinquart M(1) .</b>	Fachbereich Psychologie Philipps Universität Marburg Gutenbergstr. 18 35032 Marburg Deutschland FB Psychologie - Uni Marburg.	[Psychological Health of Children with Chronic Physical Illness and their Parents - Results from Meta-Analyses]. [Article in German]	Prax Kinderpsychol Kinderpsychiatr. 2017 Nov;66(9) :656-671.	Psychological Health of Children with Chronic Physical Illness and their Parents - Results from Meta-Analyses The present paper summarizes results from meta-analyses on psychological well-being of children with chronic physical illnesses and their parents. At the beginning, we discuss potential reasons for psychological effects of a chronic physical illness on children and adolescents as well as their parents. We then summarize results of meta-analyses of studies that compared aspects of mental health of children with a chronic physical illness and their parents with families of healthy children. Depressive symptoms, anxiety, and internalizing symptoms in general were most elevated in children with chronic fatigue syndrome and chronic headache while externalizing symptoms were most elevated in young people with epilepsy, chronic headache, and cerebral palsy. Depression and anxiety was less elevated in the ill children than in their parents. Parents of children with HIV-infection/AIDS and cerebral palsy reported the highest levels of distress, followed by parents of children diagnosed with cancer and spina bifida. Conclusions are drawn for future research and practice.
<b>Pinxsterhuis I(1) (2) (3) , Sandvik L(4) , Strand EB(1) , Bautz-Holter E(5) , Sveen U(2) (3) (5) .</b>	1 Division of Medicine, Oslo University Hospital, Oslo, Norway. (2) 2 Department of Occupational Therapy, Prosthetics and Orthotics,	Effectiveness of a group-based self-management program for people with chronic fatigue syndrome: a randomized controlled trial.	Clin Rehabil. 2017 Jan;31(1) :93-103.	OBJECTIVE: To evaluate the effectiveness of a group-based self-management program for people with chronic fatigue syndrome. DESIGN: A randomized controlled trial. SETTING: Four mid-sized towns in southern Norway and two suburbs of Oslo. SUBJECTS: A total of 137 adults with chronic fatigue syndrome. INTERVENTION: A self-management program including eight biweekly meetings of 2.5 hours duration. The control group received usual care. MAIN MEASURES: Primary outcome measure: Medical Outcomes Study-Short Form-36 physical functioning subscale. SECONDARY OUTCOME MEASURES: Fatigue severity scale, self-efficacy scale, physical and mental component summary of the Short Form-36, and the illness cognition questionnaire (acceptance subscale) . Assessments were

	Oslo, Norway. (3) 3 Akershus University College of Applied Sciences, Oslo, Norway. (4) 4 Center for Biostatistics and Epidemiology, Oslo University Hospital, Oslo, Norway. (5) 5 Department of Physical Medicine and Rehabilitation, Oslo University Hospital, Oslo, Norway.			performed at baseline, and at six-month and one-year follow-ups. RESULTS: At the six-month follow-up, a significant difference between the two groups was found concerning fatigue severity ( $p=0.039$ ) in favor of the control group, and concerning self-efficacy in favor of the intervention group ( $p=0.039$ ) . These significant differences were not sustained at the one-year follow-up. No significant differences were found between the groups concerning physical functioning, acceptance, and health status at any of the measure points. The drop-out rate was 13.9% and the median number of sessions attended was seven (out of eight) . CONCLUSIONS: The evaluated self-management program did not have any sustained effect, as compared with receiving usual care.
<b>PLOS ONE Editors.</b>	Expression of concern for PLoS One. 2012;7(8) :e40808.	Expression of Concern: Adaptive Pacing, Cognitive Behaviour Therapy, Graded Exercise, and Specialist Medical Care for Chronic Fatigue Syndrome: A Cost-Effectiveness Analysis.	PLoS One. 2017 May 2;12(5) :e0177037.	
<b>Polastri M(1) , Pisani L, Dell'Amore A, Nava S.</b>	University Hospital St. Orsola-Malpighi, Medical Department of Continuity	Revolving door respiratory patients: A rehabilitative perspective.	Monaldi Arch Chest Dis. 2017 Sep 22;87(3) :857.	Rehabilitation is an integral component of care for patients affected by either acute or chronic pulmonary diseases. The key elements of rehabilitation treatment for critical respiratory patients are as follows: weaning from mechanical ventilation, respiratory therapy, physical reconditioning, and occupational therapy. It should be noted that patients affected by pulmonary diseases are prone to hospital re-admission due to frequent exacerbations, especially in

	of Care and Disability. gbptap1@gmail.com.			cases with more severe stages of chronic obstructive pulmonary disease. A periodical worsening of clinical conditions is common in asthma, acute respiratory distress syndrome survivors, obstructive sleep apnea syndrome, and pulmonary fibrosis, as well as in patients with severe neuromuscular diseases. These patients are often identified as "revolving door patients". Pulmonary patients are typically forced to maintain bed rest, or at least spend most of their waking hours dealing with mobility limitations, due to various pathological conditions including dyspnea, fatigue, and poor tolerance of movements. Alterations in mood are common in pulmonary patients who experience a decreased quality of life and limited social interactions. These negative emotional and cognitive aspects can be a major limitation to the provision of care, because to enhance and facilitate a degree of autonomy, the patient must be cooperative and pro-active.
<b>Qi Y(1) , Song S(1) , Dou Z(1) , Chen J(1) , He G(1) , Zhang L(1) , Yao J(1) .</b>	Department of TCM, People's Hospital of Dingxi City, Dingxi 743000, Gansu Province, China.	[Chaihu Longgu Muli decoction combined with acupuncture at back-shu points for chronic fatigue syndrome]. [Article in Chinese]	Zhongguo Zhen Jiu. 2017 Nov 12;37(11) :1187-90.	OBJECTIVE: To observe the effect difference between Chaihu Longgu Muli decoction combined with acupuncture at back-shu points and simple Chaihu Longgu Muli decoction for chronic fatigue syndrome. METHODS: Sixty patients were randomly assigned into an herbal group and a combination group, 30 cases in each one. Simple Chaihu Longgu Muli decoction was used in the herbal group for continuous one month, one decoction a day. Based on that in the herbal group, 30 min acupuncture was used in the combination group at bilateral Xinshu (BL 15) , Feishu (BL 13) , Pishu (BL 20) , Ganshu (BL 18) and Shenshu (BL 23) , with acupoints according to syndrome differentiation. Acupuncture was given for 3 courses, 10 times as a course with 3 days between two courses, once a day. Fatigue status was evaluated before and after treatment by fatigue scale 14 (FS-14) and self-rating anxiety scale (SAS) . RESULTS: The FS-14 scores, including body fatigue scores, mental fatigue scores and total scores, and SAS scores after treatment were lower than those before treatment in the two groups (all P<0.01) , with better improvements in the combination group (all P<0.01) . CONCLUSION: Chaihu Longgu Muli decoction combined with acupuncture at back-shu points can improve chronic fatigue syndrome, which are better than simple Chaihu Longgu Muli decoction.



<p><b>Qiang L(1) , Rao AN(1) , Mostoslavsky G(1) , James MF(1) , Comfort N(1) , Sullivan K(1) , Baas PW(2) .</b></p>	<p>From the Department of Neurobiology and Anatomy (L.Q., A.N.R., P.W.B.) , Drexel University, Philadelphia, PA;</p>	<p>Reprogramming cells from Gulf War veterans into neurons to study Gulf War illness.</p>	<p>Neurology. 2017 May 16;88(20) :1968-1975.</p>	<p>Gulf War illness (GWI) , which afflicts at least 25% of veterans who served in the 1990-1991 war in the Persian Gulf, is thought to be caused by deployment exposures to various neurotoxins, including pesticides, anti-nerve gas pills, and low-level nerve agents including sarin/cyclosarin. GWI is a multisymptom disorder characterized by fatigue, joint pain, cognitive problems, and gastrointestinal complaints. The most prominent symptoms of GWI (memory problems, poor attention/concentration, chronic headaches, mood alterations, and impaired sleep) suggest that the disease primarily affects the CNS. Development of urgently needed treatments depends on experimental models appropriate for testing mechanistic hypotheses and for screening therapeutic compounds. Rodent models have been useful thus far, but are limited by their inability to assess the contribution of genetic or epigenetic background to the disease, and because disease-vulnerable proteins and pathways may be different in humans relative to rodents. As of yet, no postmortem tissue from the veterans has become available for research. We are moving forward with a paradigm shift in the study of GWI, which utilizes contemporary stem cell technology to convert somatic cells from Gulf War veterans into pluripotent cell lines that can be differentiated into various cell types, including neurons, glia, muscle, or other relevant cell types. Such cell lines are immortal and will be a resource for GWI researchers to pursue mechanistic hypotheses and therapeutics.</p>
<p><b>RÅstemova D(1) , Genc A, Bora G, Tur BS.</b></p>	<p>aDepartment of Physical Medicine and Rehabilitation, Faculty of Medicine, Ankara University bPhysiotherapy Program, Haymana Vocational School,</p>	<p>A thermal dysregulation problem after breast cancer surgery; what could be?</p>	<p>Medicine (Baltimore) . 2017 Jun;96(26) :e7027.</p>	<p>RATIONALE: Chronic fatigue syndrome (CFS) is a complicated disorder characterized by severe fatigue that is not relieved with rest and associated with physical symptoms such as sleep problems, headache, muscle pain, or joint pain. PATIENT CONCERNS: Forty-one year old patient complained from feeling cold after breast cancer surgery. DIAGNOSES: The diagnoses of fibromyalgia, depression, neurological, psychiatric, and vascular disorders were excluded by appropriate clinical and laboratory investigations. She was diagnosed as CFS. INTERVENTIONS: The patient was treated successfully via aerobic exercise therapy that scheduled for 30 min at least 3 days per week. OUTCOMES: At 6-month follow-up, her complaints were almost resolved and the patient regained her physical health and</p>

	Ankara University Department of Surgery, Faculty of Medicine, Ankara University, Ankara, Turkey.			mental attitude. LESSONS: A thermal dysregulation should be taken into consideration as one of the symptoms of CFS.
<b>Rahmadi R(1) (2) , Groot P(2) , van Rijn MH(3) , van den Brand JA(3) , Heins M(4) , Knoop H(5) , Heskes T(2) ; Alzheimer's Disease Neuroimaging Initiative; MASTERPLAN Study Group; OPTIMISTIC consortium.</b>	1 Department of Informatics, Universitas Islam Indonesia, Sleman, Indonesia. (2) 2 Institute for Computing and Information Sciences, Radboud University Nijmegen, Nijmegen, The Netherlands. (3) 3 Department of Nephrology, Radboud University Medical Center, Nijmegen, The Netherlands.	Causality on longitudinal data: Stable specification search in constrained structural equation modeling.	Stat Methods Med Res. 2017 Jan 1:962280217713347.	A typical problem in causal modeling is the instability of model structure learning, i.e., small changes in finite data can result in completely different optimal models. The present work introduces a novel causal modeling algorithm for longitudinal data, that is robust for finite samples based on recent advances in stability selection using subsampling and selection algorithms. Our approach uses exploratory search but allows incorporation of prior knowledge, e.g., the absence of a particular causal relationship between two specific variables. We represent causal relationships using structural equation models. Models are scored along two objectives: the model fit and the model complexity. Since both objectives are often conflicting, we apply a multi-objective evolutionary algorithm to search for Pareto optimal models. To handle the instability of small finite data samples, we repeatedly subsample the data and select those substructures (from the optimal models) that are both stable and parsimonious. These substructures can be visualized through a causal graph. Our more exploratory approach achieves at least comparable performance as, but often a significant improvement over state-of-the-art alternative approaches on a simulated data set with a known ground truth. We also present the results of our method on three real-world longitudinal data sets on chronic fatigue syndrome, Alzheimer disease, and chronic kidney disease. The findings obtained with our approach are generally in line with results from more hypothesis-driven analyses in earlier studies and suggest some novel relationships that deserve further research.

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<p><b>Rasouli O(1) , Fors EA(2) , Borchgrevink PC(3) , Åhberg F(4) , Stensdotter AK(5) .</b></p>	<p>Department of Neuromedicin e and Movement Science, Faculty of Medicine and Health Sciences, Norwegian University of Science and Technology, Trondheim, Norway; Department</p>	<p>Gross and fine motor function in fibromyalgia and chronic fatigue syndrome.</p>	<p>J Pain Res. 2017 Feb 7;10:303-309.</p>	<p>PURPOSE: This paper aimed to investigate motor proficiency in fine and gross motor function, with a focus on reaction time (RT) and movement skill, in patients with fibromyalgia (FM) and chronic fatigue syndrome (CFS) compared to healthy controls (HC) . METHODS: A total of 60 individuals (20 CFS, 20 FM, and 20 HC) , age 19-49 years, participated in this study. Gross motor function in the lower extremity was assessed using a RT task during gait initiation in response to an auditory trigger. Fine motor function in the upper extremity was measured during a precision task (the Purdue Pegboard test) where the number of pins inserted within 30 s was counted. RESULTS: No significant differences were found between FM and CFS in any parameters. FM and CFS groups had significantly longer RT than HC in the gait initiation (p=0.001, and p=0.004 respectively) . In the Purdue Pegboard test, 20% in the FM group, 15% in the CFS groups, and 0% of HC group, scored below the threshold of the accepted performance. However, there were no significant differences between FM, CFS, and HC in this task</p>

	of Public Health and Nursing, Faculty of Medicine and Health Sciences, Norwegian University of Science and Technology, Trondheim, Norway.			(p=0.12) . CONCLUSION: Compared to controls, both CFS and FM groups displayed significantly longer RT in the gait initiation task. Generally, FM patients showed the worst results in both tests, although no group differences were found in fine motor control, according to the Purdue Pegboard test.
<b>Reale M, Sanchez-Ramon S(1) .</b>	Department of Clinical Immunology, Hospital Universitario Clinico San Carlos, c./ Profesor Martín Lagos SN, 28040 - Madrid, Spain.	Lipids at the Cross-road of Autoimmunity in Multiple Sclerosis.	Curr Med Chem. 2017;24(2) :176-192.	Multiple sclerosis (MS) is a chronic autoimmune disease that affects the central nervous system (CNS) characterized by demyelination and neurodegeneration, driven by a Th17/Th1-immune response, which afflicts mainly young women. Although MS causes are not completely known, it is notorious that the disease is characterized by an extended focal degradation of the myelin sheath, with ulterior axonal and neuronal damage. Lipid molecules play a main dual role in MS, both as target molecules of myelin destruction and as mediators of inflammation. Indeed, recent cumulative evidence suggests that abnormalities in the lipidbinding proteins of myelin and sphingolipid content that confer increased immunogenicity may underlie the autoimmune response against the myelin sheath. CNS is after all, the second organ richer in lipid content after adipose tissue. On the other hand, soluble factors called adipokines, secreted by adipose tissue, modulate inflammatory responses and contribute to metabolic dysfunction, which may be important in MS pathophysiology. Disability accumulation in MS patients is slow but persistent, often leading to a decreased mobility and physical activity, resulting in more weakness, fatigue and associated increased risk of the metabolic syndrome (MetS) . In turn, MetS may trigger MS in susceptible individuals and is a bad prognostic factor. Here we review what are the facts linking lipids, MetS and MS, what we do not know yet, and what we should do to move this field forward.

<p><b>Reeve BB(1) (2) , Edwards LJ(3) , Jaeger BC(3) , Hinds PS(4) (5) , Dampier C(6) (7) , Gipson DS(8) , Selewski DT(8) , Troost JP(8) , Thissen D(9) , Barry V(6) (7) , Gross HE(10) , DeWalt DA(11) .</b></p>	<p>Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill, NC, USA.</p>	<p>Assessing responsiveness over time of the PROMIS<sup>®</sup> pediatric symptom and function measures in cancer, nephrotic syndrome, and sickle cell disease.</p>	<p>Qual Life Res. 2018 Jan;27(1) :249-257.</p>	<p>PURPOSE: Previous studies provided evidence for the validity of the PROMIS Pediatric measures in cross-sectional studies. This study evaluated the ability of the PROMIS Pediatric measures to detect change over time in children and adolescents with cancer, nephrotic syndrome (NS) , or sickle cell disease (SCD) . METHODS: Participants (8-17 years) completed measures of fatigue, pain interference, anger, anxiety, depressive symptoms, mobility, upper extremity, and peer relationships at three or four time points (T1-T4) . Between T1 and T2, children with cancer received chemotherapy and children with SCD experienced a pain exacerbation. Children with NS were first assessed during active disease (T2) , with T3 and T4 conducted at disease remission. For the primary analysis of responsiveness, we expected better scores at T3 (recovery) compared to T2 (event) for all diseases. T1 and T4 are also expected to have better scores than T2. Linear mixed models were used and adjusted for time, gender, age, race/ethnicity, education, comorbid conditions, and disease. RESULTS: Enrolled were 96 children with cancer, 121 children with SCD, and 127 children with NS. Fatigue, pain interference, mobility, and upper extremity scores worsened from T1 (baseline) to T2 (event) (<math>p &lt; 0.01</math>) , and significantly improved from T2 to T3 and T4 (<math>p &lt; 0.01</math>) . Similarly, anxiety and depressive symptoms significantly improved from T2 to T3 and T4 (<math>p &lt; 0.01</math>) . CONCLUSIONS: This study provides evidence for the responsiveness of seven PROMIS Pediatric measures to clinical disease state in three chronic illnesses. The findings support use of PROMIS Pediatric measures in clinical research.</p>
<p><b>Regland B.</b></p>		<p>Vitamin B12/B9 och mÅjlig behandling vid mental trÅtthet.</p>	<p>Lakartidningen. 2017 Jul 11;114. pii: ERZ3.</p>	<p>PMID: 28696491 [Indexed for MEDLINE]</p>
<p><b>Rimes KA(1) , Lievesley K(1) , Chalder T(1) .</b></p>	<p>Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK.</p>	<p>Stress vulnerability in adolescents with chronic fatigue syndrome: experimental study investigating heart rate variability and skin conductance responses.</p>	<p>J Child Psychol Psychiatry. 2017 Jul;58(7) :851-858.</p>	<p>BACKGROUND: Stress vulnerability has been implicated in adolescent chronic fatigue syndrome (CFS) , but has rarely been investigated directly. This study compared psychological and physiological responses to a laboratory social performance task in adolescents with CFS with chronic illness (asthma) and healthy control groups. METHODS: Adolescents with CFS (<math>n = 60</math>) , adolescents with asthma (<math>n = 31</math>) and healthy adolescents (<math>n = 78</math>) completed questionnaires before and after a social</p>

				<p>performance task. Skin conductance responses (SCR; mean SCR and Max-Min) and heart rate variability (low frequency/high frequency; LF/HF and root mean square difference of successive RR intervals; RMSSD) was measured before, during and after the task. RESULTS: Baseline heart rate variability (HRV) (RMSSD) was significantly lower in the CFS and Asthma groups than the HC. During the speech, the CFS and Asthma groups had higher HRV (LF/HF) than the HC, adjusting for baseline LF/HF. Although the asthma group showed a subsequent reduction in HRV during recovery, the CFS group did not. Similarly, during recovery after the task, the CFS group showed a continued increase in skin conductance (Min-Max), unlike the Asthma and HC groups. Compared to control groups, adolescents with CFS expected to find the task more difficult, were more anxious beforehand and afterwards, rated it as more difficult, evaluated their performance more negatively and had lower observer ratings of performance. Parents of adolescents with CFS expected that their child would perform less well in the task than parents of control participants. CONCLUSIONS: Adolescents with CFS showed autonomic nervous system responses that are consistent with chronic stress vulnerability, difficulty coping with acute stress and slower recovery after acute stress. Self-report measures also indicated greater trait, pre- and posttask anxiety in the CFS group.</p>
<p><b>Roerink ME(1) , Bredie SJH(1) , Heijnen M(1) , Dinarello CA(1) , Knoop H(1) , Van der Meer JWM(1) .</b></p>	<p>From Radboud University Medical Centre, Nijmegen, and University of Amsterdam, Amsterdam, the Netherlands; and University of Colorado Denver,</p>	<p>Cytokine Inhibition in Patients With Chronic Fatigue Syndrome: A Randomized Trial.</p>	<p>Ann Intern Med. 2017 Apr 18;166(8) :557-564.</p>	<p>Background: Interleukin-1 (IL-1), an important proinflammatory cytokine, is suspected to play a role in chronic fatigue syndrome (CFS). Objective: To evaluate the effect of subcutaneous anakinra versus placebo on fatigue severity in female patients with CFS. Design: Randomized, placebo-controlled trial from July 2014 to May 2016. Patients, providers, and researchers were blinded to treatment assignment. (ClinicalTrials.gov: NCT02108210). Setting: University hospital in the Netherlands. Patients: 50 women aged 18 to 59 years with CFS and severe fatigue leading to functional impairment. Intervention: Participants were randomly assigned to daily subcutaneous anakinra, 100 mg (n = 25), or placebo (n = 25) for 4 weeks and were followed for an additional 20 weeks after treatment (n = 50). Measurements: The primary outcome was fatigue severity, measured by the Checklist Individual Strength subscale (CIS-fatigue) at 4 weeks. Secondary outcomes were level of</p>

	Aurora, Colorado.			<p>impairment, physical and social functioning, psychological distress, and pain severity at 4 and 24 weeks. Results: At 4 weeks, 8% (2 of 25) of anakinra recipients and 20% (5 of 25) of placebo recipients reached a fatigue level within the range reported by healthy persons. There were no clinically important or statistically significant differences between groups in CIS-fatigue score at 4 weeks (mean difference, 1.5 points [95% CI, -4.1 to 7.2 points]) or the end of follow-up. No statistically significant between-group differences were seen for any secondary outcome at 4 weeks or the end of follow-up. One patient in the anakinra group discontinued treatment because of an adverse event. Patients in the anakinra group had more injection site reactions (68% [17 of 25] vs. 4% [1 of 25]).</p> <p>Limitation: Small sample size and wide variability in symptom duration; inclusion was not limited to patients with postinfectious symptoms. Conclusion: Peripheral IL-1 inhibition using anakinra for 4 weeks does not result in a clinically significant reduction in fatigue severity in women with CFS and severe fatigue. Primary Funding Source: Interleukin Foundation and an independent donor who wishes to remain anonymous.</p>
<b>Roerink ME(1) , Bronkhorst EM(2) , van der Meer JW(3) .</b>	<p>Department of Internal Medicine, Radboud University Medical Centre, 6525 GA, Nijmegen, The Netherlands; megan.roerink@radboudumc.nl. (2)</p> <p>Department for Health Evidence, Radboud University</p>	Metabolome of chronic fatigue syndrome.	Proc Natl Acad Sci U S A. 2017 Feb 7;114(6) :E910.	

