



Fall Edition 2014

vetNEWS

Latest on Lameness in Dogs

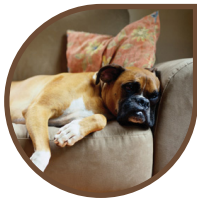
By Kelly J. Diehl, DVM, MS, DACVIM

It is a rare week when a veterinary practitioner doesn't see a dog for a lameness evaluation. Lameness is one of the most common reasons owners seek veterinary care for their dogs. For the practitioner, it is paramount to accurately diagnose the problem and make an appropriate recommendation to clients. Considerations include: Is surgery warranted? Which surgery will offer the best outcome? What will the treatment cost, and are there potential complications? What happens if nothing is done? Do I feel confident with my recommendation?

Three recently completed clinical studies, funded by Morris Animal Foundation, specifically address these questions. Orthopedic studies tend to be retrospective, which makes it difficult to compare results between different institutions using different techniques and postsurgical interventions. While working at the University of Illinois, Wanda Gordon-Evans, DVM, PhD, became troubled by the conflicting information available about the different surgical treatment options for cruciate ligament rupture. She was also keenly aware of the mounting criticism leveled at veterinarians who recommend expensive surgical repair procedures.

Dr. Gordon-Evans realized that a prospective clinical trial was needed. She enrolled 80 dogs with cranial cruciate ruptures into her Foundation-funded study, and then divided them into two treatment groups. One group underwent tibial plateau leveling osteotomy (TPLO), while the other group underwent lateral fabellar suture stabilization (LFS). Dogs were randomized for size, body condition score, duration of lameness and a host of other potential variables.

What Dr. Gordon-Evans learned was that while TPLO resulted in better outcomes for the dog's function and the owner's satisfaction, both procedures produced improvement overall. "This study shows that dogs that received TPLO were about 11 percent better than those that received LFS one year after surgery," she says. "However, this does not mean that the LFS technique is bad, only that the TPLO is better on average. Veterinarians ask me if I still offer the LFS as an option to clients, and yes, I offer clients both options and discuss the pros and cons in light of the existing evidence."



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**Message from
Michael Guy, DVM, MS, PhD
Director, Canine Lifetime
Health Project**

Dear Fellow Veterinarians and Researchers,

This year marks our two-year anniversary for enrollment of dogs into the Golden Retriever Lifetime Study, the largest prospective cohort study ever undertaken to improve the health of future generations of Golden Retrievers and create a brighter, healthier future for all dogs.

Our goal: Enroll 3,000 Golden Retrievers younger than 2 years of age and collect genetic, environmental, nutritional and health data from them throughout their lifetimes. We have experienced tremendous support from enthusiastic veterinarians and dog owners and, thanks to them, we are well on our way to achieving our ambitious recruitment goal.

But we are not quite done yet! With over 1,900 dogs enrolled in the study, enrollment remains open. Visit www.CanineLifetimeHealth.org to learn how to help us keep the momentum going.

Data from this study will uncover ways to help veterinarians better prevent, diagnose and treat cancer and other canine diseases. Together, we can work to identify important risk factors for cancer and other diseases in our patients.

Sincerely,

RESEARCHERS CREATE VALIDATED PAIN SCALES FOR FELINE OSTEOARTHRITIS PAIN

By Kelly J. Diehl, DVM, MS, DACVIM

Pain assessment and control in patients suffering from osteoarthritis is a daily challenge for most veterinary practitioners, and managing the problem in cats is particularly difficult. Cats have very different drug metabolism pathways compared to dogs, making drug selection and dosing challenging.

In a recently completed Morris Animal Foundation-funded study, Mary Klinck, DVM, at the University of Montreal, developed and tested two pain questionnaires to help veterinarians assess pain in cats during office visits and to help owners objectively measure response to osteoarthritis therapy when the cat is home.

Dr. Klinck and her team generated two pain scales and then analyzed them in a small group of cats. The scales were then further refined and applied to larger cohorts of feline patients with and without osteoarthritis. Using a combination of video analysis and repeated scale assessments, Dr. Klinck's team validated the pain scale that would help veterinarians identify a cat's osteoarthritic pain during a typical office visit.

Dr. Klinck next tested the owner pain scale questionnaire in cats with known osteoarthritis that were undergoing treatment with pain medication. She determined that the questionnaire allowed owners to make objective measurements of their cat's response to therapy. An additional clinical trial is now underway to determine if the owner survey could be used in a home setting to differentiate cats with and without osteoarthritis. Dr. Klinck plans to make both questionnaires available on the University of Montreal's website, giving veterinarians and owners a simple clinical tool to evaluate cats in the clinic and at home.

Morris Animal Foundation has invested \$1.7 million dollars over the past 10 years to study pain management in animals. Thanks to our generous donors, and animal health researchers, advances in pain management continue to enhance the quality of life for animals worldwide. ■

For more information on osteoarthritis in cats:

Guillot M, et al. *PLoS One*. 2014;9(5):e97347.
Klinck MP, et al. *Can Vet J*. 2012;53(11):1181-1186.
Bennett D, et al. *J Feline Med Surg*. 2012;14(1):65-75.
Lascelles BD. *Vet Surg*. 2010;39(1):2-13.
Lascelles D, Robertson S. *J Feline Med Surg*. 2010;12(3):200-212.



**Morris Animal
FOUNDATION**
Golden Retriever Lifetime Study

Study Subpopulations Offer Unique Comparative Data

The Golden Retriever Lifetime Study started with an idea and a belief that Morris Animal Foundation could lead the way in identifying risk factors associated with cancer and other diseases in dogs.

