



SUPPLEMENT TO THE MEDICAL GUIDELINES
FOR THE INTERNATIONAL TEAM COACH

Sailing and Disability

Dr. Stephen Willson

ISAF Medical Commission

INTRODUCTION

Paralympics Sailing

The concept of mind, body and spirit is encapsulated in the three tear drops of the Paralympics logo symbolizing mind, body and spirit participating on land, wheel and water. There are currently three boats included in Paralympics competition.

These are:

- Single person 2.4 Meter keelboat
- 2 person SKUD
- 3 person Sonar

What are the disabilities?

Most disabled sailors have loco motor or physical disabilities. The remainder have visual impairment (blindness). These loco motor groups include sailors with:

- Congenital or acquired (traumatic) complete or incomplete spinal lesion, e.g., *spina bifida*.
- Cerebral Palsy (C.P.): Congenital or acquired brain injury or stroke. This group will include sailors with *spastic or flaccid quadriplegia, hemiplegia or diplegia* with or without *choreiform* (jerking) or *athetoid* (writhing) movements.
- Congenital limb deficiency or acquired amputation.
- There is a further group often referred to as Les Autres: *Poliomyelitis with paralysis, Muscular dystrophy, Rheumatoid arthritis, Multiple sclerosis, and Small stature (dwarfism)*

Those athletes with Hearing impairment (deaf), Intellectual Disability (I.D.) or Organ transplant, (e.g. renal, heart.) are not included in **Paralympic competition**. They may compete in other competitions which are more inclusive such as events run by organisations such as **Special Olympics, Sailability and Shake a leg**.

This list is only a guide and reference to the *IFDS classification manual* is recommended.

Technical aspects

An understanding of the technical aspects and modifications suited to the needs of the individual sailor is essential. Even though these classes are one design one size does not fit all for the modifications. The wrong modifications may generate serious injury or death. Liaison with the classifiers and technical experts is essential at regattas during their mandatory inspections to gain knowledge and expertise.

An example of serious injury would be release systems on sailors with poor trunk control requiring strapping to a fixed seat. In the event of capsize or sinking the skipper and crew must be able to get free. If a pneumatic self inflating life jacket is used under the straps then the sailor will be unable to breathe when the jacket inflates.

Servo assisted devices assist many sailors if they comply with class rules. The servo motors provide forces which may injure body parts caught with in the mechanism, Servos are used on canting seats in the *SKUD*, steering apparatus and for sheets. The *Access* and *Liberty* classes may also use similar systems.

Advice on choosing crew position may minimize the risk of injury. Experience and choice has shown that Quadriplegic sailors may best use their cognitive skills as a skipper rather than using their limited power and coordination in sheeting. The coach's guidance as to the most appropriate crew station will minimize injury risk in the long term.

DOCKSIDE INJURY PREVENTION

The sailor expects the coach to have an intelligent understanding of their disability and its implications for participation in sport. The coach must provide an environment and common sense practices to prevent injury. A few are listed below:

- Correct lifting with assistant, avoid pulling arms or legs to avoid dislocation or subluxation of hip and shoulder.
- Test all hoists and equipment used in boat to shore transfers as this a common place for serious injury and fracture.
- Plan transfers from pontoon to boat and return. Use the system most familiar to the sailor and their carers if present.
- Listen to the sailor and work as a team.
- Check for boat wash or waves prior to commencing the transfer.
- Go slow with hoists and do not drop the sailor into the boat as this may result in a painless and thus undetected fracture.
- Prevent skin ulceration by avoiding pressure on areas with poor sensation and particularly bony points such as hip and sacrum. Make use of any pressure relieving cushions on whatever object the sailor is seated for long periods greater than 5 minutes. Always support the sailor to prevent falling from chair or bench (eg quad, high para).

Common Injuries

Sailors and athletes with disabilities in general will push their abilities to the limits to achieve success. As a result there are a number of disorders that are more common in disabled athletes due to their sport and essential mobility equipment e.g. prosthesis or wheelchair. The upper limb and body is more likely to be injured due to the dual functions of sail handling and transfers. Overuse injuries, strains and sprains are the most common.