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<p><b>Roerink ME(1) , Buckland M(2) , Lloyd AR(3) , van der Meer JWM(4) .</b></p>	<p>Radboud University Medical Center, Nijmegen 6500 HB, The Netherlands. (2) Barts Health Trust, London E1 1BB, United Kingdom. (3) Kirby Institute, University of New South Wales, Sydney, NSW 2052, Australia. (4) Radboud University</p>	<p>Cytokine signature in chronic fatigue syndrome.</p>	<p>Proc Natl Acad Sci U S A. 2017 Nov 7;114(45) :E9435.</p>	



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<b>Roerink ME(1) , Knoop H(2) , Bronkhorst EM(3) , Mouthaan HA(4) , Hawinkels LJAC(5) , Joosten LAB(6) , van der Meer JWM(6) .</b>	<p>Department of Internal Medicine, Radboud University Medical Center, Nijmegen, The Netherlands. Megan.Roerink@radboudumc.nl. (2)</p> <p>Department of Medical Psychology, Academic Medical Center (AMC) , University of Amsterdam, Amsterdam, The Netherlands. (3)</p> <p>Department for Health Evidence, Radboud</p>	Cytokine signatures in chronic fatigue syndrome patients: a Case Control Study and the effect of anakinra treatment.	J Transl Med. 2017 Dec 29;15(1) :267.	<p>BACKGROUND: Cytokine disturbances have been suggested to be associated with the Chronic Fatigue Syndrome/Myalgic encephalomyelitis (CFS/ME) for decades. METHODS: Fifty female CFS patients were included in a study on the effect of the interleukin-1-receptor antagonist anakinra or placebo during 4 weeks. EDTA plasma was collected from patients before and directly after treatment. At baseline, plasma samples were collected at the same time from 48 healthy, age-matched female neighborhood controls. A panel of 92 inflammatory markers was determined in parallel in 1 mL samples using a 'proximity extension assay' (PEA) based immunoassay. Since Transforming growth factor beta (TGF-<math>\beta^2</math>) and interleukin-1 receptor antagonist (IL-1Ra) were not included in this platform, these cytokines were measured with ELISA. RESULTS: In CFS/ME patients, the 'normalized protein expression' value of IL-12p40 and CSF-1 was significantly higher (p value 0.0042 and 0.049, respectively) . Furthermore, using LASSO regression, a combination of 47 markers yielded a prediction model with a corrected AUC of 0.73. After correction for multiple testing, anakinra had no effect on circulating cytokines. TGF-<math>\beta^2</math> did not differ between patients and controls. CONCLUSIONS: In conclusion, this study demonstrated increased IL-12p40 and CSF-1 concentrations in CFS/ME patients in addition to a set of predictive biomarkers. There was no effect of anakinra on circulating cytokines other than IL-1Ra. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT02108210 , Registered April 2014.</p>

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<p><b>Roerink ME(1), Lenders JW(1) (2), Schmits IC(3), Pistorius AM(4), Smit JW(1), Knoop H(3) (5), van der Meer JW(1).</b></p>	<p>Department of Internal Medicine, Radboud University Medical Centre,</p>	<p>Postural orthostatic tachycardia is not a useful diagnostic marker for chronic fatigue syndrome.</p>	<p>J Intern Med. 2017 Feb;281(2) :179-188.</p>	<p>BACKGROUND: Postural orthostatic tachycardia syndrome (POTS) is considered a diagnostic marker for chronic fatigue syndrome (CFS). OBJECTIVES: The aims of this study were to (i) compare POTS prevalence in a CFS cohort with fatigued patients not meeting CFS criteria, and (ii) assess activity, impairment and response to cognitive behavioural therapy (CBT) in CFS patients with POTS (POTS-CFS) and without POTS (non-POTS-CFS). METHODS:</p>

	<p>Nijmegen, the Netherlands.  (2) Department of Internal Medicine III, University Hospital Carl Gustav Carus, Technical University of Dresden, Dresden, Germany. (3) Expert Centre for Chronic Fatigue, Radboud University Medical Centre, Nijmegen, the Netherlands.  (4) Centre for Molecular and Biomolecular Informatics, Radboud University Medical Centre, Nijmegen, the Netherlands.  (5) Department of Medical Psychology,</p>			<p>Prospective cohort study at the Radboud University Medical Centre in the Netherlands. Between June 2013 and December 2014, 863 consecutive patients with persistent fatigue were screened. Patients underwent an active standing test, filled out questionnaires and wore an activity-sensing device for a period of 12 days. RESULTS: A total of 419 patients with CFS and 341 non-CFS fatigued patients were included in the study. POTS prevalence in adult patients with CFS was 5.7% vs. 6.9% in non-CFS adults (P = 0.54) . In adolescents, prevalence rates were 18.2% and 17.4%, respectively (P = 0.93) . Adult patients with POTS-CFS were younger (30 <math>\hat{A}\pm</math> 12 vs. 40 <math>\hat{A}\pm</math> 13 years, P = 0.001) and had a higher supine heart rate (71 <math>\hat{A}\pm</math> 11 vs. 65 <math>\hat{A}\pm</math> 9 beats per min, P = 0.009) compared with non-POTS-CFS patients. Severity and activity patterns did not differ between groups. In patients with CFS, criteria for Systemic Exertion Intolerance Disease (SEID) were met in 76% of adults and 67% of adolescents. In these patients with CFS fulfilling the SEID criteria, the prevalence of POTS was not different from that in the overall CFS population. POTS-CFS adolescents had less clinically significant improvement after CBT than non-POTS-CFS adolescents (58% vs. 88%, P = 0.017) . CONCLUSION: In adults with CFS, the prevalence of POTS was low, was not different from the rate in non-CFS fatigued patients and was not related to disease severity or treatment outcome. In POTS-CFS adolescents, CBT was less successful than in non-POTS-CFS patients. The evaluation of POTS appears to be of limited value for the diagnosis of CFS.</p>
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	Academic Medical Centre (AMC), University of Amsterdam, Amsterdam, the Netherlands.			
<b>Roerink ME(1), Van der Meer JWM(1).</b>	From Radboud University Medical Centre, Nijmegen, the Netherlands.	Cytokine Inhibition in Patients With Chronic Fatigue Syndrome.	Ann Intern Med. 2017 Sep 19;167(6):448.	Comment on Ann Intern Med. 2017 Apr 18;166(8):557-564. Ann Intern Med. 2017 Sep 19;167(6):447-448.
<b>Rogers DC(1), Dittner AJ(2), Rimes KA(3), Chalder T(4).</b>	King's College London, King's Health Partners, (formerly Behavioural and Developmental Psychiatry Clinical Academic Group, Maudsley Adult ADHD Service, South London and Maudsley NHS Foundation Trust), London, UK..	Fatigue in an adult attention deficit hyperactivity disorder population: A trans-diagnostic approach.	Br J Clin Psychol. 2017 Mar;56(1):33-52.	OBJECTIVES: Trans-diagnostic approaches suggest that key cognitive and behavioural processes maintain symptoms across a wide range of mental health disorders. Fatigue is a common clinical feature of attention deficit hyperactivity disorder (ADHD) in adulthood; however, empirical data supporting its prevalence are lacking. This study aimed to collate outcomes from outpatient services to (1) investigate the prevalence of fatigue in adults with ADHD, (2) examine symptoms of ADHD in adults with chronic fatigue syndrome (CFS), and (3) consider secondary clinical characteristics common to both disorder groups. METHODS: Measures of self-reported fatigue were compared across groups of adults with ADHD (N = 243), CFS (N = 86), and healthy controls (HC) (N = 211) using a between-subjects cross-sectional design. Groups were also compared on secondary clinical measures of functional impairment, mood, anxiety, sleep, self-efficacy, and their beliefs about the acceptability of expressing emotions. RESULTS: The ADHD group were significantly more fatigued than HC with 62% meeting criteria for fatigue caseness. ADHD symptoms were significantly greater in the CFS group than in HC. ADHD and CFS groups did not differ significantly on measures of functional impairment, mood, and self-efficacy. No significant differences were detected on measures of

				<p>anxiety when items relating to physical restlessness were removed from the analysis. CONCLUSIONS: Adults with ADHD experience greater fatigue than HC. Adults with CFS and ADHD share many trans-diagnostic clinical characteristics, including difficulties with low mood, anxiety, and reduced self-efficacy, which impact upon their overall functioning. Further research is required to investigate extraneous factors mediating fatigue severity in these clinical groups. PRACTITIONER POINTS: Fatigue is a common clinical feature of attention deficit hyperactivity disorder (ADHD) in adulthood. Evidence-based interventions for chronic fatigue syndrome could be adapted to address fatigue in ADHD in adults.</p>
<b>Rollnik JD.</b>		[Chronic Fatigue Syndrome: A Critical Review].	Fortschr Neurol Psychiatr. 2017 Feb;85(2) :79-85.	<p>Chronic fatigue syndrome (CFS) , also called myalgic encephalomyelitis (ME) , is a challenge to physicians. CFS prevalence is below 1% in a general population. There are no convincing models that might explain etiology and pathogenesis of CFS as an independent, unique disease. No consistent diagnostic criteria are available. In the differential diagnosis of chronic fatigue, a variety of somatic (e.g. chronic infectious diseases, multiple sclerosis, endocrinological disorders) and psychiatric/psychosomatic diseases should be considered. After exclusion of somatic causes, there is a significant overlap with major depression and somatoform disorders. Exercise therapy, antidepressants and psychotherapy are useful treatment options. Unless there is enough evidence for neuroinflammation, aggressive immunotherapies like rituximab should not be considered. In sum, there is not enough evidence to assume that CFS is an independent, unique disease.</p>
<b>Roomruangwong C(1) , Kanchanatawan B(1) , Sirivichayakul S(2) , Mahieu B(3) , Nowak G(4) (5) , Maes M(6) (7) (8) (9) (10) .</b>	Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand. (2) Department of Medicine, Faculty of	Lower Serum Zinc and Higher CRP Strongly Predict Prenatal Depression and Physio-somatic Symptoms, Which All Together Predict Postnatal Depressive Symptoms.	Mol Neurobiol. 2017 Mar;54(2) :1500-1512.	<p>Pregnancy and delivery are associated with activation of immune-inflammatory pathways which may prime parturients to develop postnatal depression. There are, however, few data on the associations between immune-inflammatory pathways and prenatal depression and physio-somatic symptoms. This study examined the associations between serum zinc, C-reactive protein (CRP) , and haptoglobin at the end of term and prenatal physio-somatic symptoms (fatigue, back pain, muscle pain, dyspepsia, obstipation) and prenatal and postnatal depressive and anxiety symptoms as measured using the Edinburgh Postnatal Depression Scale (EPDS) , Beck Depression Inventory (BDI) , Hamilton Depression Rating Scale</p>

	<p>Medicine, Chulalongkorn University, Bangkok, Thailand. (3) Laboratory of Biochemistry, Antwerp Hospital Network, Antwerp, Belgium. (4) Laboratory of Trace Elements Neurobiology, Institute of Pharmacology PAS, Krakow, Poland. (5) Department of Pharmacobiol ogy, Jagiellonian University Medical College, Krakow, Poland. (6) Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok,</p>			<p>(HAMD) , and Spielberger's State Anxiety Inventory (STAI) . Zinc and haptoglobin were significantly lower and CRP increased at the end of term as compared with non-pregnant women. Prenatal depression was predicted by lower zinc and lifetime history of depression, anxiety, and premenstrual tension syndrome (PMS) . The latter histories were also significantly and inversely related to lower zinc. The severity of prenatal EDPS, HAMD, BDI, STAI, and physio-somatic symptoms was predicted by fatigue in the first and second trimesters, a positive life history of depression, anxiety, and PMS, and lower zinc and higher CRP. Postnatal depressive symptoms are predicted by prenatal depression, physio-somatic symptoms, zinc and CRP. Prenatal depressive and physio-somatic symptoms have an immune-inflammatory pathophysiology, while postnatal depressive symptoms are highly predicted by prenatal immune activation, prenatal depression, and a lifetime history of depression and PMS. Previous episodes of depression, anxiety disorders, and PMS may prime pregnant females to develop prenatal and postnatal depressive symptoms via activated immune pathways.</p>
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	<p>Thailand. dr.michaelma es@hotmail.c om. (7) Department of Psychiatry, Medical University Plovdiv, Plovdiv, Bulgaria.</p> <p>dr.michaelma es@hotmail.c om. (8) Department of Psychiatry, Faculty of Medicine, State University of Londrina, Londrina, Brazil.</p> <p>dr.michaelma es@hotmail.c om. (9) Revitalis Clinic, Waalre, Netherlands.</p> <p>dr.michaelma es@hotmail.c om. (10) IMPACT Strategic Research Center, Barwon</p>			
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<b>Rowe PC(1) , Underhill RA(2) , Friedman KJ(3) , Gurwitt A(4) , Medow MS(5) , Schwartz MS(6) , Speight N(7) , Stewart JM(8) , Vallings R(9) , Rowe KS(10) .</b>	Division of General Pediatrics and Adolescent Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States. (2) Independent Researcher, Palm Coast, FL, United States. (3) Pharmacology and Physiology, New Jersey Medical School, Newark, NJ, United States. (4) Yale Child Study Center, Harvard Medical School,	Myalgic Encephalomyelitis/Chronic Fatigue Syndrome Diagnosis and Management in Young People: A Primer.	Front Pediatr. 2017 Jun 19;5:121.	Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is a complex disease that affects children and adolescents as well as adults. The etiology has not been established. While many pediatricians and other health-care providers are aware of ME/CFS, they often lack essential knowledge that is necessary for diagnosis and treatment. Many young patients experience symptoms for years before receiving a diagnosis. This primer, written by the International Writing Group for Pediatric ME/CFS, provides information necessary to understand, diagnose, and manage the symptoms of ME/CFS in children and adolescents. ME/CFS is characterized by overwhelming fatigue with a substantial loss of physical and mental stamina. Cardinal features are malaise and a worsening of symptoms following minimal physical or mental exertion. These post-exertional symptoms can persist for hours, days, or weeks and are not relieved by rest or sleep. Other symptoms include cognitive problems, unrefreshing or disturbed sleep, generalized or localized pain, lightheadedness, and additional symptoms in multiple organ systems. While some young patients can attend school, on a full or part-time basis, many others are wheelchair dependent, housebound, or bedbound. Prevalence estimates for pediatric ME/CFS vary from 0.1 to 0.5%. Because there is no diagnostic test for ME/CFS, diagnosis is purely clinical, based on the history and the exclusion of other fatiguing illnesses by physical examination and medical testing. Co-existing medical conditions including orthostatic intolerance (OI) are common. Successful management is based on determining the optimum balance of rest and activity to help prevent post-exertional symptom worsening. Medications are helpful to treat pain, insomnia, OI and other symptoms. The published literature on ME/CFS and specifically that describing the diagnosis and management of pediatric ME/CFS is



	<p>University of Connecticut School of Medicine, Newton Highlands, MA, United States. (5) Division of Pediatric Gastroenterology, Hepatology and Nutrition, New York Medical College, Valhalla, NY, United States.</p> <p>(6) Drexel University College of Medicine, Philadelphia, PA, United States. (7) Paediatrician, Durham, United Kingdom. (8) Division of Pediatric Cardiology, New York Medical College, Valhalla, NY,</p>			<p>very limited. Where published studies are lacking, recommendations are based on the clinical observations and practices of the authors.</p>
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	<p>United States. (9) Primary Care/Chronic Fatigue Syndrome Clinic, Howick Health and Medical, Auckland, New Zealand. (10) Department of General Medicine, Royal Children's Hospital, Murdoch Children's Research Institute, Melbourne, VIC, Australia.</p>			
<p><b>Russell C(1) , Kyle SD(2) , Wearden AJ(3) .</b></p>	<p>School of Psychological Sciences, University of Manchester, UK. Electronic address: Charlotte.Russell@rhubt.nhs.uk. (2) Sleep and Circadian Neuroscience Institute (SCNi) ,</p>	<p>Do evidence based interventions for chronic fatigue syndrome improve sleep? A systematic review and narrative synthesis.</p>	<p>Sleep Med Rev. 2017 Jun;33:101-110.</p>	<p>Cognitive behavioural therapy (CBT) and graded exercise therapy (GET) are recommended evidence based treatments for chronic fatigue syndrome (CFS) , with research supporting their effectiveness in reducing fatigue and functional impairment. However, little research has focussed on the effect of these treatments on sleep, despite high reported sleep disturbance in CFS. Using a narrative synthesis approach, we aimed to 1) systematically identify and summarise the current evidence for the effectiveness of CBT and GET in improving sleep; 2) consider factors influencing treatment effectiveness, including incorporation of sleep management techniques; and 3) consider the appropriateness of sleep outcome measures used within evaluations. Studies evaluating CBT and/or GET for CFS, and including a sleep outcome were eligible for inclusion. Eight studies were identified. We found thatÂ GET</p>

	Nuffield Department of Clinical Neurosciences , University of Oxford, UK. (3) School of Psychological Sciences, University of Manchester, UK.			interventions can improve sleep but this effect is inconsistent across studies. For CBT the evidence is limited with only one of two evaluations demonstrating sleep-related improvements. We conclude from existing research that we know little about the effects of including sleep management components within CBT and GET interventions. We suggest that future research should explore the effectiveness of sleep components within interventions, and sleep specific interventions, using comprehensive outcome measures that fully capture the range of sleep difficulties experienced in CFS.
<b>Ryckeghem H(1) (2) , Delesie L(1) (3) , Tobback E(1) (3) , Lievens S(4) , Vogelaers D(1) (3) (5) , Mariman A(1) (3) (5) .</b>	Department of General Internal Medicine, Ghent University Hospital, Belgium. (2) Department of Endocrinology and Diabetology, Onze-Lieve-Vrouw Ziekenhuis, Aalst, Belgium. (3) Centre for Neurophysiologic Monitoring, Ghent University Hospital,	Exploring the potential role of the advanced nurse practitioner within a care path for patients with chronic fatigue syndrome.	J Adv Nurs. 2017 Jul;73(7) :1610-1619.	AIMS: To explore the experiences and expectations of patients with chronic fatigue syndrome and general practitioners to develop the potential role of an advanced nurse practitioner at the diagnostic care path of abnormal fatigue developed for regional transmural implementation in the Belgian provinces of East and West Flanders. BACKGROUND: Patients with chronic fatigue syndrome experience an incapacitating chronic fatigue that is present for at least 6 months. Since many uncertainties exist about the causes and progression of the disease, patients have to cope with disbelief and scepticism. Access to health care may be hampered, which could lead to inappropriate treatments and guidance. DESIGN: Qualitative design. METHODS: Individual semi-structured interviews were conducted with patients with chronic fatigue syndrome and general practitioners in Belgium. Data were collected over 9 months in 2014-2015. All interviews were audio recorded and transcribed for qualitative analysis using open explorative thematic coding. RESULTS: Fifteen patients and 15 general practitioners were interviewed. Three themes were identified: mixed feelings with the diagnosis, lack of one central mediator and insufficient coordination. Participants stressed the need for education, knowledge and an mediator to provide relevant information at the right time and to build up a trust relationship. CONCLUSION: This qualitative exploration underscores some clear deficiencies in the guidance of patients suffering from chronic fatigue syndrome and abnormal fatigue. An advanced nurse practitioner as a central

	<p>Belgium. (4) Department of General and Applied Psychology, Faculty of Psychology and Educational Sciences, Ghent University, Belgium. (5) Department of Internal Medicine, Faculty of Medicine and Health Sciences, University of Ghent, Belgium.</p>			<p>intermediator in the transmutal care of these patients could promote interdisciplinary/multidisciplinary collaboration and effective communication, provide education and ensure a structured and coordinated approach.</p>
<p><b>Sag S(1) , Sag MS(2) , Tekeoglu I(2) , Kamani A(2) , Nas K(2) .</b></p>	<p>Division of Rheumatology , Department of Physical Medicine and Rehabilitation, Sakarya University Medical Faculty, Sakarya, Turkey. drsinemyamac@yahoo.com.</p>	<p>Presence of enthesopathy in patients with primary Sjogren's syndrome: ultrasonographic study of a local cohort.</p>	<p>J Med Ultrason (2001) . 2018 Jan;45(1) :121-127.</p>	<p>BACKGROUND: Musculoskeletal findings in Sjögren's syndrome are arthralgia, arthritis, myalgia, myositis, fibromyalgia, and chronic fatigue. Enthesis zones are important in the formation of pain in the musculoskeletal system. Musculoskeletal ultrasound (US) may show subclinical enthesitis in the synovial joints and in the axial skeleton before joint swelling in inflammatory diseases characterized by arthritis. OBJECTIVE: In this study, we aimed to determine the presence of enthesopathy using the Madrid sonographic enthesitis index (MASEI) in patients with primary Sjögren's syndrome (PSS) . PATIENTS AND METHODS: Consecutive patients with PSS and age-matched healthy controls were included in this study. All the patients met the 2002 American College of Rheumatology/European League against Rheumatism classification criteria for PSS. The demographic characteristics of the patients were recorded. Six</p>

	(2) Division of Rheumatology , Department of Physical Medicine and Rehabilitation, Sakarya University Medical Faculty, Sakarya, Turkey.			<p>entheses sites were evaluated using gray-scale and Doppler US with a linear transducer, and they were scored using the MASEI. They were assessed by the EULAR Sjögren's syndrome disease activity index (ESSDAI) . RESULTS: We evaluated 40 patients with PSS (average age 48.67Â ± 11.23Â years) and 30 healthy controls (average age 45.40Â ± 8.24Â years) . Patients with PSS had significantly higher MASEI scores than the healthy controls. Plantar fascia, Achilles tendon, and distal patellar tendons were significantly thicker in the PSS group than in the healthy controls. The MASEI total score had a positive correlation with age. There was no correlation between MASEI total score and BMI and ESSDAI. CONCLUSION: In this study, it was shown that the MASEI scores assessed by US were significantly higher in patients with PSS than in healthy controls. Plantar fascia, Achilles tendon, and distal patellar tendon were significantly thicker in the PSS group than in the healthy controls. This result suggests that PSS may be one of the causes of musculoskeletal pain that can be seen in patients with PSS. Our study was the first study to use an entheses index ultrasonographically in patients with PSS. In addition, it is the first study to investigate the relationship between the presence of enthesopathy and disease activity by means of US.</p>
<b>Salazar AP(1) , Stein C(2) , Marchese RR(3) , Plentz RD(4) , Pagnussat AS(5) .</b>	Programa de Pós-Graduação em Ciências da Reabilitação, Universidade Federal de Ciências da Saúde de Porto Alegre, Brazil	Electric Stimulation for Pain Relief in Patients with Fibromyalgia: A Systematic Review and Meta-analysis of Randomized Controlled Trials.	Pain Physician. 2017 Feb;20(2) :15-25.	<p>BACKGROUND: Fibromyalgia (FM) is a syndrome whose primary symptoms include chronic widespread muscle pain and fatigue. The treatment of patients with FM aims to provide symptomatic relief and improvement in physical capacities to perform daily tasks and quality of life. Invasive or non-invasive electric stimulation (ES) is used for pain relief in patients with FM. OBJECTIVE: This systematic review aimed to assess the effects of treatment with ES, combined or not combined with other types of therapy, for pain relief in patients with FM. STUDY DESIGN: Systematic review and meta-analysis. SETTING: Electronic search was conducted on databases (from the inception to April 2016) : MEDLINE (accessed by PubMed), EMBASE, Cochrane Central Register of Controlled Trials (Cochrane CENTRAL) , and Physiotherapy Evidence Database (PEDro) . METHODS: Two independent reviewers assessed the eligibility of studies based on the inclusion criteria: randomized controlled trials (RCTs) examining the effects of ES combined or not with other types of treatment for pain relief in patients with FM (according to the</p>

				<p>American College of Rheumatology) , regardless of the ES dosages. The primary outcome was pain, assessed by the visual analogue scale (VAS) . The secondary outcomes extracted were quality of life, assessed by short form-36 health survey (SF- 36) , and fatigue, assessed by VAS. RESULTS: Nine studies were included, with 301 patients. The meta-analysis for pain showed positive effect of ES treatment versus control [-1.24 (95% CI: -2.39 to -0.08; I<sup>2</sup>: 87%, P = 0.04) n = 8 RCTs]. The sensitivity analysis for pain showed significant results for invasive ES, combined or not with other types of therapy [-0.94 (95% CI, -1.50 to -0.38; I<sup>2</sup> 0%, P = 0.001) n = 3 RCTs]. No significant improvement was found regarding quality of life [-3.48 (95% CI: -12.58 to 5.62; I<sup>2</sup>: 0%, P = 0.45) , n = 2 RCTs] or fatigue [-0.57 (95% CI, -1.25 to 0.11; I<sup>2</sup> 34%, P = 0.100; n = 4 RCTs]. LIMITATIONS: This systematic review included a small number of studies and reduced number of participants in each study. Furthermore, most of the studies showed some biases and lack of methodological quality. CONCLUSIONS: This meta-analysis indicates that there is low-quality evidence for the effectiveness of ES for pain relief in patients with FM. However, moderate-quality evidence for the effectiveness of electroacupuncture (EA) , combined or not combined with other types of treatment, was found for pain relief.</p>
<p><b>Salvagioni DAJ(1) , Melanda FN(2) , Mesas AE(3) , González AD(3) , Gabani FL(4) , Andrade SM(3) .</b></p>	<p>Department of Nursing, Instituto Federal do Paraná, Londrina, Paraná, Brazil. (2) Department of Pathological Sciences, Universidade Estadual de Londrina, Paraná,</p>	<p>Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies.</p>	<p>PLoS One. 2017 Oct 4;12(10) :e0185781.</p>	<p>Burnout is a syndrome that results from chronic stress at work, with several consequences to workers' well-being and health. This systematic review aimed to summarize the evidence of the physical, psychological and occupational consequences of job burnout in prospective studies. The PubMed, Science Direct, PsycInfo, SciELO, LILACS and Web of Science databases were searched without language or date restrictions. The Transparent Reporting of Systematic Reviews and Meta-Analyses guidelines were followed. Prospective studies that analyzed burnout as the exposure condition were included. Among the 993 articles initially identified, 61 fulfilled the inclusion criteria, and 36 were analyzed because they met three criteria that must be followed in prospective studies. Burnout was a significant predictor of the following physical consequences: hypercholesterolemia, type 2 diabetes, coronary heart disease, hospitalization due to cardiovascular disorder, musculoskeletal pain, changes in pain experiences, prolonged fatigue, headaches,</p>

	<p>Brazil. (3) Department of Public Health, Universidade Estadual de Londrina, Paran�i, Brazil. (4) Department of Nursing, Universidade Estadual de Londrina, Paran�i, Brazil.</p>			<p>gastrointestinal issues, respiratory problems, severe injuries and mortality below the age of 45 years. The psychological effects were insomnia, depressive symptoms, use of psychotropic and antidepressant medications, hospitalization for mental disorders and psychological ill-health symptoms. Job dissatisfaction, absenteeism, new disability pension, job demands, job resources and presenteeism were identified as professional outcomes. Conflicting findings were observed. In conclusion, several prospective and high-quality studies showed physical, psychological and occupational consequences of job burnout. The individual and social impacts of burnout highlight the need for preventive interventions and early identification of this health condition in the work environment.</p>
<p><b>Sambataro D(1) (2) , Sambataro G(2) , Dal Bosco Y(1) , Polosa R(1) .</b></p>	<p>a Department of Clinical and Experimental Medicine, Teaching Hospital Policlinico 'G. Rodolico' , University of Catania , Catania , Italy. (2) b Outpatient Clinic of Rheumatology accredited to National Health System , 'Artroreuma srl' ,</p>	<p>Present and future of biologic drugs in primary Sj�gren's syndrome.</p>	<p>Expert Opin Biol Ther. 2017 Jan;17(1) :63-75. Epub 2016 Sep 20.</p>	<p>INTRODUCTION: Primary Sj�gren's (pSS) syndrome is a chronic, autoimmune, and systemic disease characterized by xerostomia, xerophthalmia, muscle pain and fatigue. The disease may be complicated by a systemic involvement, such as a pulmonary fibrosis or the development of lymphoma which severely worsens the prognosis. Actually, there are no recommendations for the management of pSS. However, recent advances in the understanding of its pathogenesis have uncovered some pathways that have potential as therapeutic targets. Areas covered: In this review, the authors present the biologic drugs potentially valuable to the treatment of pSS in light of its pathophysiology with a 'bird's eye' view of future prospects. The authors took into account relevant studies published from 2004 to 2016. Expert opinion: Biological treatment in pSS is a promising opportunity to potentially control disease activity and prevent its complication. Currently, inhibition of B-cell and IL-17 pathways seem to be the most promising avenues. New achievements in the knowledge of pSS pathophysiology are necessary in order to try to simultaneously predict the predominant pathogenic pathway, the kind of patients at major risk to develop a more severe disease, and the appropriate biological therapy to use.</p>

