

Core strength could help dogs avoid knee injuries

Science Daily, February 17th 2022



Agility dogs lacking core strength from routine physical exercise may be more susceptible to one of the most common canine knee injuries, a cranial cruciate ligament rupture, which is similar to an ACL tear in humans. According to a research survey published in BMC Veterinary Research documenting activity & injury odds of more than 1,200 agility dogs, just about any physical exercise seems to lower the risk of rupturing the ligament, but some exercises seem to increase the risk. While regular activity, like swimming, playing fetch, walking or running didn't increase the risk of injury, it didn't lower the odds either.

Surprisingly, dogs that competed more frequently in agility events & competed at a higher level on more technically rigorous types of courses were less likely to rupture their cruciate ligaments. The only physical activities that increased the odds of injury were short walks or runs on a weekly basis & many of those injuries were in dogs early in their agility career that lacked core strength from routine physical exercise or at times, rest days. Nearly 12% of dogs reported to play flyball ruptured the ligament. Survey results indicated Labrador retrievers were more than twice as likely to rupture the ligament. Rottweilers were more than four times as likely to tear the ligament. Larger dogs doing agility tend to be less balanced and hence are at a higher risk of a rupture compared to smaller breeds.

An open science study of ageing in companion dogs

Nature, February 2nd 2022

The Dog Aging Project is a long-term longitudinal study of ageing in companion dogs. A commonly held belief is that a dog ages 7 times faster than humans, so a 1 yearold dog is comparable to a 7 year old child. But the reality is that large breeds age ten times quicker than humans, and some small dogs can be age slower than the supposed 1:7 human year to dog year ratio. Now scientists are studying the genomes of 10,000 dogs in a long-term study called the Dog Aging Project. Researchers hope they will learn why "supercentenarian" dogs that live to 20 can survive so long and use these findings to improve canine and human longevity.

Genes, environment, and DNA sequence

VPN, February 8th 2022

In the last half century, the field of epigenetics has emerged as a transformative collection of ideas & methods. Epigenetics is not just a step on the immutable path between environmental risk factors and disease; it is also a measure of how behavioral & environmental variables can influence health in both negative & positive ways. As always, the available evidence for dogs is considerably less robust. Environmental stressors harming health have been shown to influence DNA methylation & other epigenetic markers in dogs. Other variables associated with poor health, such as age & obesity, also have measurable effects on such markers in dogs. And many epigenetic changes associated with the development of specific diseases, such as cancer, occur in dogs in patterns similar to those seen in humans & other animals. Drugs to alter DNA methylation are already approved for use in human cancer patients & some of these are being studied in canine oncology. Epigenetic research is also ongoing to identify environmental risk factors for behavioral problems, to evaluate the impact of nutritional interventions of health, and in pursuit of many of the other potential insights & benefits epigenetics can offer.

STUDY

Evaluation of postsurgical efficacy of Chondroitin Sulfate in dogs with arthrosis of knee secondary to tear of the anterior cruciate ligament (AVEPA)

The tear of the anterior cruciate ligament (ACL) is a common knee injury of the dog. ACL triggers the loss of stability and mobility and eventually leads to osteoarthritis (OA). ACL can affect dogs of any breed and age. There are different surgical techniques for ACL repair. However, secondary OA is progressive and irreversible but varying in intensity. In the present unicentric clinical trial, ACL replacement was performed and post surgical evaluation of the efficacy of Chondroitin Sulfate (CS) in dogs with secondary OA was studied. The dogs were randomized in two groups: one group received placebo and the other CS (41 evaluable cases: 19 control and 22 CS). The clinical evolution of the operated knee joint was determined at 15, 60 and 120 days, by physician examination of pain, articular instability, mobility, clinical signs of OA and radiological progression of arthrosis using the Bioarth scale. Statistically significant differences were observed in both groups for articular mobility, clinical signs and progression of OA ($p < 0.05$), results being more Favourable in dogs treated with CS. No adverse events related with CS were reported during the study. These results suggest that treatment with CS in dogs that have been operated for tear of the ACL, favour the recovery of mobility, improve the clinical signs and slow down the progression of OA.



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