One of the goals of the Golden Retriever Lifetime Study is to acquire data that will be useful for future research. Subpopulations of dogs participating in the study provide opportunities for focused investigation. Siblings or other closely related dogs could provide unique comparative data. As with studies of human twins, these Golden sibling subpopulations allow for superb built-in matched control groups and will help future researchers investigate genetics and risk factors associated with canine diseases.

ask THE EXPERT

Amphibians fill an important ecological niche in our environment, yet their populations are decreasing at alarming rates worldwide. Scientific evidence suggests that *Batrachochytrium dendrobatidis*, a pathogenic skin fungus that invades the top layers of skin cells, may be a contributing factor. Commensal skin bacteria are important in maintaining normal skin health and immunity to pathogens. Certain amphibian skin bacteria exhibit antifungal properties, and exploiting this property offers a potential treatment for fungal skin disease. Morris Animal Foundation recently caught up with Lisa Belden, PhD, one of our funded researchers who studies amphibian skin and the possible use for a probiotic to treat *B. dendrobatidis* in frogs. She is also examining how amphibian microbiomes (the organisms located in a particular area of the body) are affected by the local environment.

Morris: Why did you decide to study amphibians?

Dr. Belden: Initially, I was interested in amphibian conservation, but I realized many solutions were policy-based. After graduate school, I focused on health and gravitated toward amphibian parasite research. I then shifted to studying the amphibian microbiome when I moved to Virginia Tech.

Morris: What do you find interesting about research into the microbiome of amphibians?

Dr. Belden: We are in these incredible symbiotic relationships with bacteria. I like the term “holobiome,” which means looking at whole groups of organisms living in this symbiotic, or mutually beneficial, relationship. Amphibian microbiome research can provide clues about how microbiomes develop and the interplay that exists within the environment, microbial populations and health. This research has applications to other species as well. Amphibian skin communities reflect qualities of other animal skin, including humans, but because amphibian skin is a mucosal layer, the regulation of what grows on amphibians may also have some parallels with mucosal

systems, like the human gut. So we are gaining broad insights from this work.

Morris: What do you think about the popularity of probiotics, and how is probiotic use evolving?

Dr. Belden: As we learn about the microbiome and the potential role that microbial passengers have on our health, probiotic use has become more mainstream. I think we are going to find that probiotic therapies in people, pets, livestock and wildlife will become increasingly common as more links between the microbiome and health outcomes are established. I also expect to see more combined probiotics that contain many bacterial strains/species. Research shows that the properties of beneficial probiotics may depend on the entire bacterial community, so relying on a single strain may not be adequate.

Morris: By the way, how do you give amphibians probiotics?

Dr. Belden: We give them baths! Since the pathogen we are most interested in (*B. dendrobatidis*) infects the skin, we hope that applying probiotic solutions

Lisa Belden, PhD
Virginia Tech



Lisa Belden, PhD, is an assistant professor in the department of biological sciences at Virginia Tech in Blacksburg, Virginia. Belden has focused her research efforts on numerous aspects of amphibian biology, including the use of probiotics in the treatment of skin infections of frogs.

containing bacteria with antifungal properties will provide protection to these vulnerable species.

Morris: Where do you see probiotic research in amphibians heading?

Dr. Belden: I hope we can effectively develop probiotics to mitigate fungal disease threats for free-living amphibian populations. There is still a lot of basic biology we need to define, but I hope we are successful. We know very little about how most members of the natural microbiota contribute to, or detract from, host life, but research in this area is growing. It's possible that our research in amphibians can add to this growing body of knowledge and translate to other animal species. ■

Concurrently, Dr. Gordon-Evans conducted a second study to assess pre-surgical risk factors associated with meniscal tears in the same 80 participating dogs. Definitive diagnosis of meniscal tears usually requires expensive diagnostic procedures (such as MRI or exploratory arthroscopy), and she was interested in finding low-cost, high-yield tests that veterinarians could conduct during routine physical examination. This adjunct study found that the combination of pain upon stifle flexion coupled with a meniscal click yielded a diagnostic accuracy of 76 percent, and that these simple physical examination findings could be performed and mastered by general veterinary practitioners.

Morris Animal Foundation also funded Ursula Krotscheck, DVM, DACVS, at Cornell University, to compare surgical treatments for fragmented coronoid processes in dogs with forelimb lameness. Her goal was to minimize the development of elbow osteoarthritis commonly seen with this abnormality. In a randomized clinical trial, large breed dogs younger than one year of age were treated with one of two surgical procedures.

In group one, the fragmented coronoid process was removed. In the second group, Dr. Krotscheck also performed an ulnar osteotomy post fragment retrieval. Dr. Krotscheck found that both groups of dogs did equally well up to one year post surgery (the duration of the follow-up period), allowing her to conclude that the more involved osteotomy surgery offered no advantage. As with Dr. Gordon-Evans' research, Dr. Krotscheck's use of a prospective study allowed for a clear differentiation between two surgical procedures used to treat dogs. ■

References:

Dillon DE, et al. *Vet Surg.* 2014;43(4):446-450.

Gordon-Evans WJ, et al. *J Am Vet Med Assoc.* 2013;243(5):675-680.



did YOU KNOW?

Dog vaccine offers first potential therapeutic treatment for horses with melanoma

Many horses with melanoma aren't examined by a veterinarian until their tumors have become locally advanced. At this point, surgical removal is no longer a treatment option. With Morris Animal Foundation funding, Jeffrey Phillips, DVM, MSvPM, PhD, and research colleagues from Lincoln Memorial University, Merial Ltd. and the University of Tennessee evaluated a vaccine currently used to treat melanomas in dogs. They discovered that tumor-bearing horses responded well to the vaccine. In fact, most of the treated horses in the study showed dramatic tumor shrinkage and also developed antitumor immune responses following vaccination. Based on these results, Dr. Phillips plans to monitor these patients and administer booster vaccines for another two years. ■



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