	Mascalucia , Italy.			
<b>Scanzi F(1) , Andreoli L(1) , Martinelli M(1) , Taraborelli M(1) , Cavazzana I(1) , Carabellese N(1) , Ottaviani R(1) , Allegrì F(1) , Franceschini F(1) , Agmon-Levin N(2) , Shoenfeld Y(2) (3) , Tincani A(4) .</b>	Rheumatology and Clinical Immunology, A.O. Spedali Civili, Piazzale Spedali Civili,1, 25123, Brescia, Italy.	Are the autoimmune/inflammatory syndrome induced by adjuvants (ASIA) and the undifferentiated connective tissue disease (UCTD) related to each other? A case-control study of environmental exposures.	Immunol Res. 2017 Feb;65(1) :150-156.	The autoimmune/inflammatory syndrome induced by adjuvants (ASIA) is an entity that includes different autoimmune conditions observed after exposure to an adjuvant. Patients with undifferentiated connective tissue disease (UCTD) present many signs and symptoms of ASIA, alluding to the idea that an exposure to adjuvants can be a trigger also for UCTD. The aim of this case-control study was to investigate exposure to adjuvants prior to disease onset in patients affected by UCTD. Ninety-two UCTD patients and 92 age- and sex-matched controls with no malignancy, chronic infections, autoimmune disease nor family history of autoimmune diseases were investigated for exposure to adjuvants. An ad hoc-created questionnaire exploring the exposure to vaccinations, foreign materials and environmental and occupational exposures was administered to both cases and controls. Autoantibodies were also analyzed (anti-nuclear, anti-extractable nuclear antigens, anti-double-stranded DNA, anti-cardiolipin, anti- $\beta$ 2 glycoprotein I) . UCTD patients displayed a greater exposure to HBV ( $p = 0.018$ ) and tetanus toxoid ( $p < 0.001$ ) vaccinations, metal implants ( $p < 0.001$ ) , cigarette smoking ( $p = 0.006$ ) and pollution due to metallurgic factories and foundries ( $p = 0.048$ ) as compared to controls. UCTD patients exposed to major ASIA triggers (vaccinations, silicone implants) ( $n = 49$ ) presented more frequently with chronic fatigue ( $p < 0.001$ ) , general weakness ( $p = 0.011$ ) , irritable bowel syndrome ( $p = 0.033$ ) and a family history for autoimmunity ( $p = 0.018$ ) in comparison to non-exposed UCTDs. ASIA and UCTD can be considered as related entities in the "mosaic of autoimmunity": the genetic predisposition and the environmental exposure to adjuvants elicit a common clinical phenotype characterized by signs and symptoms of systemic autoimmunity.
<b>Scheibenbogen C(1) , Freitag H(2) , Blanco J(3) (4) , Capelli E(5) (6) , Lacerda E(7) , Authier J(8) , Meeus</b>	Institute for Medical Immunology, Charité-Universitäts	The European ME/CFS Biomarker Landscape project: an initiative of the European network EUROMENE.	J Transl Med. 2017 Jul 26;15(1) :162.	Myalgic encephalomyelitis or chronic fatigue syndrome (ME/CFS) is a common and severe disease with a considerable social and economic impact. So far, the etiology is not known, and neither a diagnostic marker nor licensed treatments are available yet. The EUROMENE network of European researchers and clinicians aims to



<p><b>M(9) (10) (11) , Castro Marrero J(12) , Nora-Krukke Z(13) , Oltra E(14) (15) , Strand EB(16) (17) , Shikova E(18) , Sekulic S(19) , Murovska M(13) .</b></p>	<p>medizin Berlin, Campus Virchow, Augustenburg er Platz 1/Sudstrasse 2, 13353, Berlin, Germany.</p>			<p>promote cooperation and advance research on ME/CFS. To improve diagnosis and facilitate the analysis of clinical trials surrogate markers are urgently needed. As a first step for developing such biomarkers for clinical use a database of active biomarker research in Europe was established called the ME/CFS EUROMENE Biomarker Landscape project and the results are presented in this review. Further we suggest strategies to improve biomarker development and encourage researchers to take these into consideration for designing and reporting biomarker studies.</p>
<p><b>Scheper MC(1) , Pacey V(2) , Rombaut L(3) , Adams RD(4) , Tofts L(5) , Calders P(6) , Nicholson LL(5) , Engelbert RH(1) .</b></p>	<p>University of Applied Sciences and Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands. (2) The Children's Hospital at Westmead and Macquarie University, Sydney, New South Wales, Australia. (3) Center for Medical Genetics, Ghent University Hospital,</p>	<p>Generalized Hyperalgesia in Children and Adults Diagnosed With Hypermobility Syndrome and Ehlers-Danlos Syndrome Hypermobility Type: A Discriminative Analysis.</p>	<p>Arthritis Care Res (Hoboken) . 2017 Mar;69(3) :421-429.</p>	<p>OBJECTIVE: Lowered pressure-pain thresholds have been demonstrated in adults with Ehlers-Danlos syndrome hypermobility type (EDS-HT) , but whether these findings are also present in children is unclear. Therefore, the objectives of the study were to determine whether generalized hyperalgesia is present in children with hypermobility syndrome (HMS) /EDS-HT, explore potential differences in pressure-pain thresholds between children and adults with HMS/EDS-HT, and determine the discriminative value of generalized hyperalgesia. METHODS: Patients were classified in 1 of 3 groups: HMS/EDS-HT, hypermobile (Beighton score <math>\geq 4</math> of 9) , and healthy controls. Descriptive data of age, sex, body mass index, Beighton score, skin laxity, and medication usage were collected. Generalized hyperalgesia was quantified by the average pressure-pain thresholds collected from 12 locations. Confounders collected were pain locations/intensity, fatigue, and psychological distress. Comparisons between children with HMS/EDS-HT and normative values, between children and adults with HMS/EDS-HT, and corrected confounders were analyzed with multivariate analysis of covariance. The discriminative value of generalized hyperalgesia employed to differentiate between HMS/EDS-HT, hypermobility, and controls was quantified with logistic regression. RESULTS: Significantly lower pressure-pain thresholds were found in children with HMS/EDS-HT compared to normative values (range -22.0% to -59.0%; <math>P &lt; 0.05</math>) . When applying a threshold of 30.8 N/cm<sup>2</sup> for males and 29.0 N/cm<sup>2</sup> for females, the presence of generalized hyperalgesia discriminated between individuals with HMS/EDS-HT, hypermobility, and healthy controls (odds ratio 6.0) .</p>

	Ghent, Belgium. (4) University of Sydney, Sydney, New South Wales, Australia. (5) The Children's Hospital at Westmead and University of Sydney, Sydney, New South Wales, Australia. (6) Ghent University Ghent, Belgium.			CONCLUSION: Children and adults with HMS/EDS-HT are characterized by hypermobility, chronic pain, and generalized hyperalgesia. The presence of generalized hyperalgesia may indicate involvement of the central nervous system in the development of chronic pain.
<b>Schmaling KB(1) , Fales JL(1) , McPherson S(1) .</b>	Washington State University, USA.	Longitudinal outcomes associated with significant other responses to chronic fatigue and pain.	J Health Psychol. 2017 Sep 1:1359105317731824.	This study investigated significant others' behavior associated with fatigue, pain, and mental health outcomes among 68 individuals with chronic fatigue (43% also had fibromyalgia) over 18 months. More negative significant others' responses were associated with more pain, poorer physical and mental health, and more fatigue-related symptoms over time. More fibromyalgia tender points covaried with more solicitous significant others' responses over time. Better mental health covaried with more distracting significant others' responses over time. The results are discussed in terms of theoretical models of the role of perceived significant others' responses on patient outcomes and recommendations for future research.
<b>Schober HC(1) (2) , Kneitz C(2) , Fieber F(2) , Hesse K(1) (2) , Schroeder H(3) .</b>	Departments of Internal Medicine. (2) Endocrinology , Rheumatology	Selective blood sampling for FGF-23 in tumor-induced osteomalacia.	Endocrinol Diabetes Metab Case Rep. 2017 Oct 6;2017. pii: 17-0006.	Tumor-induced osteomalacia (TIO) is caused by the hormone fibroblast growth factor 23 (FGF-23) . It is mainly produced in the tissue of mesenchymal tumors. Patients with TIO frequently suffer from a chronic decompensated pain syndrome and/or muscle weakness with postural deformity. Despite the severity of the disease, the diagnosis is frequently established late. In some cases, it

	/Immunology, Klinikum SÄ¼dstadt Rostock, Rostock, Germany. (3) Department of Neurosurgery, UniversitÄ¼ts medizin Greifswald, Greifswald, Germany.			takes several years to establish the condition. This case report concerning a 68-year old woman demonstrates the selective blood sampling for FGF-23 as path-breaking diagnostics to confirm the diagnosis of a neuroendocrine tumor.LEARNING POINTS: Tumor-induced osteomalacia is a rare condition compared to other paraneoplastic syndromes.It causes complex symptoms such as progressive reduction of physical capacity, exhaustion, fatigue, a decompensated pain syndrome of the musculoskeletal system and fractures of several bones.Elevated serum levels of FGF-23 implicate massive phosphate elimination and resulting hypophosphatemia.The diagnosis is often established over a period of several years because the localization of small FGF-23-producing tumors is complicated.It is the combination of MRI and selective blood sampling for FGF-23 which permits reliable identification of tumors causing TIO and leads to accurate localization.In a patient with generalized pain and reduced physical capacity, osteological parameters such as phosphate, 25-OH vitamin D3 and 1,25-(OH) 2D3, as well as bone-specific alkaline phosphatase levels in serum should be determined. Hypophosphatemia should always lead to further diagnostic investigations aiming at the detection of an FGF-23-producing tumor.
<b>Schoeman EM(1) , Van Der Westhuizen FH(1) , Erasmus E(1) , van Dyk E(1) , Knowles CV(2) , Al-Ali S(3) (4) , Ng WF(3) (5) , Taylor RW(2) , Newton JL(3) (5) , Elson JL(6) (7) .</b>	Centre for Human Metabolomics , North-West University, Potchefstroom, South Africa	Clinically proven mtDNA mutations are not common in those with chronic fatigue syndrome.	BMC Med Genet. 2017 Mar 16;18(1) :29.	BACKGROUND: Chronic Fatigue Syndrome (CFS) is a prevalent debilitating condition that affects approximately 250,000 people in the UK. There is growing interest in the role of mitochondrial function and mitochondrial DNA (mtDNA) variation in CFS. It is now known that fatigue is common and often severe in patients with mitochondrial disease irrespective of their age, gender or mtDNA genotype. More recently, it has been suggested that some CFS patients harbour clinically proven mtDNA mutations. METHODS: MtDNA sequencing of 93 CFS patients from the United Kingdom (UK) and South Africa (RSA) was performed using an Ion Torrent Personal Genome Machine. The sequence data was examined for any evidence of clinically proven mutations, currently; more than 200 clinically proven mtDNA mutations point mutations have been identified. RESULTS: We report the complete mtDNA sequence of 93 CFS patients from the UK and RSA, without finding evidence of clinically proven mtDNA mutations. This finding demonstrates that clinically proven mtDNA mutations are not a common element in the

				<p>aetiology of disease in CFS patients. That is patients having a clinically proven mtDNA mutation and subsequently being misdiagnosed with CFS are likely to be rare. CONCLUSION: The work supports the assertion that CFS should not be considered to fall within the spectrum of mtDNA disease. However, the current study cannot exclude a role for nuclear genes with a mitochondrial function, nor a role of mtDNA population variants in susceptibility to disease. This study highlights the need for more to be done to understand the pathophysiology of CFS.</p>
<p><b>Schröder A(1) ,  Årnbjæll E(2) , Jensen JS(2) , Sharpe M(3) ,  Fink P(2) .</b></p>	<p>Research Clinic for Functional Disorders and Psychosomatics, Aarhus University Hospital, Aarhus, Denmark. Electronic address: andreas.schroeder@aarhus.rm.dk. (2) Research Clinic for Functional Disorders and Psychosomatics, Aarhus University Hospital, Aarhus, Denmark. (3) Psychological Medicine Research,</p>	<p>Long-term economic evaluation of cognitive-behavioural group treatment versus enhanced usual care for functional somatic syndromes.</p>	<p>J Psychosom Res. 2017 Mar;94:73-81.</p>	<p>OBJECTIVE: Patients with functional somatic syndromes (FSS) such as fibromyalgia and chronic fatigue syndrome have a poor outcome and can incur high healthcare and societal costs. We aimed to compare the medium-term (16months) cost-effectiveness and the long-term (40months) economic outcomes of a bespoke cognitive-behavioural group treatment (STreSS) with that of enhanced usual care (EUC) . METHODS: We obtained complete data on healthcare and indirect costs (i.e. labour market-related and health-related benefits) from public registries for 120 participants from a randomised controlled trial. Costs were calculated as per capita public expenses in 2010 â,-. QALYs gained were estimated from the SF-6D. We conducted a medium-term cost-effectiveness analysis and a long-term cost-minimization analysis from both a healthcare (i.e. direct cost) and a societal (i.e. total cost) perspective. RESULTS: In the medium term, the probability that STreSS was cost-effective at thresholds of 25,000 to 35,000 â,- per QALY was 93-95% from a healthcare perspective, but only 50-55% from a societal perspective. In the long term, however, STreSS was associated with increasing savings in indirect costs, mainly due to a greater number of patients self-supporting. When combined with stable long-term reductions in healthcare expenditures, there were total cost savings of 7184 â,- (95% CI 2271 to 12,096, p=0.004) during the third year after treatment. CONCLUSION: STreSS treatment costs an average of 1545 â,-. This cost was more than offset by subsequent savings in direct and indirect costs. Implementation could both improve patient outcomes and reduce costs.</p>

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<b>Schweiger V(1) , Del Balzo G(2) , Raniero D(2) , De Leo D(2) , Martini A(3) , Sarzi-Puttini P(4) , Polati E(3) .</b>	Department of Surgery, Dentistry, Maternal and Infant Sciences, Pain Therapy Centre, Verona University Hospital, Policlinico GB Rossi, Verona, Italy.	Current trends in disability claims due to fibromyalgia syndrome.	Clin Exp Rheumatol. 2017 May-Jun;35 Suppl 105(3) :119-126. Epub 2017 Jun 29.	Fibromyalgia syndrome (FMS) affects 0.4-8% of the general population predominantly in the female population with a F:M ratio of 3-9:1. It is characterised by persistent widespread pain and other associated clinical conditions such as chronic fatigue, irritable bowel syndrome (IBS) , temporomandibular joint dysfunction (TMJD) , sleep disorders and cognitive impairment. FMS diagnosis at present is purely clinical because no medical or laboratory examinations are able to identify it with certainty. FMS is not fully recognised worldwide, and patients often do not receive the treatment and disability benefits planned for other chronic diseases even though it gives rise to a very significant social burden due to direct and indirect healthcare costs and the loss of productivity and work. This article describes the medico-legal situation of FMS patients around the world, particularly issues related to the recognition of the disease by health institutions and the provision of disability benefits. We also discuss the current means of assessing disabilities in the medico-legal context, and their possible future improvements.
<b>Schweser F(1) , Raffaini Duarte Martins AL(2) , Hagemeyer J(2) , Lin F(2) , Hanspach J(3) , Weinstock-Guttman B(4) , Hametner S(5) , Bergsland N(2) , Dwyer MG(2) , Zivadinov R(6) .</b>	Buffalo Neuroimaging Analysis Center, Department of Neurology, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo	Mapping of thalamic magnetic susceptibility in multiple sclerosis indicates decreasing iron with disease duration: A proposed mechanistic relationship between inflammation and oligodendrocyte vitality.	Neuroimage. 2017 Oct 31;167:438-452.	Recent advances in susceptibility MRI have dramatically improved the visualization of deep gray matter brain regions and the quantification of their magnetic properties in vivo, providing a novel tool to study the poorly understood iron homeostasis in the human brain. In this study, we used an advanced combination of the recent quantitative susceptibility mapping technique with dedicated analysis methods to study intra-thalamic tissue alterations in patients with clinically isolated syndrome (CIS) and multiple sclerosis (MS) . Thalamic pathology is one of the earliest hallmarks of MS and has been shown to correlate with cognitive dysfunction and fatigue, but the mechanisms underlying the thalamic pathology are poorly understood. We enrolled a total of 120 patients, 40 with CIS, 40 with Relapsing Remitting MS (RRMS) , and 40 with Secondary Progressive MS (SPMS) . For each of the three patient groups, we recruited 40 controls, group matched for age- and sex (120 total) . We acquired quantitative susceptibility maps using a single-echo gradient echo

				<p>MRI pulse sequence at 3 T. Group differences were studied by voxel-based analysis as well as with a custom thalamus atlas. We used threshold-free cluster enhancement (TFCE) and multiple regression analyses, respectively. We found significantly reduced magnetic susceptibility compared to controls in focal thalamic subregions of patients with RRMS (whole thalamus excluding the pulvinar nucleus) and SPMS (primarily pulvinar nucleus), but not in patients with CIS. Susceptibility reduction was significantly associated with disease duration in the pulvinar, the left lateral nuclear region, and the global thalamus. Susceptibility reduction indicates a decrease in tissue iron concentration suggesting an involvement of chronic microglia activation in the depletion of iron from oligodendrocytes in this central and integrative brain region. Not necessarily specific to MS, inflammation-mediated iron release may lead to a vicious circle that reduces the protection of axons and neuronal repair.</p>
<p><b>Shan ZY(1) , Kwiatek R(2) , Burnet R(3) , Del Fante P(4) , Staines DR(1) , Marshall-Gradisnik SM(1) , Barnden LR(1) .</b></p>	<p>National Centre for Neuroimmunology and Emerging Diseases, Menzies Health Institute Queensland, Griffith University, Gold Coast, Queensland, Australia. (2) Division of Medical Subspecialities , Lyell McEwin Hospital, Elizabeth Vale,</p>	<p>Medial prefrontal cortex deficits correlate with unrefreshing sleep in patients with chronic fatigue syndrome.</p>	<p>NMR Biomed. 2017 Oct;30(10) .</p>	<p>Unrefreshing sleep is a hallmark of chronic fatigue syndrome/myalgic encephalomyelitis (CFS) . This study examined brain structure variations associated with sleep quality in patients with CFS. 38 patients with CFS (34.8 ± 10.1 years old) and 14 normal controls (NCs) (34.7 ± 8.4 years old) were recruited. All subjects completed the Hospital Anxiety and Depression Scale, Pittsburgh Sleep Quality Index (PSQI) , and Chalder Fatigue Scale (CFQ) questionnaires. Brain MRI measures included global and regional grey and white matter volumes, magnetization transfer T1 weighted (MT-T1w) intensities, and T1 weighted (T1w) and T2 weighted spin echo signal intensities. We performed voxel based group comparisons of these regional brain MRI measures and regressions of these measures with the PSQI and CFQ scales adjusted for age, anxiety and depression, and the appropriate global measure. In CFS patients, negative correlations were observed in the medial prefrontal cortex (mPFC) between PSQI and MT-T1w intensities (family-wise error corrected cluster, P<sub>FWE</sub> &lt; 0.05) and between PSQI and T1w intensities (P<sub>FWE</sub> &lt; 0.05) . In the same mPFC location, both MT and T1w intensities were lower in CFS patients compared with NCs (uncorrected voxel P &lt; 0.001) . This study is the first to report that brain structural differences are associated</p>

	<p>South Australia, Australia. (3) Endocrinology department, Royal Adelaide Hospital, Adelaide, South Australia, Australia. (4) Healthfirst Network, Woodville, South Australia, Australia.</p>			<p>with unrefreshing sleep in CFS. This result refutes the suggestion that unrefreshing sleep is a misperception in CFS patients and further investigation of this symptom is warranted.</p>
<p><b>Shao C(1) , Ren Y(2) , Wang Z(2) , Kang C(3) , Jiang H(1) , Chi A(2) .</b></p>	<p>College of Arts and Sciences, Shanghai Maritime University, Shanghai 201306, China. (2) Laboratory of Nutrition and Hygiene, Shaanxi Normal University, Xi'an 710119, China. (3) School of Sports, Hebei</p>	<p>Detection of Urine Metabolites in a Rat Model of Chronic Fatigue Syndrome before and after Exercise.</p>	<p>Biomed Res Int. 2017;2017:8182020.</p>	<p>Purpose. The aim of the present study was to elucidate the metabolic mechanisms associated with chronic fatigue syndrome (CFS) via an analysis of urine metabolites prior to and following exercise in a rat model. Methods. A rat model of CFS was established using restraint-stress, forced exercise, and crowded and noisy environments over a period of 4 weeks. Behavioral experiments were conducted in order to evaluate the model. Urine metabolites were analyzed via gas chromatography-mass spectrometry (GC-MS) in combination with multivariate statistical analysis before and after exercise. Results. A total of 20 metabolites were detected in CFS rats before and after exercise. Three metabolic pathways (TCA cycle; alanine, aspartate, and glutamate metabolism; steroid hormone biosynthesis) were significantly impacted before and after exercise, while sphingolipid metabolism alone exhibited significant alterations after exercise only. Conclusion. In addition to metabolic disturbances involving some energy substances, alterations in steroid hormone biosynthesis and sphingolipid metabolism were detected in CFS rats. Sphingosine and 21-hydroxypregnenolone may be key biomarkers of CFS, potentially offering evidence in support of immune dysfunction</p>

	Normal University, Shijiazhuang 050090, China.			and hypothalamic-pituitary-adrenal (HPA) axis hypoactivity in patients with CFS.
<b>Shephard RJ(1) .</b>	Faculty of Kinesiology and Physical Education, University of Toronto, Toronto, Ontario.	Exercise and the Athlete With Infectious Mononucleosis.	Clin J Sport Med. 2017 Mar;27(2) :168-178.	<p>OBJECTIVE: To determine appropriate management of the active individual with infectious mononucleosis (IM) , including issues of diagnosis, the determination of splenomegaly, and other measures of disease status, the relationship of the disease to chronic fatigue syndrome (CFS) , and the risks of exercise at various points in the disease process. DATA SOURCES: An Ovid/MEDLINE search (January 1996-June 2015) was widely supplemented by "similar articles" found in Ovid/MEDLINE and PubMed, reference lists, and personal files. MAIN RESULTS: Clinical diagnoses of IM are unreliable. Traditional laboratory indicators (lymphocytosis, abnormal lymphocytes, and a heterophile-positive slide test) can be supplemented by more sensitive and more specific but also more costly Epstein-Barr antigen determinations. Clinical estimates of splenomegaly are fallible. Laboratory determinations, commonly by 2D ultrasonography, must take account of methodology, the formulae used in calculations and the individual's body size. The SD of normal values matches the typical increase of size in IM, but repeat measurements can help to monitor regression of the disease. The main risks to the athlete are spontaneous splenic rupture (seen in 0.1%-0.5% of patients and signaled by acute abdominal pain) and progression to chronic fatigue, best avoided by 3 to 4 weeks of restricted activity followed by graded reconditioning. A full recovery of athletic performance is usual with 2 to 3 months of conservative management. CONCLUSIONS: Infectious mononucleosis is a common issue for young athletes. But given accurate diagnosis and the avoidance of splenic rupture and progression to CFS through a few weeks of restricted activity, long-term risks to the health of athletes are few.</p>
<b>Shepherd CB(1) .</b>	ME Association, UK.	PACE trial claims for recovery in myalgic encephalomyelitis/chronic fatigue syndrome - true or	J Health Psychol. 2017 Aug;22(9) :1187-1191.	The PACE trial set out to discover whether cognitive behaviour therapy and graded exercise therapy are safe and effective forms of treatment for myalgic encephalomyelitis/chronic fatigue syndrome. It concluded that these interventions could even result in recovery.



		false? It's time for an independent review of the methodology and results.		However, patient evidence has repeatedly found that cognitive behaviour therapy is ineffective and graded exercise therapy can make the condition worse. The PACE trial methodology has been heavily criticised by clinicians, academics and patients. A re-analysis of the data has cast serious doubts on the recovery rates being claimed. The trust of patients has been lost. The medical profession must start listening to people with myalgic encephalomyelitis/chronic fatigue syndrome if trust is going to be restored.
<b>Shin S(1) , Kim J(1) , Yu A(2) , Seo HS(3) , Shin MR(4) , Cho JH(5) , Yi G(6) , Hong SU(6) , Lee E(7) .</b>	Department of Clinical Korean Medicine, Graduate School, Kyung Hee University, 26 Kyungheedaero, Dongdaemun-gu, Seoul	A Herbal Medicine, Gongjindan, in Subjects with Chronic Dizziness (GOODNESS Study) : Study Protocol for a Prospective, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, Clinical Trial for Effectiveness, Safety, and Cost-Effectiveness.	Evid Based Complement Alternat Med. 2017;2017:4363716.	This study protocol aims to explore the effectiveness, safety, and cost-effectiveness of a herbal medication, Gongjindan (GJD) , in patients with chronic dizziness. This will be a prospective, multicenter, randomized, double-blind, placebo-controlled, parallel-group, clinical trial. Seventy-eight patients diagnosed with Meniere's disease, psychogenic dizziness, or dizziness of unknown cause will be randomized and allocated to either a GJD or a placebo group in a 1:1 ratio. Participants will be orally given 3.75g GJD or placebo in pill form once a day for 56 days. The primary outcome measure will be the Dizziness Handicap Inventory score. Secondary outcome measures will be as follows: severity (mean vertigo scale and visual analogue scale) and frequency of dizziness, balance function (Berg Balance Scale) , fatigue (Fatigue Severity Scale) and deficiency pattern/syndrome (qi blood yin yang-deficiency questionnaire) levels, and depression (Korean version of Beck's Depression Inventory) and anxiety (State-Trait Anxiety Inventory) levels. To assess safety, adverse events, including laboratory test results, will be monitored. Further, the incremental cost-effectiveness ratio will be calculated based on quality-adjusted life years (from the EuroQoL five dimensions' questionnaire) and medical expenses. Data will be statistically analyzed at a significance level of 0.05 (two-sided) . This trial is registered with ClinicalTrials.gov NCT03219515, in July 2017.
<b>Siegel ZA(1) , Brown A(1) , Devendorf A(1) , Collier J(2) , Jason LA(1) .</b>	1 DePaul University, Chicago, IL, USA. (2) 2 University of	A content analysis of chronic fatigue syndrome and myalgic encephalomyelitis in the news from 1987 to 2013.	Chronic Illn. 2018 Mar;14(1) :3-12.	Objectives The aim of this study was to analyze the content of American newspaper articles ( n=214) from 1987 to 2013, in order to understand how the public digests information related to Chronic Fatigue syndrome, a controversial and misunderstood illness. Methods A novel codebook derived from the scientific literature was