Neuropraxias due to compression occur with compression of the carpal tunnel at the wrist in wheelchair users and aggravated by transfers. People using forearm crutches are also susceptible to *carpal tunnel syndrome* as well as compression of the ulnar nerve at the elbow. Transport should be as close to the venue as possible to minimize these injuries.

Treatment of injury

All first aid approaches described in the CHAPTER VI apply equally to the disabled sailor with a few provisos:

- Position and secure ice packs and monitor. The sailor may not be able to hold in place due to limited hand control.
- Communicate with the athlete taking time to comprehend slow or dysarthric speech. Do not assume that physical disability or communication difficulty is associated with intellectual disability.
- The sailor may be taking multiple TUE approved and other medications. Be aware that even over the counter medication may interact with prescribed medications.

- Active joint motion before slow passive range to avoid increase in muscle tone, or spasm.

TEMPERATURE REGULATION AND HYDRATION

Sailors with spinal cord impairment may be subject to a condition where their body temperature is influenced by the ambient temperature (*poikilothermia*).

Loss of sweating and vasodilatation /vasoconstriction in the high lesion spinal athlete affects the ability to regulate core temperature. Adequate fluid intake immediately prior to and after competition is essential. Access to water sprays, ice and fans in hot conditions, and blankets and convection heaters in cold conditions are essential. Increase spasticity may be a symptom associated with low body temperature.

Temperature regulation is also an issue for amputees as they have less surface area for sweating and heat transfer.

AUTONOMIC DYSREFLEXIA (SPINAL CORD)

This condition occurs in athletes with spinal cord injury above the splanchnic sympathetic outflow (levels higher than T6). Distension or overfilling of the bladder or bowel, initiates excessive reflex activity of the sympathetic nervous system below the level of injury. This causes high blood pressure which cannot be controlled by centres in the brain. If the blood pressure becomes very high, it can cause a cerebral haemorrhage and fitting (seizures).

The symptoms are:

- Pounding headache which increases in intensity as blood pressure rises.
- Bradycardia (slow pulse rate).
- Flushing/blotching of the skin above the level of spinal cord injury.
- Profuse sweating particularly above the level of spinal cord injury.
- Goose bumps
- Chills without fever
- Nasal stuffiness
- Hypertension. The normal B.P. for this group of people is commonly 90/60 - 100/60 lying and lower when sitting. A B.P. 130/90 is therefore high for them. If untreated, it can rapidly rise to extreme levels e.g. 220/140.
- Blurred vision.
- Nausea.

This is a medical emergency! Call an ambulance and transfer to hospital is suggested if a doctor is not present. The common causes should be treated immediately. Check to see if a catheter is inserted that the catheter is not blocked or clamped. Also check for any fracture or injury that has not been noticed or that clothes or restraining straps are not too tight.

This is a list of common causes:

- Bladder - Distended or severely spastic bladder, urinary tract infection, bladder or kidney stones, urological procedure or even inserting a catheter.
- Bowel - Constipation, faecal impaction, rectosigmoid gaseous distension, rectal irritation (eg. enema or manual evacuation), haemorrhoids.
- Skin - Ingrown toenail, burns, pressure area, tight clothing.
- Other - Any irritating stimulus, including fracture, epididymo-orchitis, distended stomach, sexual intercourse, labour or severe menstrual cramping.

NB. Autonomic Dysreflexia may be caused by the sailor clamping their catheter and forgetting to release it.

COACHES KIT

Most sailors are self sufficient and resourceful. Unfortunately when travelling with a team of disabled sailors a few extra pieces of equipment may be needed for rigging as well as wheelchair and prosthetic repair.

- Lubricant jelly lubricant for catheterization with at least 4 neoprene catheters.
- Swollen prosthetic stumps may require Stretch stump bandage 10cm x 2 metres
- Gauze for prosthetic 'pull through'
- Lubricant cream for 'wet fit' prostheses (aqueous cream)
- Silicon gel pads for prevention or treatment of pressure skin abrasion
- Disposable gloves
- Screwdriver, pliers, and Allen (hex) key, to assist with prosthesis and wheelchair repair.