	Missouri-St. Louis, St. Louis, MO, USA.			<p>applied to 214 newspaper articles collected from Lexis Nexis Academic®. These articles were coded quantitatively and frequency tables were created to delineate the variables as they appeared in the articles. Results The etiology was portrayed as organic in 64.5% ( n=138) of the articles, and there was no mention of case definitions or diagnostic criteria in 56.1% ( n=120) of the articles. The most common comorbidity was depression, appearing in 22.9% ( n=49) of the articles. In 55.6% ( n=119) of the articles, there was no mention of prevalence rates. In 50.9% ( n=109) of the articles, there was no mention of any form of treatment for the illness. A total of 19.4% ( n=42) of the headlines mislabeled the name of the illness. Discussion Based on descriptive statistics of all 214 coded articles, media communicated mixed messages for salient variables such as the name of the illness, its etiology and treatment.</p>
<p><b>Skufca J(1) , Ollgren J(2) , Ruokokoski E(3) , Lyytikäinen O(4) , Nohynek H(5) .</b></p>	<p>Department of Infectious Diseases, National Institute for Health and Welfare (THL) , Helsinki, Finland;</p>	<p>Incidence rates of Guillain Barré (GBS) , chronic fatigue/systemic exertion intolerance disease (CFS/SEID) and postural orthostatic tachycardia syndrome (POTS) prior to introduction of human papilloma virus (HPV) vaccination among adolescent girls in Finland, 2002-2012.</p>	<p>Papillomavirus Res. 2017 Jun;3:91-96.</p>	<p>BACKGROUND: In Finland a vaccination programme against human papillomavirus (HPV) was introduced in November 2013 for girls aged 11-12 years with a catchup for girls 13-15 years. Allegations that HPV vaccine is causing Guillain Barré syndrome (GBS) and non-specific diagnostic entities, such as chronic fatigue syndrome/systemic exertion intolerance disease (CFS/SEID) and postural orthostatic tachycardia syndrome (POTS) , continue to surface. We examined population register-based incidence rates of CFS/SEID, GBS and POTS to provide baseline data for future HPV vaccine safety evaluations. METHODS: First diagnosis of CFS/SEID, GBS and POTS in girls aged 11-15 years were obtained from the National Hospital Discharge Register during 2002-2012. We considered the following ICD-10 codes: G93.3 for CFS; G61.0 for GBS and G90.9, G90.8, G93.3, I49.8 for POTS. We calculated incidence rates per 100,000 person-years with 95% confidence intervals (CI) . RESULTS: In total, 9 CFS/SEID, 19 GBS and 72 POTS cases were identified. The overall incidence rate was 0.53/100,000 (95% CI; 0.27-1.01) for CFS/SEID, 1.11 (95% CI; 0.71-1.74) for GBS and 4.21 (95%CI; 3.34-5.30) for POTS. Significant relative increase in annual incidence rate with a peak in 2012 was observed in CFS/SEID (33% (95% CI; 3.0-70.3: p=0.029) and POTS (16.5% (95% CI; 7.8-25.9: p&lt;0.05) , but not in GBS (5.4% (95% CI; -8.4-21.3: p=0.460) . CONCLUSIONS: Our findings provide baseline estimates of CFS/SEID,</p>

				<p>GBS and POTS incidences in Finland. However, rates based on register data should be interpreted with caution, especially for non-specific diagnostic entities for which internationally and even nationally agreed criteria are still being discussed. To assess the associations with HPV vaccine, methods using register linkage for cohort and self-controlled case series should be explored in addition to factors contributing to patients seeking care, treating physicians setting the diagnoses, and their preference of using of codes for these clinical entities.</p>
<p><b>Slyepchenko A(1) , Maes M, Jacka FN, KÅ¶hler CA, Barichello T, McIntyre RS, Berk M, Grande I, Foster JA, Vieta E, Carvalho AF.</b></p>	<p>McMaster Integrative Neuroscience Discovery and Study (MiNDS) , McMaster University, Hamilton, Ont., Canada.</p>	<p>Gut Microbiota, Bacterial Translocation, and Interactions with Diet: Pathophysiological Links between Major Depressive Disorder and Non- Communicable Medical Comorbidities.</p>	<p>Psychother Psychosom. 2017;86(1) :31-46. Epub 2016 Nov 25.</p>	<p>BACKGROUND: Persistent low-grade immune-inflammatory processes, oxidative and nitrosative stress (O&amp;NS) , and hypothalamic-pituitary-adrenal axis activation are integral to the pathophysiology of major depressive disorder (MDD) . The microbiome, intestinal compositional changes, and resultant bacterial translocation add a new element to the bidirectional interactions of the gut-brain axis; new evidence implicates these pathways in the patho-aetiology of MDD. In addition, abnormalities in the gut-brain axis are associated with several chronic non-communicable disorders, which frequently co-occur in individuals with MDD, including but not limited to irritable bowel syndrome (IBS) , chronic fatigue syndrome (CFS) , obesity, and type 2 diabetes mellitus (T2DM) . METHODS: We searched the PubMed/MEDLINE database up until May 1, 2016 for studies which investigated intestinal dysbiosis and bacterial translocation (the 'leaky gut') in the pathophysiology of MDD and co-occurring somatic comorbidities with an emphasis on IBS, CFS, obesity, and T2DM. RESULTS: The composition of the gut microbiota is influenced by several genetic and environmental factors (e.g. diet) . Several lines of evidence indicate that gut-microbiota-diet interactions play a significant pathophysiological role in MDD and related medical comorbidities. Gut dysbiosis and the leaky gut may influence several pathways implicated in the biology of MDD, including but not limited to immune activation, O&amp;NS, and neuroplasticity cascades. However, methodological inconsistencies and limitations limit comparisons across studies. CONCLUSIONS: Intestinal dysbiosis and the leaky gut may constitute a key pathophysiological link between</p>

				MDD and its medical comorbidities. This emerging literature opens relevant preventative and therapeutic perspectives.
<b>Somppi TL(1) .</b>	Amplia Clinic, Medical Center, Tampere, Finland.	Non-Thyroidal Illness Syndrome in Patients Exposed to Indoor Air Dampness Microbiota Treated Successfully with Triiodothyronine.	Front Immunol. 2017 Aug 7;8:919.	Long-term exposure to dampness microbiota induces multi-organ morbidity. One of the symptoms related to this disorder is non-thyroidal illness syndrome (NTIS) . A retrospective study was carried out in nine patients with a history of mold exposure, experiencing chronic fatigue, cognitive disorder, and different kinds of hypothyroid symptoms despite provision of levothyroxine (3,5,3',5'-tetraiodothyronine, LT4) monotherapy. Exposure to volatile organic compounds present in water-damaged buildings including metabolic products of toxigenic fungi and mold-derived inflammatory agents can lead to a deficiency or imbalance of many hormones, such as active T3 hormone. Since the 1970s, the synthetic prohormone, levothyroxine (LT4) , has been the most commonly prescribed thyroid hormone in replacement monotherapy. It has been presumed that the peripheral conversion of T4 (3,5,3',5'-tetraiodothyronine) into T3 (3,5,3'-triiodothyronine) is sufficient to satisfy the overall tissue requirements. However, evidence is presented that this not the case for all patients, especially those exposed to indoor air molds. This retrospective study describes the successful treatment of nine patients in whom NTIS was treated with T3-based thyroid hormone. The treatment was based on careful interview, clinical monitoring, and laboratory analysis of serum free T3 (FT3) , reverse T3 (rT3) and thyroid-stimulating hormone, free T4, cortisol, and dehydroepiandrosterone (DHEA) values. The ratio of FT3/rT3 was calculated. In addition, some patients received adrenal support with hydrocortisone and DHEA. All patients received nutritional supplementation and dietary instructions. During the therapy, all nine patients reported improvements in all of the symptom groups. Those who had residual symptoms during T3-based therapy remained exposed to indoor air molds in their work places. Four patients were unable to work and had been on disability leave for a long time during LT4 monotherapy. However, during the T3-based and supportive therapy, all patients returned to work in so-called "healthy" buildings. The importance of avoiding mycotoxin exposure via the diet is underlined as DIO2 genetic polymorphism

				and dysfunction of DIO2 play an important role in the development of symptoms that can be treated successfully with T3 therapy.
<b>Soussi G(1) , Daboussi S(1) , Mhamdi S(1) , Moatemri Z(1) , Ghedira H(2) , Aichaouia C(1) , Khadhraoui M(1) , El Mezni F(3) , Cheikh R(1) .</b>	Department of Respiratory Medicine, Military Hospital of Instruction of Tunis, Tunisia. (2) Department of Hematology, Military Hospital of Instruction of Tunis, Tunisia. (3) Department of Pathology, Abderrahmen Mami Hospital, Ariana, Tunisia.	Second lung malignancy and Richter syndrome in chronic lymphocytic leukemia: case report and literature review.	Multidiscip Respir Med. 2017 Sep 29;12:24.	BACKGROUND: Chronic lymphocytic leukemia (CLL) is the most frequent lymphoproliferative disease. Transformation into Richter disease and occurrence of second malignancies involving the lungs are rare complications. The hallmarks of any thoracic involvement are still unknown. CASE PRESENTATION: We report a case of a 56-year-old male patient, with history of tobacco smoking, who presented with recurrent hemoptysis, fatigue and weight loss. Physical examination was normal except a slightly enlarged supraclavicular lymph node. Chest x-ray revealed a mediastinal widening due to enlarged paratracheal nodes and a left parahilar infiltrate. Blood tests showed a hyperlymphocytosis and a biological inflammatory syndrome. CT scan showed bilateral mediastinal and axillary lymphadenopathy, as well as left supraclavicular lymphadenopathy, with a left upper lobe alveolar attenuation and a solitary contralateral pulmonary nodule. Examination of Virchow's node and bone marrow biopsies confirmed metastasis of a pulmonary adenocarcinoma, as well as chronic lymphocytic leukemia with Richter's transformation. The clinical course was unfavorable since the first days of therapy as the patient passed away in a matter of a few days. CONCLUSIONS: Steady surveillance of CLL patients and systematic screening for second solid tumors, particularly lung cancer, and Richter's transformation seem to be relevant more than ever. Early diagnosis might help us understand the pathways leading to these complications and adapt therapy.
<b>Staud R(1) , Kizer T(1) , Robinson ME(2) .</b>	Department of Medicine, College of Medicine. (2) Department of Clinical and Health Psychology, University of Florida,	Muscle injections with lidocaine improve resting fatigue and pain in patients with chronic fatigue syndrome.	J Pain Res. 2017 Jun 26;10:1477-1486.	OBJECTIVE: Patients with chronic fatigue syndrome (CFS) complain of long-lasting fatigue and pain which are not relieved by rest and worsened by physical exertion. Previous research has implicated metaboreceptors of muscles to play an important role for chronic fatigue and pain. Therefore, we hypothesized that blocking impulse input from deep tissues with intramuscular lidocaine injections would improve not only the pain but also fatigue of CFS patients. METHODS: In a double-blind, placebo-controlled study, 58 CFS patients received 20 mL of 1% lidocaine (200 mg) or normal saline once into both trapezius and gluteal muscles. Study outcomes included clinical fatigue and pain, depression, and anxiety. In

	Gainesville, FL, USA.			<p>addition, mechanical and heat hyperalgesia were assessed and serum levels of lidocaine were obtained after the injections.</p> <p>RESULTS: Fatigue ratings of CFS patients decreased significantly more after lidocaine compared to saline injections (<math>p = 0.03</math>). In contrast, muscle injections reduced pain, depression, and anxiety (<math>p &lt; 0.001</math>), but these changes were not statistically different between lidocaine and saline (<math>p &gt; 0.05</math>). Lidocaine injections increased mechanical pain thresholds of CFS patients (<math>p = 0.04</math>) but did not affect their heat hyperalgesia. Importantly, mood changes or lidocaine serum levels did not significantly predict fatigue reductions. CONCLUSION: These results demonstrate that lidocaine injections reduce clinical fatigue of CFS patients significantly more than placebo, suggesting an important role of peripheral tissues for chronic fatigue. Future investigations will be necessary to evaluate the clinical benefits of such interventions.</p>
<p><b>Stoll SVE(1), Crawley E(1), Richards V(1), Lal N(1), Brigden A(1), Loades ME(2).</b></p>	<p>Population Health Sciences, Bristol Medical School, University of Bristol, Bristol. (2) Department of Psychology, University of Bath, Bath, UK.</p>	<p>What treatments work for anxiety in children with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME)? Systematic review.</p>	<p>BMJ Open. 2017 Sep 5;7(9):e015481.</p>	<p>OBJECTIVES: Anxiety is more prevalent in children with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) than in the general population. A systematic review was carried out to identify which treatment methods are most effective for children with CFS and anxiety. DESIGN: Systematic review using search terms entered into the Cochrane library and Ovid to search the databases Medline, Embase and psychINFO. PARTICIPANTS: Studies were selected if participants were &lt;18 years old, diagnosed with CFS/ME (using US Centers for Disease Control and Prevention, the National Institute for Health and Care Excellence or Oxford criteria) and had a valid assessment of anxiety. INTERVENTIONS: We included observational studies and randomised controlled trials. COMPARISON: Any or none. OUTCOMES: Change in anxiety diagnostic status and/or change in anxiety severity on a validated measure of anxiety from pretreatment to post-treatment. RESULTS: The review identified nine papers from eight studies that met the inclusion criteria. None of the studies specifically targeted anxiety but six studies tested an intervention and measured anxiety as a secondary outcome. Of these studies, four used a cognitive behavioural therapy (CBT)-type approach to treat CFS/ME, one used a behavioural approach and one compared a drug treatment, gammaglobulin with a placebo. Three of the CBT-type studies described an improvement in anxiety as did the</p>

				<p>trial of gammaglobulin. As none of the studies stratified outcomes according to anxiety diagnostic status or severity, we were unable to determine whether anxiety changed prognosis or whether treatments were equally effective in those with comorbid anxiety compared with those without. CONCLUSION: We do not know what treatment should be offered for children with both anxiety and CFS/ME. Further research is therefore required to answer this question. TRIAL REGISTRATION NUMBER: This review was registered on Prospective Register of Systematic Review Protocols (PROSPERO) and the protocol is available from <a href="http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42016043488">http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42016043488</a>.</p>
<p><b>Stoothoff J(1) , Gleason K(1) , McManimen S(1) , Thorpe T(1) , Jason LA(1) .</b></p>	<p>Center for Community Research, DePaul University, Chicago, IL, USA.</p>	<p>Subtyping Patients with Myalgic Encephalomyelitis (ME) and Chronic Fatigue Syndrome (CFS) By Course of Illness.</p>	<p>J Biosens Biomark Diagn. 2017;2(1) .</p>	<p>Past research has subtyped patients with Myalgic Encephalomyelitis (ME) and Chronic Fatigue Syndrome (CFS) according to factors related to illness onset, illness duration, and age. However, no classification system fully accounts for the wide range of symptom severity, functional disability, progression, and prognosis seen among patients. This study examined whether illness trajectories among individuals with CFS were predictive of different levels of symptomology, functional disability, and energy expenditure. Of the participants (N=541) , the majority described their illness as Fluctuating (59.7%) , with 15.9% Constantly Getting Worse, 14.1% Persisting, 8.5% Relapsing and Remitting, and 1.9% Constantly Getting Better. The illness courses were associated with significant differences in symptomology on select domains of the DSQ, functioning on select subscales of the SF-36, and on overall levels of energy expenditure. The significant symptomatic and functional differences between groups suggest that subtyping patients with CFS according to illness course is a promising method for creating more homogeneous groups of patients.</p>
<p><b>Stormorken E(1) , Jason LA(2) , Kirkevold M(3) .</b></p>	<p>Department of Nursing Science, Institute of Health and Society, University of</p>	<p>Factors impacting the illness trajectory of post-infectious fatigue syndrome: a qualitative study of adults' experiences.</p>	<p>BMC Public Health. 2017 Dec 13;17(1) :952.</p>	<p>BACKGROUND: Post-infectious fatigue syndrome (PIFS) , also known as post-viral fatigue syndrome, is a complex condition resulting in physical, cognitive, emotional, neurological, vocational and/or role performance disabilities in varying degrees that changes over time. The needs for health care resources are high, and costly, as is the economic burden on the affected individuals. Many factors may impact the trajectory, and frequently PIFS develops into a chronic</p>

	<p>Oslo, P.O.B. 1130 Blindern, 0318, Oslo, Norway. eva.stormorken@medisin.uio.no. (2) Center for Community Research, DePaul University, 990 W. Fullerton Ave., Suite 3100, Chicago, IL, 60614, USA. (3) Department of Nursing Science, Institute of Health and Society, University of Oslo, P.O.B. 1130 Blindern, 0318, Oslo, Norway.</p>			<p>condition. Health professionals lack understanding and knowledge, which results in delayed diagnosis, lack of recognition, appropriate treatment, support and practical help. The aim of our study was to explore, from the perspective of persons who had lived with PIFS for four years following an outbreak of Giardia l. induced enteritis, factors that may have impacted their illness trajectory and how these factors had played a role during different phases. METHODS: In this retrospective exploratory qualitative study a group of 26 affected adults between 26 and 59 years old were selected for in-depth interviews. A maximum variation sample was recruited from a physician-diagnosed cohort of persons with PIFS enrolled at a tertiary outpatient fatigue clinic. The interviews were audio-recorded, transcribed verbatim and subjected to qualitative content analysis. RESULTS: Unhelpful and helpful factors were associated with the healthcare system, health professionals and the affected persons were experienced as having an impact on the trajectory. External impacting factors which are related to the health care system, providers and the social security system are misdiagnosis, trivialization of symptoms, unhelpful advice, delayed diagnosis and lack of appropriate help. Internal impacting factors related to the affected individuals were lack of knowledge, overestimating functional capacity, assuming the condition will pass, ignoring body signals and denial. A model of impacting factors in each phase of the trajectory is presented. CONCLUSION: Unmet needs may result in unnecessary disability and high societal and personal costs. Enhanced knowledge of impacting factors in each phase of the trajectory may contribute to more timely and tailored health care services and less use of health services. Increased functional capacity, improved health and ability to work or study may reduce the societal costs and the economic burden for the affected individuals.</p>
<p><b>Stormorken E(1) , Jason LA(2) , Kirkevold M(3) .</b></p>	<p>Department of Nursing Science, Institute of Health and Society,</p>	<p>From good health to illness with post-infectious fatigue syndrome: a qualitative study of adults' experiences of the illness trajectory.</p>	<p>BMC Fam Pract. 2017 Mar 27;18(1) :49.</p>	<p>BACKGROUND: Municipal drinking water contaminated with the parasite Giardia lamblia in Bergen, Norway, in 2004 caused an outbreak of gastrointestinal infection in 2500 people, according to the Norwegian Prescription Database. In the aftermath a minor group subsequently developed post-infectious fatigue syndrome (PIFS) . Persons in this minor group had laboratory-confirmed</p>



	<p>University of Oslo, P.O.B. 1130 Blindern, 0318, Oslo, Norway. eva.stormorken@medisin.uio.no. (2) Center for Community Research, DePaul University, Chicago, IL, USA. (3) Department of Nursing Science, Institute of Health and Society, University of Oslo, P.O.B. 1130 Blindern, 0318, Oslo, Norway.</p>			<p>parasites in their stool samples, and their enteritis had been cured by one or more courses of antibiotic treatment. The study's purpose was to explore how the affected persons experienced the illness trajectory and various PIFS disabilities. METHODS: A qualitative design with in-depth interviews was used to obtain first-hand experiences of PIFS. To get an overall understanding of their perceived illness trajectory, the participants were asked to retrospectively rate their functional level at different points in time. A maximum variation sample of adults diagnosed with PIFS according to the international 1994 criteria was recruited from a cohort of persons diagnosed with PIFS at a tertiary Neurology Outpatient Clinic in Western Norway. The sample comprised 19 women and seven men (mean age 41 years, range 26-59) . The interviews were fully transcribed and subjected to a qualitative content analysis. RESULTS: All participants had been living healthy lives pre-illness. The time to develop PIFS varied. Multiple disabilities in the physical, cognitive, emotional, neurological, sleep and intolerance domains were described. Everyone more or less dropped out from studies or work, and few needed to be taken care of during the worst period. The severity of these disabilities varied among the participants and during the illness phases. Despite individual variations, an overall pattern of illness trajectory emerged. Five phases were identified: prodromal, downward, turning, upward and chronic phase. All reached a nadir followed by varying degrees of improvement in their functional ability. None regained pre-illness health or personal and professional abilities. CONCLUSIONS: The needs of persons with this condition are not met. Early diagnosis and interdisciplinary rehabilitation could be beneficial in altering the downward trajectory at an earlier stage, avoiding the most severe disability and optimising improvement. Enhanced knowledge among health professionals, tailored treatment, rest as needed, financial support and practical help would likely improve prognosis.</p>
<p><b>Stouten B.</b></p>		<p>PACE-GATE: An alternative view on a study with a poor trial protocol.</p>	<p>J Health Psychol. 2017 Aug;22(9) :1192-1197.</p>	<p>The controversies surrounding the effectiveness of cognitive behavioural therapy and graded exercise therapy for chronic fatigue syndrome are explained using Cohen's d effect sizes rather than arbitrary thresholds for 'success'. This article shows that the treatment effects vanish when switching to objective outcomes. The</p>

				preference for subjective outcomes by the PACE trial team leads to false hope. This article provides a more realistic view, which will help patients and their doctors to evaluate the pros and cons.
<b>Sunnquist M(1) , Jason LA(1) , Nehrke P(1) , Goudsmit EM(2) .</b>	DePaul University. (2) Retired Health Psychologist.	A Comparison of Case Definitions for Myalgic Encephalomyelitis and Chronic Fatigue Syndrome.	J Chronic Dis Manag. 2017;2(2) . pii: 1013. Epub 2017 May 21.	Many professionals have described the clinical presentation of myalgic encephalomyelitis (ME) , but recent efforts have focused on the development of ME criteria that can be reliably applied. The current study compared the symptoms and functioning of individuals who met the newly-developed Institute of Medicine (IOM) clinical criteria to a revised version of the London criteria for ME. While 76% of a sample diagnosed with chronic fatigue syndrome (CFS) met the IOM criteria, 44% met the revised London criteria. The revised London criteria identified patients with greater physical impairment. The results of this study indicate the need for a standard case definition with specific guidelines for operationalization. The application of case definitions has important implications for the number of individuals identified with ME, the pattern of symptoms experienced by these individuals, and the severity of their symptoms and functional limitations. Sample heterogeneity across research studies hinders researchers from replicating findings and impedes the search for biological markers and effective treatments.
<b>Sunnquist M(1) , Nicholson L(1) , Jason LA(1) , Friedman KJ(2) .</b>	Center for Community Research, DePaul University, Chicago, Illinois, United States. (2) Green Mountain College, Poultney, Vermont, United States.	Access to Medical Care for Individuals with Myalgic Encephalomyelitis and Chronic Fatigue Syndrome: A Call for Centers of Excellence.	Mod Clin Med Res. 2017 Apr;1(1) :28-35.	The current study sought to better understand the experience of individuals with myalgic encephalomyelitis (ME) and chronic fatigue syndrome (CFS) in accessing care for their debilitating illness. Of 898 participants, less than half had ever seen an ME or CFS specialist, though 99% of participants were interested in specialist care. Participants cited geographic and financial barriers as most frequently precluding access to specialists. Furthermore, satisfaction with specialist care greatly exceeded satisfaction with non-specialist care. These findings suggested that individuals with ME and CFS represent a medically-underserved population, due to lack of available care. The CFS Advisory Committee and NIH Pathways to Prevention Working Group recommended the creation of ME and CFS Centers of Excellence to improve the healthcare access of patients with ME and CFS. The current study documents the need for these centers, as they would ameliorate geographic and financial barriers to quality care.

<p><b>Suzuki S(1) .</b></p>	<p>NPO of Ecohealth Research Group.</p>	<p>Exhausting Physicians Employed in Hospitals in Japan Assessed by a Health Questionnaire[Article in Japanese].</p>	<p>Sangyo Eiseigaku Zasshi. 2017 Aug 18;59(4) :107-118.</p>	<p>OBJECTIVE: Japanese physicians employed and working in general hospitals have become busier since 2005, as they had to teach and guide the increased number of medical residents graduated from medical schools. Working hours and chronic fatigue of employed physicians were surveyed compared with independent physicians working in their own out-patient clinics and with usual employed men in Japan, and their mental health was assessed. METHODS: (1) 75 employed physicians in hospitals were surveyed of their working hours a week and compared with (2) 48 independent general practitioners (GP) who work in their own out-patient clinics. (3) 47 employed physicians aged 40s and 50s out of (1) were compared with group (4) or 277 men of the same age employed in an automobile company. A symptom check list questionnaire, the Total Health Index (THI) , was used to assess their stress and mental health status. The THI has 130 questions including physical symptoms, mental complaints, lifestyle and habits. 130 items have been grouped into 12 scales: vague complaints, respiratory symptoms, depression, and 9 other scales. RESULTS: The average weekly working hours of employed physicians of (1) and GPs of (2) were 55.7 h and 51.3 h, respectively, and those who worked 60 h or more a week were 44.0% and 27.0%, respectively. They had significantly higher average scale scores than GPs with respect to vague complaints, irregular daily life, mental instability, depression, neurotics and psychosomatics scales. They also had significantly higher yes response rates for question items, "envy for richer friends", "feel my life is going badly", and other items than the GPs. 47 employed physicians of group (3) and 277 men workers of group (4) worked for 57.0 h and 46.0 h a week, respectively, in average, and 51.1% and 6.2% of group (3) and (4) , respectively, worked for 60 h or more a week. The average scale scores of physicians of (3) were highly significantly poorer than group (4) in many scales of THI. Physicians employed also had significantly higher yes response rates for question items "feel too heavy work load", "stressed state", "irritated", "depressed", "lack of sleep", and "low back pain". Most of the physicians of group (3) were exhausted due to the hard work, showing a sharp contrast to group (4) . CONCLUSIONS: Physicians employed in hospitals work for 57.0 h a week on average, although</p>
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				usual labors of the same age in a large farm work for 46.0 h a week. Physicians employed were exhausted or burnout and under poorer mental condition.
<b>Tai V(1) , Lindsay K(2) , Sims JL(3) , McQueen FM(4) .</b>	Final Year Medical Student, University of Auckland, Auckland. (2) Rheumatologist and Immunology Fellow, Department of Rheumatology , Auckland District Health Board, Auckland. (3) Ophthalmologist, Department of Ophthalmology, Greenlane Clinical Centre, Auckland. (4) Professor of Rheumatology , Department of Molecular Medicine and Pathology, University of	Qualitative study: the experience and impact of living with Behcet's syndrome.	N Z Med J. 2017 Sep 22;130(1462) :27-36.	AIM: Behcet's syndrome is a rare chronic multisystemic vasculitis of unknown aetiology, is unpredictable and can cause life-threatening complications. This qualitative study aims to explore the experiences of patients living with Behcet's syndrome in New Zealand. METHODS: Eight English-speaking patients participated in in-depth semi-structured interviews about their experiences of living with Behcet's syndrome. Interviews were recorded and transcribed. Data were analysed using a general inductive thematic approach. RESULTS: Five themes related to the experience of Behcet's syndrome emerged from the interviews: diagnosis (diagnostic challenge and closure) , impact of disease (pain, fatigue, reduced vision, fear and uncertainty) , loneliness and isolation (lack of support and information, invisible illness) , acquiring resilience (coping, gaining sense of control, support group) and ongoing interactions with health system (specialist care, primary care, need for multidisciplinary care, doctor-patient relationship) . CONCLUSIONS: Behcet's syndrome patients experience difficulties in obtaining a timely and correct diagnosis and contend numerous physical and emotional challenges, often experiencing loneliness and isolation. Establishing trusting doctor-patient relationships, allowing timely access to specialist care and recruiting psychosocial supports will help patients better cope with their illness. Diagnosis and management of Behcet's syndrome requires close collaboration and communication among specialists and general practitioners and improved education on Behcet's syndrome.

	Auckland, Auckland.			
<b>Talotta R(1) , Bazzichi L(2) , Di Franco M(3) , Casale R(4) , Batticciotto A(1) , Gerardi MC(1) , Sarzi-Puttini P(5) .</b>	Rheumatology Unit, ASST-Fatebenefrate Ili-L. Sacco University Hospital, Milan, Italy.	One year in review 2017: fibromyalgia.	Clin Exp Rheumatol. 2017 May-Jun;35 Suppl 105(3) :6-12. Epub 2017 Jun 28.	Fibromyalgia (FM) is a complex syndrome characterised by chronic pain, fatigue and functional symptoms. Widespread pain is often its most typical feature, whereas other manifestations may be associated to various extents. Its aetiopathogenesis is still a matter of debate, but various pharmacological and non-pharmacological therapies are currently available for its treatment. We review the literature concerning the most recent findings relating to the aetiopathogenesis, assessment and treatment of FM published between January 2016 and January 2017.
<b>Taylor AK(1) , Loades M(2) , Brigden AL(1) , Collin SM(1) , Crawley E(1) .</b>	1 Centre for Child and Adolescent Health, School of Social and Community Medicine, University of Bristol, UK. (2) 2 Department of Psychology, University of Bath, UK.	'It's personal to me': A qualitative study of depression in young people with CFS/ME.	Clin Child Psychol Psychiatry. 2017 Apr;22(2) :326-340.	BACKGROUND: Paediatric chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) has a prevalence of 0.4-2.4% and is defined as 'generalised disabling fatigue persisting after routine tests and investigations have failed to identify an obvious underlying cause'. One-third of young people with CFS/ME have probable depression. Little is known about why depression develops, the relationship between depression and CFS/ME, or what treatment might be helpful. METHODS: We conducted nine semi-structured interviews with young people with CFS/ME (aged 13-17 years, 8/9 female) and probable depression, covering perceived causes of depression, the relationship between CFS/ME and depression, and treatment strategies. RESULTS: Most thought CFS/ME caused depression. Many discussed a cyclical relationship: low mood made CFS/ME worse. A sense of loss was common. CFS/ME restricted activities participants valued and changed systemic structures, causing depression. There was no single helpful treatment approach. Individualised approaches using combinations of cognitive behavioural therapy (CBT) , medication, activity management and other strategies were described. CONCLUSION: This study suggests that depression may be secondary to CFS/ME in young people because of the impact of CFS/ME on quality of life. Clinicians treating young people with CFS/ME need to consider strategies to prevent development of depression, and research is needed into approaches that are effective in treating CFS/ME with co-morbid depression.

<p><b>Tazmini K, Meling TR(2) , SkattÅ_r TH(3) , JÅ_rstad Å~K(4) , JÅ_rgensen AP(5) .</b></p>		<p>A woman in her 50s with chronic fatigue syndrome, sepsis and hyponatraemia.</p>	<p>Tidsskr Nor Laegeforen. 2017 Mar 7;137(5) :372-377.</p>	<p>Author information: (1) Medisinsk avdeling Diakonhjemmet Sykehus og Oslo universitetssykehus, UllevÅl. (2) Nevrokirurgisk avdeling Oslo universitetssykehus, Rikshospitalet. (3) Å~yeavdelingen Seksjon for radiologi Oslo universitetssykehus, Rikshospitalet. (4) Å~yeavdelingen Oslo universitetssykehus, UllevÅl. (5) Seksjon for spesialisert endokrinologi Oslo universitetssykehus, Rikshospitalet.</p>
<p><b>Testino G(1) , Scafato E(2) , Patussi V(3) .</b></p>	<p>Centro Alcolgico Regionale, Regione Liguria, ASL</p>	<p>[Acute alcoholic hepatitis.] [Article in Italian]</p>	<p>Recenti Prog Med. 2017 Sep;108(9) :366-373.</p>	<p>Chronic alcohol related liver disease is characterized by a cascade of events defined as follows: steatosis, steatohepatitis/steatofibrosi, cirrhosis and hepatocellular carcinoma. On one of these histologic patterns may overlap acute alcoholic hepatitis (AAE) (mild, moderate, severe) . Severe AAE can cause a severe clinical picture: jaundice with a duration of less than three months, jaundice in the first decompensation event, serum bilirubin higher than 5 mg/dL, ratio AST/ALT &gt;2:1, AST less than 500 IU/L ALT &lt;300 IU/L, neutrophil leukocytosis and increased GGT. In addition, it is possible the presence of encephalopathy, fever, fatigue, coagulopathy. The onset can also be characterized by portal hypertension-related complications. An extremely severe clinical condition is the superposition of an acute insult to a chronic framework, not necessarily a cirrhotic one. This condition has been termed acute on chronic (acute on chronic liver failure - ACLF:), and it is possible to have a SIRS (systemic inflammation response syndrome) with a multi-organ system involvement. The diagnosis, in selected cases, can be confirmed by a transjugular biopsy that allows to reach a histologic prognostic stratification. Several indices are used for the assessment of prognosis and in particular the MDF and the MELD. In our clinical practice we use the MELD. In case of ACLF, the consortium organ failure score (CLIF-C OFS) is used. The therapy is characterized by alcohol abstention, and, in severe forms (MDF &gt;32 and MELD &gt;21) with absence of contraindications, it is possible to use steroids therapy. If a positive answers cannot be obtained, an early liver transplantation is proposed. This possibility, after a careful selection, now is promoted by several authors.</p>
<p><b>Theorell J(1) , Bileviciute-Ljungar I(2) (3) , Tesi B(4) (5) , Schlums H(1) ,</b></p>	<p>Department of Medicine, Huddinge, Karolinska</p>	<p>Unperturbed Cytotoxic Lymphocyte Phenotype and Function in Myalgic</p>	<p>Front Immunol. 2017 Jun 26;8:723.</p>	<p>Myalgic encephalomyelitis or chronic fatigue syndrome (ME/CFS) is a debilitating disorder linked to diverse intracellular infections as well as physiological stress. Cytotoxic lymphocytes combat intracellular infections. Their function is attenuated by stress.</p>

<p><b>Johnsgaard MS(6) , Asadi-Azarbaijani B(7) (8) , Bolle Strand E(7) (9) , Bryceson YT(1) (10) .</b></p>	<p>Institutet, Stockholm, Sweden.</p>	<p>Encephalomyelitis/Chronic Fatigue Syndrome Patients.</p>		<p>Despite numerous studies, the role of cytotoxic lymphocytes in ME/CFS remains unclear. Prompted by advances in the understanding of defects in lymphocyte cytotoxicity, the discovery of adaptive natural killer (NK) cell subsets associated with certain viral infections, and compelling links between stress, adrenaline, and cytotoxic lymphocyte function, we reassessed the role of cytotoxic lymphocytes in ME/CFS. Forty-eight patients from two independent cohorts fulfilling the Canada 2003 criteria for ME/CFS were evaluated with respect to cytotoxic lymphocyte phenotype and function. Results were compared to values from matched healthy controls. Reproducible differences between patients and controls were not found in cytotoxic lymphocyte numbers, cytotoxic granule content, activation status, exocytotic capacity, target cell killing, or cytokine production. One patient expressed low levels of perforin, explained by homozygosity for the PRF1 p.A91V variant. However, overall, this variant was present in a heterozygous state at the expected population frequency among ME/CFS patients. No single patient displayed any pathological patterns of cellular responses. Increased expansions of adaptive NK cells or deviant cytotoxic lymphocyte adrenaline-mediated inhibition were not observed. In addition, supervised dimensionality reduction analyses of the full, multidimensional datasets did not reveal any reproducible patient/control discriminators. In summary, employing sensitive assays and analyses for quantification of cytotoxic lymphocyte differentiation and function, cytotoxicity lymphocyte aberrances were not found among ME/CFS patients. These assessments of cytotoxic lymphocytes therefore do not provide useful biomarkers for the diagnosis of ME/CFS.</p>
<p><b>Thompson DP(1) , Antcliff D(2) , Woby SR(3) .</b></p>	<p>Department of Physiotherapy , The Pennine Acute Hospitals NHS Trust, Fairfield General Hospital, Bury,</p>	<p>Symptoms of chronic fatigue syndrome/myalgic encephalopathy are not determined by activity pacing when measured by the chronic pain coping inventory.</p>	<p>Physiotherapy. 2017 Aug 4. pii: S0031- 9406(17) 30077-9.</p>	<p>OBJECTIVES: Chronic fatigue syndrome/myalgic encephalopathy (CFS/ME) is a chronic illness which can cause significant fatigue, pain and disability. Activity pacing is frequently advocated as a beneficial coping strategy, however, it is unclear whether pacing is significantly associated with symptoms in people with CFS/ME. The first aim of this study was therefore to explore the cross-sectional associations between pacing and levels of pain, disability and fatigue. The second aim was to explore whether changes in activity pacing following participation in a symptom management programme were related to</p>

	Greater Manchester, BL9 7TD, United Kingdom.			changes in clinical outcomes. DESIGN: Cross-sectional study exploring the relationships between pacing, pain, disability and fatigue (n=114) and pre-post treatment longitudinal study of a cohort of patients participating in a symptom management programme (n=35) . SETTING: Out-patient physiotherapy CFS/ME service. PARTICIPANTS: One-hundred and fourteen adult patients with CFS/ME. MAIN OUTCOME MEASURES: Pacing was assessed using the chronic pain coping inventory. Pain was measured using a Numeric Pain Rating Scale, fatigue with the Chalder Fatigue Scale and disability with the Fibromyalgia Impact Questionnaire. RESULTS: No significant associations were observed between activity pacing and levels of pain, disability or fatigue. Likewise, changes in pacing were not significantly associated with changes in pain, disability or fatigue following treatment. CONCLUSIONS: Activity pacing does not appear to be a significant determinant of pain, fatigue or disability in people with CFS/ME when measured with the chronic pain coping index. Consequently, the utility and measurement of pacing require further investigation.
<b>Toivonen KI(1) , Zernicke K(2) , Carlson LE(3) (4) .</b>	Department of Psychology, University of Calgary, Calgary, AB, Canada. (2) Shared Mental Health Care, Alberta Health Services, Sheldon M. Shumir Health Centre, Calgary, AB, Canada. (3) Department of Psychosocial Resources,	Web-Based Mindfulness Interventions for People With Physical Health Conditions: Systematic Review.	J Med Internet Res. 2017 Aug 31;19(8) :e303.	BACKGROUND: Mindfulness-based interventions (MBIs) are becoming increasingly popular for helping people with physical health conditions. Expanding from traditional face-to-face program delivery, there is growing interest in Web-based application of MBIs, though Web-based MBIs for people with physical health conditions specifically have not been thoroughly reviewed to date. OBJECTIVE: The objective of this paper was to review Web-based MBIs for people with physical health conditions and to examine all outcomes reported (eg, efficacy or effectiveness for physical changes or psychological changes; feasibility) . METHODS: Databases PubMed, PsycINFO, Science Direct, CINAHL Plus, and Web of Science were searched. Full-text English papers that described any Web-based MBI, examining any outcome, for people with chronic physical health conditions were included. Randomized, nonrandomized, controlled, and uncontrolled trials were all included. Extracted data included intervention characteristics, population characteristics, outcomes, and quality indicators. Intervention characteristics (eg, synchronicity and guidance) were examined as potential factors related to study outcomes. RESULTS: Of 435 publications screened, 19 published



	<p>Holy Cross Site, Tom Baker Cancer Centre, Calgary, AB, Canada. (4)  Department of Oncology, University of Calgary, Calgary, AB, Canada.</p>			<p>papers describing 16 studies were included. They examined Web-based MBIs for people with cancer, chronic pain or fibromyalgia, irritable bowel syndrome (IBS) , epilepsy, heart disease, tinnitus, and acquired brain injury. Overall, most studies reported positive effects of Web-based MBIs compared with usual care on a variety of outcomes including pain acceptance, coping measures, and depressive symptoms. There were mixed results regarding the effectiveness of Web-based MBIs compared with active control treatment conditions such as cognitive behavioral therapy. Condition-specific symptoms (eg, cancer-related fatigue and IBS symptoms) targeted by treatment had the largest effect size improvements following MBIs. Results are inconclusive regarding physical variables. CONCLUSIONS: Preliminary evidence suggests that Web-based MBIs may be helpful in alleviating symptom burden that those with physical health conditions can experience, particularly when interventions are tailored for specific symptoms. There was no evidence of differences between synchronous versus asynchronous or facilitated versus self-directed Web-based MBIs. Future investigations of Web-based MBIs should evaluate the effects of program adherence, effects on mindfulness levels, and whether synchronous or asynchronous, or facilitated or self-directed interventions elicit greater improvements.</p>
<p><b>Tomas C(1) , Brown A(1) , Strassheim V(2) (3) , Elson J(4) (5) , Newton J(1) (3) , Manning P(1) .</b></p>	<p>Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, United Kingdom. (2)  Faculty of Medical Sciences, Newcastle University, Newcastle</p>	<p>Cellular bioenergetics is impaired in patients with chronic fatigue syndrome.</p>	<p>PLoS One. 2017 Oct 24;12(10) :e0186802.</p>	<p>Chronic fatigue syndrome (CFS) is a highly debilitating disease of unknown aetiology. Abnormalities in bioenergetic function have been cited as one possible cause for CFS. Preliminary studies were performed to investigate cellular bioenergetic abnormalities in CFS patients. A series of assays were conducted using peripheral blood mononuclear cells (PBMCs) from CFS patients and healthy controls. These experiments investigated cellular patterns in oxidative phosphorylation (OXPHOS) and glycolysis. Results showed consistently lower measures of OXPHOS parameters in PBMCs taken from CFS patients compared with healthy controls. Seven key parameters of OXPHOS were calculated: basal respiration, ATP production, proton leak, maximal respiration, reserve capacity, non-mitochondrial respiration, and coupling efficiency. While many of the parameters differed between the CFS and control cohorts, maximal respiration was determined to be the key parameter in</p>

	<p>upon Tyne, United Kingdom. (3) Newcastle upon Tyne Hospitals, NHS Foundation Trust, Newcastle upon Tyne, United Kingdom. (4) Institute of Genetic Medicine, Newcastle University, Newcastle upon Tyne, United Kingdom. (5) Centre for Human Metabolomics, North-West University, Potchefstroom, South Africa.</p>			<p>mitochondrial function to differ between CFS and control PBMCs due to the consistency of its impairment in CFS patients found throughout the study (<math>p \leq 0.003</math>). The lower maximal respiration in CFS PBMCs suggests that when the cells experience physiological stress they are less able to elevate their respiration rate to compensate for the increase in stress and are unable to fulfil cellular energy demands. The metabolic differences discovered highlight the inability of CFS patient PBMCs to fulfil cellular energetic demands both under basal conditions and when mitochondria are stressed during periods of high metabolic demand.</p>
<p><b>Tomas C(1), Finkelmeyer A(1) (2), Hodgson T(2), MacLachlan L(1), MacGowan GA(1) (3), Blamire AM(1) (2), Newton JL(1) (4).</b></p>	<p>Institute of Cellular Medicine, Newcastle University, Newcastle, Newcastle upon Tyne,</p>	<p>Elevated brain natriuretic peptide levels in chronic fatigue syndrome associate with cardiac dysfunction: a case control study.</p>	<p>Open Heart. 2017 Dec 27;4(2) :e000697.</p>	<p>Objectives: To explore levels of the brain natriuretic peptide (BNP) and how these associate with the cardiac abnormalities recently identified in chronic fatigue syndrome (CFS). Methods: Cardiac magnetic resonance examinations were performed using 3T Philips Intera Achieva scanner (Best, Netherlands) in CFS (Fukuda) participants and sedentary controls matched group wise for age and sex. BNP was also measured by using an enzyme immunoassay in plasma from 42 patients with CFS and 10 controls. Results: BNP</p>

	<p>UK. (2) Newcastle Magnetic Resonance Centre, Newcastle University, Newcastle, Newcastle upon Tyne, UK. (3) Cardiology, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle, Newcastle upon Tyne, UK. (4) CRESTA, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle, Newcastle upon Tyne, UK.</p>			<p>levels were significantly higher in the CFS cohort compared with the matched controls (P=0.013) . When we compared cardiac volumes (end-diastolic and end-systolic) between those with high BNP levels (BNP &gt;400 pg/mL) and low BNP (&lt;400 pg/mL) , there were significantly lower cardiac volumes in those with the higher BNP levels in both end-systolic and end-diastolic volumes (P=0.05) . There were no relationships between fatigue severity, length of disease and BNP levels (P=0.2) suggesting that our findings are unlikely to be related to deconditioning. Conclusion: This study confirms an association between reduced cardiac volumes and BNP in CFS. Lack of relationship between length of disease suggests that findings are not secondary to deconditioning. Further studies are needed to explore the utility of BNP to act as a stratification paradigm in CFS that directs targeted treatments. Trail registration number: Registered with NIHR Portfolio CLRN ID 97805.</p>
<p><b>Tomic S, Brkic S, Lendak D, Maric D, Medic Stojanoska M, Novakov Mikic A.</b></p>		<p>Neuroendocrine disorder in chronic fatigue syndrome</p>	<p>Turk J Med Sci. 2017 Aug 23;47(4) :1097-1103.</p>	<p>Background/aim: Neuroendocrine disorders are considered a possible pathogenetic mechanism in chronic fatigue syndrome (CFS) . The aim of our study was to determine the function of the hypothalamic-pituitary-adrenal axis (HPA) and thyroid function in women of reproductive age suffering from CFS. Materials and methods: The study included 40 women suffering from CFS and 40</p>

				<p>healthy women (15-45 years old) . Serum levels of cortisol (0800 and 1800 hours) , ACTH, total T4, total T3, and TSH were measured in all subjects. The Fibro Fatigue Scale was used for determination of fatigue level. Results: Cortisol serum levels were normal in both groups. The distinctively positive moderate correlation of morning and afternoon cortisol levels that was observed in healthy women was absent in the CFS group. This may indicate a disturbed physiological rhythm of cortisol secretion. Although basal serum T4, T3, and TSH levels were normal in all subjects, concentrations of T3 were significantly lower in the CFS group. Conclusion: One-time hormone measurement is not sufficient to detect hormonal imbalance in women suffering from CFS. Absence of a correlation between afternoon and morning cortisol level could be a more representative factor for detecting HPA axis disturbance.</p>
<p><b>Torrell H(1) ,</b></p>	<p>Centre for Omic Sciences, Centre Tecnològic de Nutrició i Salut, Universitat Rovira i Virgili, Reus, Catalonia, Spain</p>	<p>Mitochondrial dysfunction in a family with psychosis and chronic fatigue syndrome.</p>	<p>Mitochondrion. 2017 May;34:1-8.</p>	<p>Mitochondrial impairment is hypothesized to be involved in chronic fatigue syndrome (CFS) and schizophrenia. We performed a clinical, genetic and functional mitochondrial study in a family consisting of a female presenting schizophrenia in addition to CFS symptoms and her mother and older sister, both presenting with CFS. The three family members showed higher blood lactate levels, higher mitochondrial mass, lower mtDNA content and overall lower mitochondrial enzymatic activities and lower oxygen consumption capacities than healthy women. This family presented mtDNA depletion; however, no mutation was identified neither in the mtDNA nor in the nuclear genes related with mtDNA depletion, even though C16179A and T16519A variants should be further studied.</p>
<p><b>Trigg SD(1) , Devilbiss Z(2) .</b></p>	<p>Eglin Air Force Base Family Medicine Residency, 307 Boatner Rd, Eglin AFB, FL 32542. (2) Virginia Commonwealth University</p>	<p>Spine Conditions: Lumbar Spinal Stenosis.</p>	<p>FP Essent. 2017 Oct;461:21-25.</p>	<p>Lumbar spinal stenosis (LSS) is a frequent cause of chronic low back and lower extremity pain in older patients. Symptomatic LSS typically is described as neurogenic claudication consisting of pain, weakness, numbness, and/or fatigue arising in the back and radiating into the buttock, thigh, or lower leg. The diagnosis is complicated by lack of reliable clinical or x-ray criteria. North American Spine Society guidelines recommend magnetic resonance imaging study without contrast to confirm anatomic narrowing of the spinal canal or nerve root impingement. Conservative management options include exercise and drug therapy. Epidural injections can be considered for temporary symptom management. No studies show greater</p>

	Fairfax Family Medicine Sports Medicine Fellowship, 3650 Joseph Siewick Drive Suite 400, Fairfax, VA 22033.			effectiveness of surgical intervention over conservative management in patients with mild to moderate symptoms. Progressive symptoms, emergence of frank neurologic deficit, or findings consistent with cauda equina syndrome are indications to pursue surgical evaluation. Decompression surgery without fusion typically is recommended in the absence of spondylolisthesis or other spinal instability. Active rehabilitation is likely more effective than usual care for improvement in functional status within 12 months postoperatively without adverse events. Approximately one-third to one-half of patients with mild to moderate LSS symptoms may have a favorable prognosis.
<b>Tuller D(1) .</b>	University of California-Berkeley, USA.	Once again, the PACE authors respond to concerns with empty answers.	J Health Psychol. 2017 Aug;22(9) :1118-1122.	In their response to Geraghty, the PACE investigators state that they have "repeatedly addressed" the various methodological concerns raised about the trial. While this is true, these responses have repeatedly failed to provide satisfactory explanations for the trial's very serious flaws. This commentary examines how the current response once again demonstrates the ways in which the investigators avoid acknowledging the obvious problems with PACE and offer non-answers instead-arguments that fall apart quickly under scrutiny.
<b>Uchiyama-Tanaka Y(1) .</b>	Yoko Clinic , Kitakyushu, Japan .	Case Study of Homeopathic Bowel Nosode Remedies for Dysbiotic Japanese Patients.	J Altern Complement Med. 2018 Feb;24(2) :187-192.	BACKGROUND: The composition of intestinal microbiota is very important in human health. Gastrointestinal disturbances are among the symptoms commonly reported by individuals diagnosed with chronic diseases, such as inflammatory bowel disease, autism, and chronic fatigue syndrome. The effects of probiotics and prebiotics for dysbiosis have been reported in many studies. Bowel nosodes are homeopathic remedies made from human gut microbiota. OBJECTIVE: Bowel nosodes made from the intestinal bacteria of European patients from the 1900s were administered to Japanese patients suffering from gastrointestinal disturbances, such as constipation and diarrhea, to determine their therapeutic efficacy. METHODS: Twenty-eight outpatients from Yoko Clinic (11 males, 17 females; age range, 4-72 years) were enrolled in this study. One nosode remedy was selected for each case. Patients took six pills for 2 days. After a month, the effect of each treatment was evaluated using the Glasgow Homeopathic Hospital Outcome Scale (grade +4 to -4) . RESULTS: Patient number of each grade was +4, +3, +2, +1, 0,

				<p>with no negative grades. Of the 23 patients analyzed, 69.6% showed some type of improvement, and no harmful effects from taking bowel nosodes were observed; 26% of patients showed major improvement or were "cured." CONCLUSION: It is difficult to find correct constitutional remedies as they often require high-level techniques and time. Since there are only 11 main bowel nosode remedies, they are easier to choose from and cheaper to use and develop than classical constitutional remedies. Herein, 69.6% of dysbiotic patients taking bowel nosodes showed improvements, and no harmful effects were reported by any patient. These results suggest that the homeopathic bowel nosodes are a useful method for controlling gastrointestinal disturbances.</p>
<p><b>Unger ER, Lin JS, Tian H, Natelson BH, Lange G, Vu D, Blate M, Klimas NG, Balbin EG, Bateman L, Allen A, Lapp CW, Springs W, Kogelnik AM, Phan CC, Danver J, Podell RN, Fitzpatrick T, Peterson DL, Gottschalk CG, Rajeevan MS; MCAM Study Group.</b></p>		<p>Multi-Site Clinical Assessment of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (MCAM) : Design and Implementation of a Prospective/Retrospective Rolling Cohort Study.</p>	<p>Am J Epidemiol. 2017 Apr 15;185(8) :617-626.</p>	<p>In the Multi-Site Clinical Assessment of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (MCAM) , we relied on expert clinician diagnoses to enroll patients from 7 specialty clinics in the United States in order to perform a systematic collection of data on measures of myalgic encephalomyelitis (ME) /chronic fatigue syndrome (CFS) . Healthy persons and those with other illnesses that share some features with ME/CFS were enrolled in comparison groups. The major objectives were to: 1) use standardized questionnaires to measure illness domains of ME/CFS and to evaluate patient heterogeneity overall and between clinics; 2) describe the course of illness, identify the measures that best correlate with meaningful clinical differences, and assess the performances of questionnaires as patient/person-reported outcome measures; 3) describe prescribed medications, orders for laboratory and other tests, and management tools used by expert clinicians to care for persons with ME/CFS; 4) collect biospecimens for future hypothesis testing and for evaluation of morning cortisol profiles; and 5) identify measures that best distinguish persons with ME/CFS from those in the comparison groups and detect subgroups of persons with ME/CFS who may have different underlying causes. Enrollment began in 2012 and is planned to continue in multiple stages through 2017. We present the MCAM methods in detail, along with an initial description of the 471 patients with ME/CFS who were enrolled in stage 1.</p>

<p><b>Van Den Houte M(1) , Bogaerts K, Van Diest I, De Bie J, Persoons P, Van Oudenhove L, Van den Bergh O.</b></p>	<p>From Health Psychology (Van Den Houte, Bogaerts, Van Diest, Van den Bergh) , Department of Psychology and Educational Sciences, University of Leuven, Belgium;</p>	<p>Inducing Somatic Symptoms in Functional Syndrome Patients: Effects of Manipulating State Negative Affect.</p>	<p>Psychosom Med. 2017 Nov/Dec;79(9) :1000-1007.</p>	<p>OBJECTIVE: Induction of negative affective states can enhance bodily symptoms in high habitual symptom reporters among healthy persons and in patients with irritable bowel syndrome. The aims of this study were to replicate this effect in patients with fibromyalgia and chronic fatigue syndrome and to investigate the role of moderators, focusing on alexithymia, negative affectivity, and absorption. METHODS: Patients with fibromyalgia and/or chronic fatigue syndrome (n = 81) and HCs (n = 41) viewed series of neutral, positive, and negative affective pictures. After every picture series, participants filled out a somatic symptom checklist and rated emotions experienced during the picture series on valence, arousal, and perceived control. RESULTS: Patients reported more somatic symptoms after viewing negative pictures (least square mean [LSM] = 19.40, standard error (SE) = 0.50) compared with neutral (LSM = 17.59, SE = 0.42, p &lt; .001) or positive (LSM = 17.04, SE = 0.41, p &lt; .001) pictures, whereas somatic symptom ratings of HCs after viewing negative picture series (LSM = 12.07, SE = 0.71) did not differ from ratings after viewing neutral (LSM = 11.07, SE = 0.59, p = .065) or positive (LSM = 11.10, SE = 0.58, p = .93) pictures. Negative affectivity did not moderate the symptom-enhancing effect of negative affective pictures, whereas the alexithymia factor "difficulty identifying feelings" and absorption did (p = .016 and p = .006, respectively) . CONCLUSION: Negative affective states elicit elevated somatic symptom reports in patients experiencing fibromyalgia and/or chronic fatigue syndrome. This symptom-enhancing effect is greater in patients having higher difficulty to identify feelings and higher absorption scores. The results are discussed in a predictive coding framework of symptom perception.</p>
<p><b>Van Der Gucht A(1) , Aoun Sebaiti M(2) (3) , Guedj E(4) , Aouizerate J(3) (5) (6) , Yara S(3) , Gherardi RK(3) (5) (6) , Evangelista E(7) , Chalaye J(7) , Cottreau AS(7) ,</b></p>	<p>Department of Nuclear Medicine, H. Mondor Hospital, Assistance Publique-Hôpitaux de Paris/Paris-Est</p>	<p>Brain 18F-FDG PET Metabolic Abnormalities in Patients with Long-Lasting Macrophagic Myofascitis.</p>	<p>J Nucl Med. 2017 Mar;58(3) :492-498.</p>	<p>The aim of this study was to characterize brain metabolic abnormalities in patients with macrophagic myofascitis (MMF) and the relationship with cognitive dysfunction through the use of PET with 18F-FDG. Methods:18F-FDG PET brain imaging and a comprehensive battery of neuropsychological tests were performed in 100 consecutive MMF patients (age [mean <math>\hat{\pm}</math> SD], 45.9 <math>\hat{\pm}</math> 12 y; 74% women) . Images were analyzed with statistical parametric mapping (SPM12) . Through the use of analysis of covariance, all 18F-FDG PET brain images of MMF patients were compared with those of</p>

<p><b>Verger A(8) , Bachoud-Levi AC(2) (9) , Abulizi M(7) , Itti E(7) , Authier FJ(3) (5) (6) .</b></p>	<p>University, CrÃ©teil, France,</p>			<p>a reference population of 44 healthy subjects similar in age (45.4 <math>\pm</math> 16 y; P = 0.87) and sex (73% women; P = 0.88) . The neuropsychological assessment identified 4 categories of patients: those with no significant cognitive impairment (n = 42) , those with frontal subcortical (FSC) dysfunction (n = 29) , those with Papez circuit dysfunction (n = 22) , and those with callosal disconnection (n = 7) . Results: In comparison with healthy subjects, the whole population of patients with MMF exhibited a spatial pattern of cerebral glucose hypometabolism (P &lt; 0.001) involving the occipital lobes, temporal lobes, limbic system, cerebellum, and frontoparietal cortices, as shown by analysis of covariance. The subgroup of patients with FSC dysfunction exhibited a larger extent of involved areas (35,223 voxels vs. 13,680 voxels in the subgroup with Papez circuit dysfunction and 5,453 voxels in patients without cognitive impairment) . Nonsignificant results were obtained for the last subgroup because of its small population size. Conclusion: Our study identified a peculiar spatial pattern of cerebral glucose hypometabolism that was most marked in MMF patients with FSC dysfunction. Further studies are needed to determine whether this pattern could represent a diagnostic biomarker of MMF in patients with chronic fatigue syndrome and cognitive dysfunction.</p>
<p><b>van der Schaaf ME(1) , De Lange FP(2) , Schmits IC(3) , Geurts DE(4) , Roelofs K(3) , van der Meer JW(5) , Toni I(3) , Knoop H(6) .</b></p>	<p>Expert Centre for Chronic Fatigue, Nijmegen; Donders Institute for Brain, Cognition, and Behaviour, Centre for Neuroimaging, Radboud University Nijmegen, Nijmegen.</p>	<p>Prefrontal Structure Varies as a Function of Pain Symptoms in Chronic Fatigue Syndrome.</p>	<p>Biol Psychiatry. 2017 Feb 15;81(4) :358-365.</p>	<p>BACKGROUND: Chronic fatigue syndrome (CFS) is characterized by severe fatigue persisting for <math>\geq</math>6 months and leading to considerable impairment in daily functioning. Neuroimaging studies of patients with CFS have revealed alterations in prefrontal brain morphology. However, it remains to be determined whether these alterations are specific for fatigue or whether they relate to other common CFS symptoms (e.g., chronic pain, lower psychomotor speed, and reduced physical activity) . METHODS: We used magnetic resonance imaging to quantify gray matter volume (GMV) and the N-acetylaspartate and N-acetylaspartylglutamate/creatine ratio (NAA/Cr) in a group of 89 women with CFS. Building on previous reports, we tested whether GMV and NAA/Cr in the dorsolateral prefrontal cortex are associated with fatigue severity, pain, psychomotor speed, and physical activity, while controlling for depressive symptoms. We also considered GMV and NAA/Cr differences between patients with CFS and 26 sex-, age-, and</p>



				education-matched healthy controls. RESULTS: The presence of pain symptoms was the main predictor of both GMV and NAA/Cr in the left dorsolateral prefrontal cortex of patients with CFS. More pain was associated with reduced GMVs and NAA/Cr, over and above the effects of fatigue, depressive symptoms, physical activity, and psychomotor speed. In contrast to previous reports and despite a large representative sample, global GMV did not differ between the CFS and healthy control groups. CONCLUSIONS: CFS, as diagnosed by Centers for Disease Control and Prevention criteria, is not a clinical entity reliably associated with reduced GMV. Individual variation in the presence of pain, rather than fatigue, is associated with neuronal alterations in the dorsolateral prefrontal cortex of patients with CFS.
<b>van Rensburg R(1) , Meyer HP(1) , Hitchcock SA(1) , Schuler CE(2) .</b>	Department of Family Medicine, University of Pretoria, Pretoria, South Africa. (2) Private practice.	Screening for Adult ADHD in Patients with Fibromyalgia Syndrome.	Pain Med. 2017 Nov 1.	Objective: Fibromyalgia syndrome (FMS) is a common chronic pain disorder associated with altered activity of neurotransmitters involved in pain sensitivity such as dopamine, serotonin, and noradrenaline. FMS may significantly impact an individual's functioning due to the presence of chronic pain, fatigue, and cognitive impairment. Dyscognition may be more disabling than the chronic pain but is mostly under-recognized. This study aimed to assess the potential co-occurrence of FMS and adult attention deficit hyperactivity disorder (ADHD) , a chronic neurodevelopmental disorder also associated with impaired cognition and dopaminergic function. Methods: In a cross-sectional observational study, 123 previously confirmed FMS patients were screened for adult ADHD using the World Health Organization Adult ADHD Self Report scale v1.1. The Revised Fibromyalgia Impact Questionnaire (FIQ-R) was used to assess the impact of FMS. Cognitive assessment was based on self-report in accordance with the 2011 modified American College of Rheumatology criteria and the FIQ-R, respectively. Results: Of the 123 participants, 44.72% (N=55) screened positive for adult ADHD. Participants with both FMS and a positive adult ADHD screening test scored higher on the FIQ-R score (64.74, SD=17.66, vs 54.10, SD=17.10) . Self-reported cognitive impairment was rated higher in the combined group (odds ratio=10.61, 95% confidence interval; 3.77-29.86, P<0.01) . Conclusions: These results indicate that the co-occurrence of adult ADHD in FMS may be highly prevalent and may

				also significantly impact the morbidity of FMS. Patients with FMS should be assessed for the presence of adult ADHD.
<b>Vangeel EB(1) , Kempke S(2) , Bakusic J(3) , Godderis L(4) , Luyten P(5) , Van Heddegem L(6) , Compernelle V(6) , Persoons P(7) , Lambrechts D(8) , Izzib(9) , Freson K(10) , Claes S(11) .</b>	Genetic Research About Stress and Psychiatry (GRASP) , Department of Neurosciences , KU Leuven, Leuven, Belgium;	Glucocorticoid receptor DNA methylation and childhood trauma in chronic fatigue syndrome patients.	J Psychosom Res. 2018 Jan;104:55-60.	OBJECTIVE: Although the precise mechanisms are not yet understood, previous studies have suggested that chronic fatigue syndrome (CFS) is associated with hypothalamic-pituitary-adrenal (HPA) axis dysregulation and trauma in early childhood. Consistent with findings suggesting that early life stress-induced DNA methylation changes may underlie dysregulation of the HPA axis, we previously found evidence for the involvement of glucocorticoid receptor (GR) gene (NR3C1) methylation in whole blood of CFS patients. METHODS: In the current study, we assessed NR3C1-1F region DNA methylation status in peripheral blood from a new and independent sample of 80 female CFS patients and 91 female controls. In CFS patients, history of childhood trauma subtypes was evaluated using the Childhood Trauma Questionnaire short form (CTQ-SF) . RESULTS: Although absolute methylation differences were small, the present study confirms our previous findings of NR3C1-1F DNA hypomethylation at several CpG sites in CFS patients as compared to controls. Following multiple testing correction, only CpG_8 remained significant (DNA methylation difference: 1.3% versus 1.5%, p<0.001) . In addition, we found associations between DNA methylation and severity of fatigue as well as with childhood emotional abuse in CFS patients, although these findings were not significant after correction for multiple testing. CONCLUSIONS: In conclusion, we replicated findings of NR3C1-1F DNA hypomethylation in CFS patients versus controls. Our results support the hypothesis of HPA axis dysregulation and enhanced GR sensitivity in CFS.
<b>Vink M(1) .</b>	Soerabaja Research Center, The Netherlands.	PACE trial authors continue to ignore their own null effect.	J Health Psychol. 2017 Aug;22(9) :1134-1140.	Protocols and outcomes for the PACE trial were changed after the start of the trial. These changes made substantial differences, leading to exaggerated claims for the efficacy of cognitive behavior therapy and graded exercise therapy in myalgic encephalomyelitis/chronic fatigue syndrome. The small, self-reported improvements in subjective measures cannot be used to say the interventions are effective, particularly in light of the absence of objective improvement. Geraghty's criticism of the trial was reasonable and supported by the evidence.

<p><b>Vivino FB(1) .</b></p>	<p>Division of Rheumatology , Penn Presbyterian Medical Center, United States; Penn Sjogren's Syndrome Center, Perelman School of Medicine, University of Pennsylvania, United States.</p>	<p>Sjogren's syndrome: Clinical aspects.</p>	<p>Clin Immunol. 2017 Sep;182:48-54.</p>	<p>Sjogren's syndrome (SS) is the 2nd most common chronic autoimmune rheumatic disease and associated with a high burden of illness. Morbidity arises not only from untreated xerostomia and keratoconjunctivitis sicca but also from extra-glandular manifestations including the development of non-Hodgkin's B cell lymphomas. Proper diagnosis of SS requires objective evidence of dry eyes and/or objective evidence of dry mouth as well as proof of autoimmunity. The recent development of new international classification criteria and clinical practice guidelines for SS should not only enhance the existing standards of care but also facilitate further studies to improve future diagnosis and outcomes.</p>
<p><b>Vorob'eva OV(1) , Rusaya VV(1) .</b></p>	<p>Sechenov First Moscow State Medical University, Moscow, Russia.</p>	<p>[Efficacy and safety of noophen in the treatment of chronic fatigue syndrome in patients with cerebrovascular insufficiency]. [Article in Russian; Abstract available in Russian from the publisher]</p>	<p>Zh Nevrol Psikhiatr Im S S Korsakova. 2017;117(11) :31-36.</p>	<p>AIM: To assess the efficacy and safety of noophen in the treatment of chronic fatigue syndrome in patients with cerebrovascular insufficiency. MATERIAL AND METHODS: Fifty-three patients with cerebrovascular disease, who complain about persistent fatigue, were randomized into two groups. Patients of the main group (n=33) received standard therapy and noophen, patients of the control group (n=20) received only standard therapy. Treatment efficacy was assessed using MFI-20, HADS-A, LSEQ. In addition, cognitive functioning was evaluated using Schulte test. RESULTS AND CONCLUSION: Treatment with noophen resulted in the marked decrease in the total intensity of fatigue measured with MFI-20. The decrease in fatigue intensity by 30-50% was observed in 3/4 of patients of the main group. Noophen reduced all components of fatigue syndrome, including a mental component, and improved motivation. The reduction of the mental fatigue component was combined with the improvement of cognitive functioning assessed with Schulte test. Therefore, the effect of noophen on motivation and mental fatigue component can promote cognitive training in patients with cerebrovascular insufficiency.</p>
<p><b>Vos-Vromans D(1) , Evers S(2) (3) , Huijnen</b></p>	<p>Revant Rehabilitation</p>	<p>Economic evaluation of multidisciplinary rehabilitation</p>	<p>PLoS One. 2017 Jun 2;12(6) :e0177260.</p>	<p>BACKGROUND: A multi-centre RCT has shown that multidisciplinary rehabilitation treatment (MRT) is more effective in reducing fatigue</p>

<p><b>I(4) (5) (6) , KÃ¶lke A(6) , Hitters M(7) , Rijnders N(1) , Pont M(8) , Knottnerus A(9) , Smeets R(4) (5) (7) .</b></p>	<p>Centres, Breda, The Netherlands.</p>	<p>treatment versus cognitive behavioural therapy for patients with chronic fatigue syndrome: A randomized controlled trial.</p>		<p>over the long-term in comparison with cognitive behavioural therapy (CBT) for patients with chronic fatigue syndrome (CFS) , but evidence on its cost-effectiveness is lacking. AIM: To compare the cost-effectiveness of MRT versus CBT for patients with CFS from a societal perspective. METHODS: A multi-centre randomized controlled trial comparing MRT with CBT was conducted among 122 patients with CFS diagnosed using the 1994 criteria of the Centers for Disease Control and Prevention and aged between 18 and 60 years. The societal costs (healthcare costs, patient and family costs, and costs for loss of productivity) , fatigue severity, quality of life, quality-adjusted life-year (QALY) , and cost-effectiveness ratios (ICERs) were measured over a follow-up period of one year. The main outcome of the cost-effectiveness analysis was fatigue measured by the Checklist Individual Strength (CIS) . The main outcome of the cost-utility analysis was the QALY based on the EuroQoL-5D-3L utilities. Sensitivity analyses were performed, and uncertainty was calculated using the cost-effectiveness acceptability curves and cost-effectiveness planes. RESULTS: The data of 109 patients (57 MRT and 52 CBT) were analyzed. MRT was significantly more effective in reducing fatigue at 52 weeks. The mean difference in QALY between the treatments was not significant (0.09, 95% CI: -0.02 to 0.19) . The total societal costs were significantly higher for patients allocated to MRT (a difference of <math>\hat{\Delta}</math>, -5,389, 95% CI: 2,488 to 8,091) . MRT has a high probability of being the most cost effective, using fatigue as the primary outcome. The ICER is <math>\hat{\Delta}</math>, -856 per unit of the CIS fatigue subscale. The results of the cost-utility analysis, using the QALY, indicate that the CBT had a higher likelihood of being more cost-effective. CONCLUSIONS: The probability of being more cost-effective is higher for MRT when using fatigue as primary outcome variable. Using QALY as the primary outcome, CBT has the highest probability of being more cost-effective.</p>
<p><b>Vugts MAP(1) (2) , Joosen MCW(1) , Mert A(2) , Zedlitz A(3) , Vrijhoef HJM(1) (4) (5) .</b></p>	<p>Department of Tranzo Scientific Center for Care and Welfare,</p>	<p>Serious gaming during multidisciplinary rehabilitation for patients with complex chronic pain or fatigue complaints: study protocol for a</p>	<p>BMJ Open. 2017 Jun 8;7(6) :e016394.</p>	<p>INTRODUCTION: Many individuals suffer from chronic pain or functional somatic syndromes and face boundaries for diminishing functional limitations by means of biopsychosocial interventions. Serious gaming could complement multidisciplinary interventions through enjoyment and independent accessibility. A study protocol is presented for studying whether, how, for which patients and</p>

	Tilburg School of Social and Behavioural Sciences, Tilburg University, Tilburg, The Netherlands.	controlled trial and process evaluation.		under what circumstances, serious gaming improves patient health outcomes during regular multidisciplinary rehabilitation. METHODS AND ANALYSIS: A mixed-methods design is described that prioritises a two-armed naturalistic quasi-experiment. An experimental group is composed of patients who follow serious gaming during an outpatient multidisciplinary programme at two sites of a Dutch rehabilitation centre. Control group patients follow the same programme without serious gaming in two similar sites. Multivariate mixed-modelling analysis is planned for assessing how much variance in 250 patient records of routinely monitored pain intensity, pain coping and cognition, fatigue and psychopathology outcomes is attributable to serious gaming. Embedded qualitative methods include unobtrusive collection and analyses of stakeholder focus group interviews, participant feedback and semistructured patient interviews. Process analyses are carried out by a systematic approach of mixing qualitative and quantitative methods at various stages of the research. ETHICS AND DISSEMINATION: The Ethics Committee of the Tilburg School of Social and Behavioural Sciences approved the research after reviewing the protocol for the protection of patients' interests in conformity to the letter and rationale of the applicable laws and research practice (EC 2016.25t) . Findings will be presented in research articles and international scientific conferences. TRIAL
<b>Wallimann T(1) , Riek U(2) , MÄ¶ddel M(3) .</b>	Formerly at Dept. of Biology ETH-Zurich, Zurich, Switzerland. Electronic address: theo.wallimann@cell.biol.ethz.ch. (2) Formerly at Dept. of Biology ETH-Zurich, Zurich,	Intradialytic creatine supplementation: A scientific rationale for improving the health and quality of life of dialysis patients.	Med Hypotheses. 2017 Feb;99:1-14.	The CK/PCr-system, with creatine (Cr) as an energy precursor, plays a crucial role in cellular physiology. In the kidney, as in other organs and cells with high and fluctuating energy requirements, energy-charged phospho-creatine (PCr) acts as an immediate high-energy source and energy buffer, and as an intracellular energy transport vehicle. A maximally filled total Cr (Cr plus PCr) pool is a prerequisite for optimal functioning of the body and its organs, and health. Skeletal- and cardiac muscles of dialysis patients with chronic kidney disease (CKD) are depleted of Cr in parallel with the duration of dialysis. The accompanying accumulation of cellular damage seen in CKD patients lead to a deterioration of musculo-skeletal and neurological functioning and poor quality of life (QOL) . Therefore, to counteract Cr depletion, it is proposed to supplement CKD patients with Cr. The anticipated benefits include previously documented

	<p>Switzerland. (3) Nephrology Klinik Im Park, Zurich, Switzerland.</p>			<p>improvements in the musculo-skeletal system, brain and peripheral nervous system, as well as improvements in the common comorbidities of CKD patients (see below) . Thus, with a relatively simple, safe and inexpensive Cr supplementation marked improvements in quality of life (QOL) and life span are likely reached. To avoid Cr and fluid overload by oral Cr administration, we propose intradialytic Cr supplementation, whereby a relatively small amount of Cr is added to the large volume of dialysis solution to a final concentration of 1-10mM. From there, Cr enters the patient's circulation by back diffusion during dialysis. Because of the high affinity of the Cr transporter (CRT) for Cr affinity for Cr (Vmax of CRT for Cr=20-40µM Cr) , Cr is actively transported from the blood stream into the target cells and organs, including skeletal and cardiac muscle, brain, proximal tubules of kidney epithelial cells, neurons, and leukocytes and erythrocytes, which all express CRT and depend on the CK/PCr system. By this intradialytic strategy, only as much Cr is taken up by the body as is needed to fill the tissue Cr pools and no excess Cr has to be excreted, as is the case with oral Cr. Because aqueous solutions of Cr are not very stable, Cr must be added immediately before dialysis either as solid Cr powder or from a frozen Cr stock solution to the dialysate, or alternatively, Cr could become an additional component of a novel dry dialysate mixture in a cartridge device.</p>
<p><b>Wallis A(1) , Ball M(2) , McKechnie S(3) , Butt H(4) , Lewis DP(5) , Bruck D(2) .</b></p>	<p>Psychology Department, College of Health and Biomedicine, Victoria University, PO Box 14428, Melbourne, VIC, 8001, Australia. amy.wallis@v u.edu.au. (2) Psychology</p>	<p>Examining clinical similarities between myalgic encephalomyelitis/chronic fatigue syndrome and D-lactic acidosis: a systematic review.</p>	<p>J Transl Med. 2017 Jun 7;15(1) :129.</p>	<p>BACKGROUND: The pursuit for clarity in diagnostic and treatment pathways for the complex, chronic condition of myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) continues. This systematic review raises a novel question to explore possible overlapping aetiology in two distinct conditions. Similar neurocognitive symptoms and evidence of D-lactate producing bacteria in ME/CFS raise questions about shared mechanisms with the acute condition of D-lactic acidosis (D-la) . METHODS: D-la case reports published between 1965 and March 2016 were reviewed for episodes describing both neurological symptoms and high D-lactate levels. Fifty-nine D-la episodes were included in the qualitative synthesis comparing D-la symptoms with ME/CFS diagnostic criteria. A narrative review of D-la mechanisms and relevance for ME/CFS was provided. RESULTS: The majority of neurological disturbances</p>

	<p>Department, College of Health and Biomedicine, Victoria University, PO Box 14428, Melbourne, VIC, 8001, Australia. (3) College of Engineering &amp; Science, Victoria University, Melbourne, VIC, Australia. (4) Bioscreen Yarraville (Aust) Pty Ltd, Melbourne, VIC, Australia. (5) CFS Discovery Clinic, Melbourne, VIC, Australia.</p>			<p>reported in D-la episodes overlapped with ME/CFS symptoms. Of these, the most frequently reported D-la symptoms were motor disturbances that appear more prominent during severe presentations of ME/CFS. Both patient groups shared a history of gastrointestinal abnormalities and evidence of bacterial dysbiosis, although only preliminary evidence supported the role of lactate-producing bacteria in ME/CFS. LIMITATIONS: Interpretation of results are constrained by both the breadth of symptoms included in ME/CFS diagnostic criteria and the conservative methodology used for D-la symptom classification. Several pathophysiological mechanisms in ME/CFS were not examined. CONCLUSIONS: Shared symptomatology and underlying microbiota-gut-brain interactions raise the possibility of a continuum of acute (D-la) versus chronic (ME/CFS) presentations related to D-lactate absorption. Measurement of D-lactate in ME/CFS is needed to effectively evaluate whether subclinical D-lactate levels affect neurological symptoms in this clinical population.</p>
<p><b>Wallis A(1) , Butt H(2) , Ball M(1) , Lewis DP(3) , Bruck D(1) .</b></p>	<p>a Psychology Department , Victoria University , Victoria , Australia. (2) b Bioscreen (Aust) Pty Ltd , Victoria , Australia. (3) c</p>	<p>Support for the microgenderome invites enquiry into sex differences.</p>	<p>Gut Microbes. 2017 Jan 2;8(1) :46-52.</p>	<p>The microgenderome defines the interaction between microbiota, sex hormones and the immune system. Our recent research inferred support for the microgenderome by showing sex differences in microbiota-symptom associations in a clinical sample of patients with myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS) . This addendum expands upon the sex-specific pattern of associations that were observed. Interpretations are hypothesized in relation to genera versus species-level analyses and D-lactate theory. Evidence of sex-differences invites future research to consider sex comparisons in microbial function even when microbial abundance is</p>

	CFS Discovery Clinic , Donvale , Victoria , Australia.			statistically similar. Pairing assessment of clinical symptoms with microbial culture, DNA sequencing and metabolomics methods will help advance our current understandings of the role of the microbiome in health and disease.
<b>Wang T(1) , Xu C(1) , Pan K(1) , Xiong H(2) .</b>	Department of Epidemiology, College of Preventive Medicine, Third Military Medical University, Gaotanyan Road 30, Shapingba District, Chongqing, 400038, China. (2) Department of Epidemiology, College of Preventive Medicine, Third Military Medical University, Gaotanyan Road 30, Shapingba District, Chongqing, 400038, China.	Acupuncture and moxibustion for chronic fatigue syndrome in traditional Chinese medicine: a systematic review and meta-analysis.	BMC Complement Altern Med. 2017 Mar 23;17(1) :163.	BACKGROUND: As the etiology of chronic fatigue syndrome (CFS) is unclear and the treatment is still a big issue. There exists a wide range of literature about acupuncture and moxibustion (AM) for CFS in traditional Chinese medicine (TCM) . But there are certain doubts as well in the effectiveness of its treatment due to the lack of a comprehensive and evidence-based medical proof to dispel the misgivings. Current study evaluated systematically the effectiveness of acupuncture and moxibustion treatments on CFS, and clarified the difference among them and Chinese herbal medicine, western medicine and sham-acupuncture. METHODS: We comprehensively reviewed literature including PubMed, EMBASE, Cochrane library, CBM (Chinese Biomedical Literature Database) and CNKI (China National Knowledge Infrastructure) up to May 2016, for RCT clinical research on CFS treated by acupuncture and moxibustion. Traditional direct meta-analysis was adopted to analyze the difference between AM and other treatments. Analysis was performed based on the treatment in experiment and control groups. Network meta-analysis was adopted to make comprehensive comparisons between any two kinds of treatments. The primary outcome was total effective rate, while relative risks (RR) and 95% confidence intervals (CI) were used as the final pooled statistics. RESULTS: A total of 31 randomized controlled trials (RCTs) were enrolled in analyses. In traditional direct meta-analysis, we found that in comparison to Chinese herbal medicine, CbAM (combined acupuncture and moxibustion, which meant two or more types of acupuncture and moxibustion were adopted) had a higher total effective rate (RR (95% CI) , 1.17 (1.09~1.25) ) . Compared with Chinese herbal medicine, western medicine and sham-acupuncture, SAM (single acupuncture or single moxibustion) had a higher total effective rate, with RR (95% CI) of 1.22 (1.14~1.30) , 1.51 (1.31-1.74) , 5.90 (3.64-9.56) . In addition, compared with SAM, CbAM had a higher total effective



	hongyanxiong@126.com.			rate (RR (95% CI) , 1.23 (1.12~1.36) ). In network meta-analyses, similar results were recorded. Subsequently, we ranked all treatments from high to low effective rate and the order was CbAM, SAM, Chinese herbal medicine, western medicine and sham-acupuncture. CONCLUSIONS: In the treatment of CFS, CbAM and SAM may have better effect than other treatments. However, the included trials have relatively poor quality, hence high quality studies are needed to confirm our finding.
<b>Wang T(1) , Yin J(2) , Miller AH(3) , Xiao C(4) .</b>	Department of Epidemiology, University of North Carolina at Chapel Hill Gillings School of Global Public Health, Chapel Hill, NC, United States; Department of Epidemiology, Emory University Rollins School of Public Health, Atlanta, GA, United States.	A systematic review of the association between fatigue and genetic polymorphisms.	Brain Behav Immun. 2017 May;62:230-244.	Fatigue is one of the most common and distressing symptoms, leading to markedly decreased quality of life among a large subset of patients with a variety of disorders. Susceptibility to fatigue may be influenced by genetic factors including single nucleotide polymorphisms (SNPs) , especially in the regulatory regions, of relevant genes. To further investigate the association of SNPs with fatigue in various patient populations, a systematic search was conducted on Pubmed, CINAHL, PsycINFO, and Sociological Abstracts Database for fatigue related-terms in combination with polymorphisms or genetic variation-related terms. Fifty papers in total met the inclusion and exclusion criteria for this analysis. These 50 papers were further classified into three subgroups for evaluation: chronic fatigue syndrome (CFS) , cancer-related fatigue (CRF) and other disease-related fatigue. SNPs in regulatory pathways of immune and neurotransmitter systems were found to play important roles in the etiologies of CFS, CRF and other disease-related fatigue. Evidence for associations between elevated fatigue and specific polymorphisms in TNF $\alpha$ , IL1b, IL4 and IL6 genes was revealed for all three subgroups of fatigue. We also found CFS shared a series of polymorphisms in HLA, IFN- $\gamma$ , 5-HT and NR3C1 genes with other disease-related fatigue, however these SNPs (excluding IFN- $\gamma$ ) were not found to be adequately investigated in CRF. Gaps in knowledge related to fatigue etiology and recommendations for future research are further discussed.
<b>Wang XY(1) , Liu CZ(1) , Lei B(1) .</b>	Aesthetic Medical School, Yichun University, Yichun	[Effect of Acupuncture on the Expression of Transcription Factor T-bet/GATA-3 in Plasma of Rats with Chronic Fatigue Syndrome]. [Article in Chinese]	Zhen Ci Yan Jiu. 2017 Jun 25;42(3) :246-8.	OBJECTIVE: To observe the effect of acupuncture on the expression of T-box expressed in T cell (T-bet) /GATA binding factor-3 (GATA-3) in plasma of rats with chronic fatigue syndrome (CFS) and explore the mechanism of acupuncture treatment for CFS. METHODS: Forty-eight healthy male SD rats were randomly divided into blank control

	336000, Jiangxi Pro- vince, China.			group, CFS model group, acupuncture group, and ginsenoside group (12 rats in each group) . CFS rat model was established by combining restriction and cold water swimming. Acupuncture was applied to "Baihui"(GV 20) , "Guanyuan" (CV 4) and "Zusanli" (ST 36, bilate-ral) acupoints, once a day for two weeks. The ginsenoside group was gavage administrated with ginsenoside, once a day for two weeks. After 14 days, behavioural changes were observed, and the expression levels of T-bet/GATA-3 genes in plasma were detected by RT-PCR. RESULTS: Compared with the blank control group, the time for immobility of forced suspensory test was signi-ficantly longer (P<0.05) and the time for exhaustive swimming was significantly shortened (P<0.05) in the CFS model group. Compared with the model group, the two indexes above-mentioned were reversed (P<0.05) both in the acupuncture group and the ginsenoside group, and the effects in the acupuncture group were more significant than those in the ginsenoside group (P<0.05) . Compared with the blank control group, the expression level of T-cell transcription factor T-bet gene in plasma was higher in the CFS model group (P<0.05) , companied with lower GATA-3 gene expression (P<0.05) . The ratio of T-bet/GATA-3 was higher in the model group than in the blank control group(P<0.05) . Compared with the CFS model group, all the indexes above-mentioned were reversed (P<0.05) in the two treatment groups. Acupuncture group showed a better effect on reducing T-bet gene expression than the ginsenoside group (P<0.05) . CONCLUSIONS: Acupuncture can decrease the expression level of T-bet gene while increase the expression of GATA-3 gene, which may be associated with its role in treating CFS.
<b>Watad A(1) (2) , Quaresma M(1) (3) , Bragazzi NL(4) , Cervera R(5) , Tervaert JWC(6) , Amital H(1) (2) , Shoenfeld Y(7) (8) (9) .</b>	Zabludowicz Center for Autoimmune Diseases, Sheba Medical Center (Affiliated to Tel-Aviv University) , 5265601, Tel-	The autoimmune/inflammatory syndrome induced by adjuvants (ASIA) /Shoenfeld's syndrome: descriptive analysis of 300 patients from the international ASIA syndrome registry.	Clin Rheumatol. 2018 Feb;37(2) :483-493.	The autoimmune/inflammatory syndrome induced by adjuvants (ASIA) is a recently identified condition in which the exposure to an adjuvant leads to an aberrant autoimmune response. We aimed to summarize the results obtained from the ASIA syndrome registry up to December 2016, in a descriptive analysis of 300 cases of ASIA syndrome, with a focus on the adjuvants, the clinical manifestations, and the relationship with other autoimmune diseases. A Web-based registry, based on a multicenter international study, collected clinical and laboratory data in a form of a questionnaire applied to patients with ASIA syndrome. Experts in the disease validated all cases

	Hashomer, Israel.			independently. A comparison study regarding type of adjuvants and differences in clinical and laboratory findings was performed. Three hundred patients were analyzed. The mean age at disease onset was 37 years, and the mean duration of time latency between adjuvant stimuli and development of autoimmune conditions was 16.8 months, ranging between 3 days to 5 years. Arthralgia, myalgia, and chronic fatigue were the most frequently reported symptoms. Eighty-nine percent of patients were also diagnosed with another defined rheumatic/autoimmune condition. The most frequent autoimmune disease related to ASIA syndrome was undifferentiated connective tissue disease (UCTD) . ASIA syndrome is associated with a high incidence of UCTD and positive anti-nuclear antibodies (ANA) test. Clinical and laboratory features differ from the type of adjuvant used. These findings may contribute to an increased awareness of ASIA syndrome and help physicians to identify patients at a greater risk of autoimmune diseases following the exposure to vaccines and other adjuvants. The ASIA syndrome registry provides a useful tool to systematize this rare condition.
<b>White PD(1) (2) , Chalder T(3) , Sharpe M(4) , Angus BJ(5) , Baber HL(1) , Bavinton J(6) , Burgess M(7) , Clark LV(1) , Cox DL(8) , DeCesare JC(1) , Goldsmith KA(3) , Johnson AL(9) , McCrone P(3) , Murphy G(10) , Murphy M(6) , O'Dowd H(11) , Potts L(3) , Walwyn R(9) , Wilks D(12) .</b>	1 Queen Mary University of London, UK.	Response to the editorial by Dr Geraghty.	J Health Psychol. 2017 Aug;22(9) :1113-1117.	This article is written in response to the linked editorial by Dr Geraghty about the adaptive Pacing, graded Activity and Cognitive behaviour therapy; a randomised Evaluation (PACE) trial, which we led, implemented and published. The PACE trial compared four treatments for people diagnosed with chronic fatigue syndrome. All participants in the trial received specialist medical care. The trial found that adding cognitive behaviour therapy or graded exercise therapy to specialist medical care was as safe as, and more effective than, adding adaptive pacing therapy or specialist medical care alone. Dr Geraghty has challenged these findings. In this article, we suggest that Dr Geraghty's views are based on misunderstandings and misrepresentations of the PACE trial; these are corrected.
<b>Wiesmuller GA(1) (2) , Hornberg C(3) .</b>	Institut für Arbeits- und Sozialmedizin, Uniklinik	[Environmental medical syndromes]. [Article in German]	Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz.	Environmental medical syndromes comprise sick building syndrome (SBS) , multiple chemical sensitivity (MCS) /idiopathic environmental intolerances (IEI) , electromagnetic hypersensitivity, chronic fatigue syndrome (CFS) , burnout, fibromyalgia, and the candida syndrome.

	<p>RWTH Aachen, Aachen, Deutschland. gerhard.wiesmueller@stadt-koeln.de. (2) Abteilung Infektions- und Umwelthygiene, Gesundheitsamt Köln, Köln, Deutschland. gerhard.wiesmueller@stadt-koeln.de. (3) Fakultät für Gesundheitswissenschaften, Universität Bielefeld, Bielefeld, Deutschland.</p>		<p>2017 Jun;60(6) :597-604.</p>	<p>There is also some overlap described in the literature. There is still no established knowledge of etiology, pathology, pathophysiology, diagnostics, therapy, prevention and prognosis. These syndromes are thought to result from a complex interaction of physical, chemical and/or (micro) biological environmental stresses, individual dispositions, psychological influencing factors, perceptual and processing processes, variants of somatization disorders, culturally or socially caused distress, or simply iatrogenic causation. Examination and treatment methods must be developed or existing ones scientifically validated. However, all uncertainties in the assessment of these syndromes do not absolve the physician from taking patients seriously and helping them as best as possible.</p>
<p><b>Williams TE(1) , Chalder T(2) , Sharpe M(3) , White PD(1) .</b></p>	<p>Centre for Psychiatry, Wolfson Institute of Preventive Medicine, Barts and the London School of Medicine, Queen Mary University of</p>	<p>Heterogeneity in chronic fatigue syndrome - empirically defined subgroups from the PACE trial.</p>	<p>Psychol Med. 2017 Jun;47(8) :1454-1465.</p>	<p>BACKGROUND: Chronic fatigue syndrome is likely to be a heterogeneous condition. Previous studies have empirically defined subgroups using combinations of clinical and biological variables. We aimed to explore the heterogeneity of chronic fatigue syndrome. METHOD: We used baseline data from the PACE trial, which included 640 participants with chronic fatigue syndrome. Variable reduction, using a combination of clinical knowledge and principal component analyses, produced a final dataset of 26 variables for 541 patients. Latent class analysis was then used to empirically define subgroups. RESULTS: The most statistically significant and clinically recognizable model comprised five subgroups. The largest, 'core' subgroup (33%</p>

	London, London,UK. (2) Academic Department of Psychological Medicine,King' s College London, Weston Education Centre,Londo n,UK. (3) Department of Psychiatry,Psy chological Medicine Research, University of Oxford,Oxford ,UK.			of participants) , had relatively low scores across all domains and good self-efficacy. A further three subgroups were defined by: the presence of mood disorders (21%) ; the presence of features of other functional somatic syndromes (such as fibromyalgia or irritable bowel syndrome) (21%) ; or by many symptoms - a group which combined features of both of the above (14%) . The smallest 'avoidant-inactive' subgroup was characterized by physical inactivity, belief that symptoms were entirely physical in nature, and fear that they indicated harm (11%) . Differences in the severity of fatigue and disability provided some discriminative validation of the subgroups. CONCLUSIONS: In addition to providing further evidence for the heterogeneity of chronic fatigue syndrome, the subgroups identified may aid future research into the important aetiological factors of specific subtypes of chronic fatigue syndrome and the development of more personalized treatment approaches.
<b>Wilshire C(1) .</b>	Victoria University of Wellington, New Zealand.	The problem of bias in behavioural intervention studies: Lessons from the PACE trial.	J Health Psychol. 2017 Aug;22(9) :1128-1133.	Geraghty's recent editorial on the PACE trial for chronic fatigue syndrome has stimulated a lively discussion. Here, I consider whether the published claims are justified by the data. I also discuss wider issues concerning trial procedures, researcher allegiance and participant reporting bias. Cognitive behavioural therapy and graded exercise therapy had modest, time-limited effects on self-report measures, but little effect on more objective measures such as fitness and employment status. Given that the trial was non-blinded, and the favoured treatments were promoted to participants as 'highly effective', these effects may reflect participant response bias. In non-blinded trials, the issue of reporting biases deserves greater attention in future.
<b>Windgassen S(1) , Moss-Morris R(2) , Chilcot J(2) , Sibelli</b>	Department of Psychological	The journey between brain and gut: A systematic review of psychological mechanisms of	Br J Health Psychol. 2017 Nov;22(4) :701-736.	PURPOSE: Irritable bowel syndrome (IBS) is a functional gastrointestinal (GI) disorder characterized by abdominal pain and altered bowel habits. It is estimated to affect 10-22% of the UK

<p><b>A(2) , Goldsmith K(3) , Chalder T(1) (4) .</b></p>	<p>Medicine, Institute of Psychiatry, King's College London, UK. (2) Department of Psychology, Institute of Psychiatry, King's College London, Guy's Hospital, London, UK. (3) Department of Biostatistics, Institute of Psychiatry, King's College London, UK. (4) Chronic Fatigue Research &amp; Treatment Unit, Maudsley Hospital, South London and Maudsley NHS Foundation Trust, UK.</p>	<p>treatment effect in irritable bowel syndrome.</p>		<p>population. The use of psychological interventions in IBS is increasingly empirically supported, but little is known about the mechanism of psychological treatment approaches. The present systematic review aimed to investigate the mechanisms of psychological treatment approaches applied to IBS. METHODS: The systematic review included studies conducting mediation analysis in the context of psychological interventions for IBS, focusing on the outcomes of symptom severity and/or quality of life (QoL) . RESULTS: Nine studies in total were included in the review. Eight of the studies assessed mediation in the context of cognitive behavioural-based interventions, and one study assessed mediation in a mindfulness-based stress reduction intervention. Results indicate that change in illness-specific cognitions is a key process by which psychological treatments may have an effect on the outcomes of symptom severity and QoL. Furthermore, results suggest that whilst GI-specific anxiety may also be a key mechanism of treatment effect, it would appear that general or state anxiety is not. Although less commonly included in mediation analysis, illness-specific behaviours may also have a mediating role. CONCLUSIONS: A mediational model amalgamating the results of studies is proposed to illustrate the findings of the review. The model depicts the process by which psychotherapy changes illness-specific cognitions, behaviours, and anxiety to achieve reduction in symptom severity. Statement of contribution What is already known on this subject? Cognitive behavioural therapy (CBT) is the predominant psychological treatment for irritable bowel syndrome (IBS) , although there is some research supporting other treatments such as mindfulness and hypnotherapy. Mediation analysis in the context of psychological treatments for IBS has just begun to explore possible mechanisms of treatment effect especially within CBT studies. Some studies include anxiety in a basic mediation analysis, whilst others include cognitions with inconsistent results for each. What does this study add? Reviews mediators included in mediation analysis and the methods used for mediation analysis Proposes a mediation model informed by the results of the review for future studies to investigate Provides clinical implications for the targeting of cognitions and behaviours rather than general anxiety.</p>
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<p><b>Windthorst P(1) , Mazurak N(2) , Kuske M(3) , Hipp A(4) , Giel KE(5) , Enck P(6) , NieÄ A(7) , Zipfel S(8) , Teufel M(9) .</b></p>	<p>Department of Psychosomatic Medicine and Psychotherapy , University Hospital, University of Tuebingen, Germany. Electronic address: petra.windthorst@med.uni-tuebingen.de.</p>	<p>Heart rate variability biofeedback therapy and graded exercise training in management of chronic fatigue syndrome: An exploratory pilot study.</p>	<p>J Psychosom Res. 2017 Feb;93:6-13.</p>	<p>OBJECTIVE: Chronic fatigue syndrome (CFS) is characterised by persistent fatigue, exhaustion, and several physical complaints. Research has shown cognitive behavioural therapy (CBT) and graded exercise training (GET) to be the most effective treatments. In a first step we aimed to assess the efficacy of heart rate variability biofeedback therapy (HRV-BF) as a treatment method comprising cognitive and behavioural strategies and GET in the pilot trial. In a second step we aimed to compare both interventions with regard to specific parameters. METHODS: The study was conducted in an outpatient treatment setting. A total of 28 women with CFS (50.3±9.3years) were randomly assigned to receive either eight sessions of HRV-BF or GET. The primary outcome was fatigue severity. Secondary outcomes were mental and physical quality of life and depression. Data were collected before and after the intervention as well as at a 5-month follow-up. RESULTS: General fatigue improved significantly after both HRV-BF and GET. Specific cognitive components of fatigue, mental quality of life, and depression improved significantly after HRV-BF only. Physical quality of life improved significantly after GET. There were significant differences between groups regarding mental quality of life and depression favouring HRV-BF. CONCLUSION: Both interventions reduce fatigue. HRV-BF seems to have additional effects on components of mental health, including depression, whereas GET seems to emphasise components of physical health. These data offer implications for further research on combining HRV-BF and GET in patients with CFS. TRIAL REGISTRATION: The described trial has been registered at the International Clinical Trials Registry Platform following the number DRKS00005445.</p>
<p><b>Wise S(1) , Ross A(2) , Brown A(1) , Evans M(1) , Jason L(1) .</b></p>	<p>1 DePaul University, USA. (2) 2 Johns Hopkins Medical College, USA.</p>	<p>An assessment of fatigue in patients with postural orthostatic tachycardia syndrome.</p>	<p>J Health Psychol. 2017 May;22(6) :733-742.</p>	<p>Individuals with postural orthostatic tachycardia syndrome share many symptoms with those who have chronic fatigue syndrome; one of which is severe fatigue. Previous literature found that those with chronic fatigue syndrome experience many forms of fatigue. The goal of this study was to investigate whether individuals with postural orthostatic tachycardia syndrome also experience multidimensional fatigue and whether these individuals can be clustered into subgroups based on the types of fatigue they endorse. A convenience sample of 138 participants (aged 14-29) with</p>

				<p>postural orthostatic tachycardia syndrome completed questionnaires that assessed fatigue, brain fog symptom severity, activities that improve brain fog, and brain fog-related disability. An exploratory factor analysis was conducted on the Fatigue Types Questionnaire, and a three-factor solution was produced. Factor scores were then used to cluster the patients into groups using a TwoStep cluster analysis. This resulted in two clusters, a high severity group and a low severity group. The clusters were then compared on a number of items related to symptom expression. Individuals within the more severe cluster had significantly more brain fog at the beginning and end of the survey when compared to cluster two. Those in the more severe cluster also described more activity impairment as well as more frequent, more severe, and more debilitation from postural orthostatic tachycardia syndrome and brain fog. The findings of the factor analysis suggest that patients with postural orthostatic tachycardia syndrome experience fatigue as a multidimensional construct and they also can be subgrouped based on symptom severity.</p>
<p><b>Wood N(1) , Qureshi A(2) , Mughal F(2) .</b></p>	<p>University of East London, UK. (2) University of Hertfordshire, Hatfield, UK.</p>	<p>Positioning, telling, and performing a male illness: Chronic prostatitis/chronic pelvic pain syndrome.</p>	<p>Br J Health Psychol. 2017 Nov;22(4) :904-919.</p>	<p>OBJECTIVES: There is a paucity of illness accounts of men with chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) , despite a significant level of prevalence and burden of disease. This qualitative study thus elicited twelve accounts from men suffering with CP/CPPS. METHODS: Narrative analysis was employed, focusing primarily on narrative content. RESULTS: Three major narrative themes were identified: (1) Medical stories: Blame and shame; (2) The Erratic nature of CP/CPPS; and (3) Ongoing struggles for coping and cures and the Search for meaning. CONCLUSIONS: Recommendations were made for health care providers and increasing the internal agency, support and activism of men with this debilitating condition. Statement of contribution What is already known on this subject? One qualitative account of this male illness (CP/CPPS) exists: an IPA study. Five cross-sectional themes: (1) Need for repeated confirmation - disease not life-threatening nor leading inexorably towards cancer; (2) Disturbed sleep and fatigue; (3) Concealing pain and problems - 'normalizing'; (4) Enduring pain by performing activities; and (5) Abrupt mood swings and limited sociality. What does this study add? Narrative analysis adds</p>



				information as to how this illness is managed and survived over time. It challenges the findings (above) by providing an insider perspective. Novel narrative themes include meaning-making amongst others. Masculine performance and experiences are also crucial to this stigmatized illness.
<b>Worm-Smeitink M(1) , Gielissen M(2) , Bloot L(3) , van Laarhoven HWM(4) , van Engelen BGM(5) , van Riel P(6) , Bleijenberg G(7) , Nikolaus S(1) , Knoop H(8) .</b>	Expert Centre for Chronic Fatigue, Department of Medical Psychology, Amsterdam Public Health Research Institute, VU University Medical Center, Amsterdam, The Netherlands.	The assessment of fatigue: Psychometric qualities and norms for the Checklist individual strength.	J Psychosom Res. 2017 Jul;98:40-46.	OBJECTIVE: The Checklist Individual Strength (CIS) measures four dimensions of fatigue: Fatigue severity, concentration problems, reduced motivation and activity. On the fatigue severity subscale, a cut-off score of 35 is used. This study 1) investigated the psychometric qualities of the CIS; 2) validated the cut-off score for severe fatigue and 3) provided norms. METHODS: Representatives of the Dutch general population (n=2288) completed the CIS. The factor structure was investigated using an exploratory factor analysis. Internal consistency and test-retest reliability were determined. Concurrent validity was assessed in two additional samples by correlating the CIS with other fatigue scales (Chalder Fatigue Questionnaire, MOS Short form-36 Vitality subscale, EORTC QLQ-C30 fatigue subscale) . To validate the fatigue severity cut-off score, a Receiver Operating Characteristics analysis was performed with patients referred to a chronic fatigue treatment centre (n=5243) and a healthy group (n=1906) . Norm scores for CIS subscales were calculated for the general population, patients with chronic fatigue syndrome (CFS; n=1407) and eight groups with other medical conditions (n=1411) . RESULTS: The original four-factor structure of the CIS was replicated. Internal consistency ( $\bar{I}\pm=0.84-0.95$ ) and test-retest reliability ( $r=0.74-0.86$ ) of the subscales were high. Correlations with other fatigue scales were moderate to high. The 35 points cut-off score for severe fatigue is appropriate, but, given the 17% false positive rate, should be adjusted to 40 for research in CFS. CONCLUSION: The CIS is a valid and reliable tool for the assessment of fatigue, with a validated cut-off score for severe fatigue that can be used in clinical practice.
<b>Wortinger LA(1) (2) , Endestad T(2) , Melinder AM(3) , Å~ie MG(2) (4) , Sulheim</b>	a Department of Pediatrics , Akershus University Hospital ,	Emotional conflict processing in adolescent chronic fatigue syndrome: A pilot study using functional magnetic resonance imaging.	J Clin Exp Neuropsychol. 2017 May;39(4) :355-368.	INTRODUCTION: Studies of neurocognition suggest that abnormalities in cognitive control contribute to the pathophysiology of chronic fatigue syndrome (CFS) in adolescents, yet these abnormalities remain poorly understood at the neurobiological level. Reports indicate that adolescents with CFS are significantly impaired

<p><b>D(5) (6) , Fagermoen E(7) , Wyller VB(1) .</b></p>	<p>Nordbyhagen , Norway. (2) b Department of Psychology , University of Oslo , Oslo , Norway. (3) c Cognitive Developmental Research Unit, Department of Psychology , University of Oslo , Oslo , Norway. (4) d Research Department , Innlandet Hospital Trust , Lillehammer , Norway. (5) e Department of Pediatrics , Oslo University Hospital , Oslo , Norway. (6) f Department of Pediatrics , Innlandet Hospital Trust ,</p>			<p>in conflict processing, a primary element of cognitive control. METHOD: In this study, we examine whether emotional conflict processing is altered on behavioral and neural levels in adolescents with CFS and a healthy comparison group. Fifteen adolescent patients with CFS and 24 healthy adolescent participants underwent functional magnetic resonance imaging (fMRI) while performing an emotional conflict task that involved categorizing facial affect while ignoring overlaid affect labeled words. RESULTS: Adolescent CFS patients were less able to engage the left amygdala and left midposterior insula (mpINS) in response to conflict than the healthy comparison group. An association between accuracy interference and conflict-related reactivity in the amygdala was observed in CFS patients. A relationship between response time interference and conflict-related reactivity in the mpINS was also reported. Neural responses in the amygdala and mpINS were specific to fatigue severity. CONCLUSIONS: These data demonstrate that adolescent CFS patients displayed deficits in emotional conflict processing. Our results suggest abnormalities in affective and cognitive functioning of the salience network, which might underlie the pathophysiology of adolescent CFS.</p>
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	Lillehammer , Norway. (7) g Department of Anesthesiology and Critical Care , Oslo University Hospital , Oslo , Norway.			
<b>Wortinger LA(1) (2) , Glenné Å~ie M(2) (3) , Endestad T(2) , Bruun Wyller V(1) .</b>	Department of Paediatrics and Adolescent Health, Akershus University Hospital, Nordbyhagen, Norway. (2) Department of Psychology, University of Oslo, Oslo, Norway. (3) Research Department, Innlandet Hospital Trust, Lillehammer, Norway.	Altered right anterior insular connectivity and loss of associated functions in adolescent chronic fatigue syndrome.	PLoS One. 2017 Sep 7;12(9) :e0184325.	Impairments in cognition, pain intolerance, and physical inactivity characterize adolescent chronic fatigue syndrome (CFS) , yet little is known about its neurobiology. The right dorsal anterior insular (dAI) connectivity of the salience network provides a motivational context to stimuli. In this study, we examined regional functional connectivity (FC) patterns of the right dAI in adolescent CFS patients and healthy participants. Eighteen adolescent patients with CFS and 18 aged-matched healthy adolescent control participants underwent resting-state functional magnetic resonance imaging. The right dAI region of interest was examined in a seed-to-voxel resting-state FC analysis using SPM and CONN toolbox. Relative to healthy adolescents, CFS patients demonstrated reduced FC of the right dAI to the right posterior parietal cortex (PPC) node of the central executive network. The decreased FC of the right dAI-PPC might indicate impaired cognitive control development in adolescent CFS. Immature FC of the right dAI-PPC in patients also lacked associations with three known functional domains: cognition, pain and physical activity, which were observed in the healthy group. These results suggest a distinct biological signature of adolescent CFS and might represent a fundamental role of the dAI in motivated behavior.
<b>Wyller VB(1) (2) , Nguyen CB(3) , Ludviksen JA(4) (5) , Mollnes TE(4) (5) (6) (7) (8) .</b>	Department of Pediatrics and Adolescent Health, Akershus	Transforming growth factor beta (TGF- $\beta^2$ ) in adolescent chronic fatigue syndrome.	J Transl Med. 2017 Dec 4;15(1) :245.	BACKGROUND: Chronic fatigue syndrome (CFS) is a prevalent and disabling condition among adolescent. The disease mechanisms are unknown. Previous studies have suggested elevated plasma levels of several cytokines, but a recent meta-analysis of 38 articles found that of 77 different cytokines measured in plasma, transforming growth factor beta (TGF- $\beta^2$ ) was the only one that was elevated in

	<p>University Hospital, 1478, LÅ,renskog, Norway. brwylle@onlin e.no.</p>			<p>patients compared to controls in a sufficient number of articles. In the present study we therefore compared the plasma levels of the three TGF-β isoforms in adolescent CFS patients and healthy controls. In addition, the study explored associations between TGF-β levels, neuroendocrine markers, clinical markers and differentially expressed genes within the CFS group. METHODS: CFS patients aged 12-18 years (n = 120) were recruited nation-wide to a single referral center as part of the NorCAPITAL project (ClinicalTrials ID: NCT01040429) . A broad case definition of CFS was applied, requiring 3 months of unexplained, disabling chronic/relapsing fatigue of new onset, whereas no accompanying symptoms were necessary. Healthy controls (n = 68) were recruited from local schools. The three isoforms of TGF-β (TGF-β1, TGF-β2, TGF-β3) were assayed using multiplex technology. Neuroendocrine markers encompassed plasma and urine levels of catecholamines and cortisol, as well as heart rate variability indices. Clinical markers consisted of questionnaire scores for symptoms of post-exertional malaise, inflammation, fatigue, depression and trait anxiety, as well as activity recordings. Whole blood gene expression was assessed by RNA sequencing in a subgroup of patients (n = 29) and controls (n = 18) . RESULTS: Plasma levels of all three isoforms of TGF-β were equal in the CFS patients and the healthy controls. Subgrouping according to the Fukuda and Canada 2003 criteria of CFS did not reveal differential results. Within the CFS group, all isoforms of TGF-β were associated with plasma cortisol, urine norepinephrine and urine epinephrine, and this association pattern was related to fatigue score. Also, TGF-β3 was related to expression of the B cell annotated genes TNFRSF13C and CXCR5. CONCLUSIONS: Plasma levels of all TGF-β isoforms were not altered in adolescent CFS. However, the TGF-β isoforms were associated with neuroendocrine markers, an association related to fatigue score. Furthermore, TGF-β3 might partly mediate an association between plasma cortisol and B cell gene expression. Trial registration Clinical Trials NCT01040429.</p>
<p><b>Wyller VB(1) (2) , Vitelli V(3) , Sulheim D(4) (5) , Fagermoen E(6) (7) , Winger A(8) ,</b></p>	<p>Division of Medicine and Laboratory Sciences,</p>	<p>Erratum to: Altered neuroendocrine control and association to clinical symptoms in adolescent chronic fatigue</p>	<p>J Transl Med. 2017 Jul 18;15(1) :157.</p>	<p>Erratum for J Transl Med. 2016 May 05;14 (1) :121.</p>

<p><b>Godang K(9) , Bollerslev J(9) .</b></p>	<p>Medical Faculty, University of Oslo, Oslo, Norway. brwylle@online.no.</p>	<p>syndrome: a cross-sectional study.</p>		
<p><b>Xia D(1) , Chen P(2) , Du P(1) , Ding L(1) , Liu A(1) .</b></p>	<p>the Second Department of Acupuncture-Moxibustion and Tuina, Rizhao Hospital of TCM, Rizhao 276800, Shandong Province, China. (2) the Second Department of Acupuncture-Moxibustion and Tuina, Rizhao Hospital of TCM, Rizhao 276800, Shandong Province, China. jiusifushang888@126.com.</p>	<p>[Efficacy of acupoint catgut embedding combined with ginger-partitioned moxibustion on chronic fatigue syndrome of spleen-kidney yang deficiency syndrome and its effects on T lymphocyte subsets and activity of NK cell]. [Article in Chinese]</p>	<p>Zhongguo Zhen Jiu. 2017 Aug 12;37(8) :814-818.</p>	<p>OBJECTIVE: To observe the efficacy differences between acupoint catgut embedding combined with ginger-partitioned moxibustion and regular acupuncture on chronic fatigue syndrome (CFS) of spleen-kidney yang deficiency syndrome, and to explore its effects on T lymphocyte subsets and activity of NK cell. METHODS: A total of 60 patients with CFS of spleen-kidney yang deficiency syndrome were randomly divided into a catgut embedding combined with ginger-partitioned moxibustion (CECGP) group and a regular acupuncture group, 30 cases in each one. The patients in the CECGP group were treated with acupoint catgut embedding combined with ginger-partitioned moxibustion; the acupoint catgut embedding was applied at Guanyuan (CV 4) , Shenshu (BL 23) , Pishu (BL 20) , Zusanli (ST 36) , Qihai (CV 6) , once a week, while the ginger-partitioned moxibustion was applied at Guanyuan (CV 4) , Qihai (CV 6) and Zusanli (ST 36) , once every three days for consecutive one month. The patients in the regular acupuncture group were treated with regular acupuncture at Guanyuan (CV 4) , Shenshu (BL 23) , Pishu (BL 20) , Zusanli (ST 36) , Qihai (CV 6) , once a day, 6 treatments per week (one day for rest) for consecutive one month. The clinical symptom scores, fatigue scale-14 (FS-14) , fatigue assessment instrument (FAI) , laboratory test results and total effective rate were compared between the two groups before and after treatment. RESULTS: (1) After treatment, the clinical symptom scores, FS-14 and FAI were reduced in the two groups (all P&lt;0.05) ; after treatment, the clinical symptom scores, FS-14 and FAI in the CECGP group were significantly lower than those in the regular acupuncture group (all P&lt;0.05) . (2) After treatment, the CD4+/CD8+, natural killer cell% (NK%) , CD3+%, CD% were all increased in the two groups (all +4 P&lt;0.05) ; the CD4+/CD8+, CD3+%, CD% in the CECGP group were significantly higher than those in the regular acupuncture</p>

				group (all P<0.05) . (3) After treatment, the total effective rate was 96.7% (29/30) in the CECGP group, which was similar to 93.3% (28/30) in the regular acupuncture group (P>0.05) . CONCLUSIONS: The acupoint catgut embedding combined with ginger-partitioned moxibustion, which could effectively relieve the symptoms, regulate T lymphocyte subsets and the activity of NK cell, is an effective method for CFS of spleen-kidney yang deficiency syndrome.
<b>Yakupov EZ(1) , Troshina YV(1) .</b>	Kazan state Medical University, Kazan, Russia; LLC Scientific Research Medical Complex 'Your Health', Kazan, Russia.	[Sleep disturbances - an important factor in combination 'minor' symptoms of multiple sclerosis]. [Article in Russian; Abstract available in Russian from the publisher]	Zh Nevrol Psikhiatr Im S S Korsakova. 2017;117(4. Vyp. 2) :42-47.	AIM: To investigate the clinical and neurophysiological features of sleep disorders in patients with different forms of multiple sclerosis (MS) and their impact on life quality, dynamic and prognosis of the disease. Identify the impact of sleep disorders on the formation and maintenance of chronic fatigue syndrome in patients with MS. MATERIAL AND METHODS: General clinical methods of examination like neuropsychological testing (definition of anxiety and depression) , the scales of the subjective determination of the quality of sleep, the severity of daytime sleepiness, quality of life, severity of chronic fatigue syndrome) and their subsequent correlation with neuroimaging and neurophysiological data were studied. 54 patients with different forms of MS and 54 healthy volunteers in the control group were selected. RESULTS AND CONCLUSION: Data analysis showed a high level of sleep disorders associated with anxiety disorders, comorbid pathologies, which is significantly higher in the study group.
<b>Yang HM(1) , Meng XJ(2) , Wu W(1) , Liu YL(3) , Zhai XJ(1) .</b>	Department of Traditional Chinese Medicine, Nanjing Drum Tower Hospital, the Affiliated Hospital of Nanjing University Medical School, Nanjing	[Regression analysis of serum bone metabolic markers and traditional Chinese medicine syndromes in patients with CKD-MBD]. [Article in Chinese]	Zhongguo Zhong Yao Za Zhi. 2017 Oct;42(20) :4027-4034.	To analyze the interdependent relationship between serum bone metabolic markers and traditional Chinese medicine (TCM) syndromes in patients with chronic kidney disease (stages 3 and 4) -related mineral and bone disorder (CKD-MBD) , in order to provide the objective basis for exploring the rules of TCM syndrome differentiation in patients with CKD-MBD. The retrospective survey was conducted to collect 105 cases with CKD (stages 3 and 4) -MBD. General clinical indexes, frequency of TCM syndromes and distribution of TCM syndrome type were investigated. Furthermore, serum bone metabolic markers, including calcium (Ca <sup>2+</sup> ) , phosphonium (P <sup>3+</sup> ) , intact parathyroid hormone (iPTH) , alkaline phosphatase (ALP) , procollagen type 1 amino-N-terminal propeptide (P1NP) and $\beta$ -crosslaps ( $\beta$ -CTX) were analyzed, respectively. Meanwhile, bone mineral density (BMD) was assessed. And then,

	210008, China.			<p>the multivariate regression analysis was performed for serum bone metabolic markers and TCM syndromes. The results showed that the general clinical features of the 105 patients included old age, hypertension, fracture, loss of bone mass and mild abnormalities of serum bone metabolic markers. High-frequency TCM syndromes were related to Yang deficiency in Spleen and Kidney, Qi deficiency in Spleen and Kidney and blood stasis. Moreover, Yang deficiency in Spleen and Kidney and blood stasis were found as the most frequent characteristics of the distribution of TCM syndromes type. The clinical characteristics of patients with the syndrome type of Yang deficiency in Spleen and Kidney were probably old age, increase in TCM syndrome scores and abnormalities in iPTH and P1NP. In addition, the interdependent relationship between abnormality in Ca<sup>2+</sup> and syndromes of hair loss, tooth shake and sexual dysfunction, abnormality in P3+ and syndromes of aches in waist and knees, abnormality in iPTH and syndromes of soreness and weakness in waist and knees, lassitude, fatigue and extreme chilliness, abnormality in ALP and syndromes of loose stools, abnormality in P1NP and syndromes of fear of chills, tendency of warmth and loose stools, and abnormality in <math>\hat{\tau}</math>-CTX and syndromes of chills and pain in waist and knees. In general, among the 105 cases with CKD (stages 3 and 4) -MBD were clinically characterized by mild changes in serum bone metabolic markers; And their main TCM syndrome was the deficiency in spleen and kidney. Serum bone metabolic markers with mild changes have an interdependent relationship with main TCM syndromes, and can be considered as an objective syndrome factor of TCM syndrome differentiation.</p>
<b>Yang L(1) , Adams J(1) , Sibbritt D(1) .</b>	Faculty of Health, Australian Research Centre in Complementary and Integrative Medicine (ARCCIM) ,	Prevalence and factors associated with the use of acupuncture and Chinese medicine: results of a nationally representative survey of 17161 Australian women.	Acupunct Med. 2017 Jun;35(3) :189-199.	<p>BACKGROUND: Traditional Chinese Medicine has considerable public support in Australia and elsewhere around the world; the literature suggests Chinese medicine (CM) and acupuncture are particularly popular. AIM: To examine factors associated with CM/acupuncture use among young/middle-aged Australian women. METHODS: This research formed part of the Australian Longitudinal Study on Women's Health (ALSWH) , a population-based cohort study. Data were obtained from the 'young' (34-39 years; n=8010) and 'middle-aged' (62-67 years; n=9151) ALSWH cohorts, who completed survey 6 (in 2012) and survey 7 (in 2013) , respectively.</p>

	University of Technology Sydney, City Campus, Ultimo, New South Wales, Australia.			Outcome measures included use of CM and visits to an acupuncturist in the previous 12 months. Predictive factors included demographic characteristics, and measures of health status (diagnosed chronic medical conditions) and health service utilisation. Statistical analyses included bivariate $\chi^2$ tests, two proportions Z-tests and backward stepwise multiple logistic regression modelling. RESULTS: In total, 9.5% and 6.2% of women in the young and middle-aged cohorts, respectively, had consulted an acupuncturist, and 5.7% and 4.0%, respectively, had used CM. Young women with low iron levels and/or endometriosis were more likely to use CM and/or acupuncture. Middle-aged women with low iron levels and/or chronic fatigue syndrome (CFS) were more likely to use CM, while middle-aged women with arthritis and/or CFS were more likely to use acupuncture. CONCLUSIONS: Women with chronic conditions (including arthritis, low iron, CFS and endometriosis) were associated with higher odds of CM/acupuncture use. There is a need for further research to examine the potential benefits of CM/acupuncture for these chronic illnesses.
<b>Yeung WK(1) (2) , Morgan K(2) , Mckenna F(1) .</b>	Department of Rheumatology , Trafford General Hospital, Manchester, UK. (2) Clinical Sleep Research Unit, School of Sports Exercise and Health Sciences, Loughborough University, Leicestershire, UK.	Comparison of sleep structure and psychometric profiles in patients with fibromyalgia, osteoarthritis and healthy controls.	J Sleep Res. 2017 Aug 11.	While research indicates that both the macro- and microstructure of sleep may be altered in fibromyalgia syndrome, few studies have controlled for symptom duration or included pain-control participants (i.e. patients with chronic pain and sleep disturbance not associated with fibromyalgia syndrome) . A frequently reported alteration found in the sleep microstructure of patients with fibromyalgia syndrome is the alpha-delta sleep anomaly. Although alpha waves have been observed during N3 sleep in healthy individuals, it has been proposed that there is an increase in alpha wave activity during slow-wave sleep in fibromyalgia syndrome. Originally considered a possible neurological contribution to fibromyalgia syndrome, whether the alpha-delta sleep anomaly is fundamental to the development of fibromyalgia syndrome, or results mainly from the pain experience remains unknown. The present study was designed to compare sleep macro- and microstructure, and psychometric profiles, in three broadly age-matched groups of female participants: patients with fibromyalgia syndrome (n = 19) ; patients with osteoarthritis with sleep disturbance (n = 17) ; and healthy adults (n = 10) . Patients with



				<p>fibromyalgia syndrome met the American College of Rheumatology diagnostic criteria and were recruited within 6 months of diagnosis. Subjective sleep quality was significantly lowest, and levels of anxiety and depressive symptoms were significantly highest for patients with fibromyalgia syndrome. However, the groups showed no significant differences in polysomnographic measures of total sleep time, sleep latency and total wake after sleep onset. Levels of alpha-delta sleep were statistically similar in both clinical (fibromyalgia syndrome and osteoarthritis) groups, indicating that it is not a specific abnormality of fibromyalgia syndrome. Overall, subjective measurements of anxiety, depression, fatigue and sleep quality better discriminated between the three groups than did objective measurements of sleep variables.</p>
<p><b>Zamunãr AR(1) (2) , Porta A(3) (4) , Andrade CP(1) , Forti M(1) , Marchi A(5) , Furlan R(6) , Barbic F(6) , Catai AM(1) , Silva E(1) .</b></p>	<p>Department of Physical Therapy, Federal University of Sao Carlos, Sao Carlos, Brazil. (2) Department of Physical Therapy, Universidade do Sagrado Coraã§ã£o, Bauru, Brazil. (3) Department of Biomedical Sciences for Health, University of Milan, Milan, Italy. (4) Department</p>	<p>The degree of cardiac baroreflex involvement during active standing is associated with the quality of life in fibromyalgia patients.</p>	<p>PLoS One. 2017 Jun 14;12(6) :e0179500.</p>	<p>Fibromyalgia syndrome (FMS) is a rheumatologic disorder characterized by chronic widespread pain, fatigue and other symptoms. Baroreflex dysfunction has been observed in women with FMS. However, it is unknown whether the limited involvement of the baroreflex control during an orthostatic stimulus has some impact on the quality of life of the FMS patient. Therefore, the aim of the study is evaluate the relationship between the quality of life of the FMS patient and indexes of the cardiovascular autonomic control as estimated from spontaneous fluctuations of heart period (HP) and systolic arterial pressure (SAP) . We enrolled 35 women with FMS (age: 48.8±8.9 years; body mass index: 29.3±4.3 Kg/m<sup>2</sup>) . The electrocardiogram, non-invasive finger blood pressure and respiratory activity were continuously recorded during 15 minutes at rest in supine position (REST) and in orthostatic position during active standing (STAND) . Traditional cardiovascular autonomic control markers were assessed along with a Granger causality index assessing the strength of the causal relation from SAP to HP (CRSAP±'HP) and measuring the degree of involvement of the cardiac baroreflex. The impact of FMS on quality of life was quantified by the fibromyalgia impact questionnaire (FIQ) and visual analog score for pain (VAS pain) . No significant linear association was found between FIQ scores and the traditional cardiovascular indexes both at REST and during STAND (p&gt;0.05) . However, a negative relationship between CRSAP±'HP during STAND and FIQ</p>

	<p>of Cardiothoracic , Vascular Anesthesia and Intensive Care, IRCCS Policlinico San Donato, San Donato Milanese, Milan, Italy. (5) Department of Electronics Information and Bioengineerin g, Politecnico di Milano, Milan, Italy. (6) Internal Medicine, Humanitas Research Hospital, Humanitas University, Rozzano, Italy.</p>			<p>score was found (<math>r = -0.56, p &lt; 0.01</math>) . Similar results were found with VAS pain. In conclusion, the lower the degree of cardiac baroreflex involvement during STAND in women with FMS, the higher the impact of FMS on the quality of life, thus suggesting that Granger causality analysis might be clinically helpful in assessing the state of the FMS patient.</p>
<p><b>Zhang Z(1) , Ma X(1) , Xia Z(1) , Chen J(1) , Liu Y(1) , Chen Y(1) , Zhu J(1) , Li J(1) , Yu H(1) , Zong Y(2) , Lu G(3) .</b></p>	<p>Department of Health Toxicology, College of Tropical Medicine and Public Health, Second Military</p>	<p>NLRP3 inflammasome activation mediates fatigue-like behaviors in mice via neuroinflammation.</p>	<p>Neuroscience. 2017 Sep 1;358:115-123.</p>	<p>Numerous experimental and clinical studies have suggested that the interaction between the immune system and the brain plays an important role in the pathophysiology of chronic fatigue syndrome (CFS) . The NLRP3 inflammasome is an important part of the innate immune system. This complex regulates proinflammatory cytokine interleukin-1<math>\beta</math> (IL-1<math>\beta</math>) maturation, which triggers different kinds of immune-inflammatory reactions. We employed repeated forced swims to establish a model of CFS in mice. NLRP3 knockout (KO) mice were also used to explore NLRP3 inflammasome activation in</p>

	<p>Medical University, Shanghai 200433, China.</p>			<p>the mechanisms of CFS, using the same treatment. After completing repeated swim tests, the mice displayed fatigue-like behaviors, including locomotor activity and reduced fall-off time on the rota-rod test, which was accompanied by significantly higher mature IL-1<math>\beta</math> level in the prefrontal cortex (PFC) and malondialdehyde (MDA) level in serum. We also found increased NLRP3 protein expression, NLRP3 inflammasome formation and increased mature IL-1<math>\beta</math> production in the PFC, relative to untreated mice. The NLRP3 KO mice displayed significantly moderated fatigue behaviors along with decreased PFC and serum IL-1<math>\beta</math> levels under the same treatment. These findings demonstrated the involvement of NLRP3 inflammasome activation in the mechanism of swimming-induced fatigue. Future therapies targeting the NLRP3/IL-1<math>\beta</math> pathway may have significant potential for fatigue prevention and treatment.</p>
<p><b>Zou L(1) (2) (3) , Pan Z(4) , Yeung A(5) , Talwar S(4) , Wang C(6) , Liu Y(7) , Shu Y(2) , Chen X(2) , Thomas GA(5) .</b></p>	<p>1 Department of Sports Science and Physical Education, The Chinese University of Hong Kong , Hong Kong Special Administration Region, China . (2) 2 College of Sports Science, Jishou University , Jishou, China . (3) 3 School of Martial Arts, Shanghai University of</p>	<p>A Review Study on the Beneficial Effects of Baduanjin.</p>	<p>J Altern Complement Med. 2017 Dec 11.</p>	<p>AIM: Baduanjin, a Chinese traditional Qigong exercise that focuses on a mind-body integration, is considered to be an effective exercise in promoting health. Thus, we systematically and critically evaluated the emerging literature relating to the effects of Baduanjin on health outcomes. METHODS: We used seven English-language electronic databases for the literature search. At least one health-related parameter was reported in retrievable full-text Baduanjin intervention studies. RESULTS: A total of 22 eligible studies were included. The inter-rater reliability between two review authors was 94.4% for selecting eligible studies. The results of individual studies support the notion that Baduanjin may be effective as an adjunctive rehabilitation method for improving cognitive functions in addition to psychological and physiological parameters among different age groups and various clinical populations (e.g., Parkinson's disease, chronic neck pain, chronic fatigue syndrome-like illness, psychological illness) . CONCLUSION: Before we draw a definitive conclusion relating to Baduanjin for health benefits, more methodologically rigorous studies with a long-term follow-up assessment should be further conducted to examine the effects of Baduanjin on health-related parameters and disease-specific measures in different health conditions. This review lends insight for future studies on Baduanjin and its potential application in preventive medicine and rehabilitation science.</p>

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