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### **Osteoarthritis** **Linda Aronson, DVM**

Osteoarthritis (OA) afflicts millions of dogs each year, and as active animals our Beardies are at high risk of showing signs especially the older they get. Poor conformation and joint injury are the major causes of OA in dogs. One of the first things we can do is to make sure that the parents have good conformation and that the puppy does too. Hip structure should be evaluated either via PennHIP as early as 6 months of age, or else by OFA at around age 2. Unfortunately, OFA elbow analysis is of little value, but the good news is signs of elbow dysplasia are far less easily masked than hip dysplasia as there are no powerful muscles to support inadequate joints.

We can't protect our puppies and older dogs from all joint traumas because they need to lead the active lives for which they were bred. While we can avoid jumping and running immature skeletons on hard surfaces deliberately, our puppies have other ideas. My three year old Beardedie adores vertical leaps and has been able to rise over 6 feet since she was 8 weeks old. However, I don't ask her to do this, as I did with my almost 14 year old when he was young, and I will have to rely on her good structure to hold up. Do watch out for high speed collisions with other dogs and inanimate objects like walls and trees as these may sadly come back to haunt you later.

Unfortunately, dogs are pretty good at hiding pain, and it's often not until there is serious damage that an OA flare up catches owner attention. Even then it may just present as a mild limp. However, a thorough work up now may slow down progression and provide pain relief for the affected dog. It's a sad fact that we generally under-treat pain. Be sure to rule out tick-borne and autoimmune diseases as causes of joint pain.

One of the major contributors to OA is obesity. It's never a good thing, but so much worse if a dog has OA. What about exercise? Consistent low impact exercise is much better than high impact. Weekend warriors and couch potatoes are at much greater risk of joint damage than dogs that get regular consistent work outs. Swimming, walking and running on forgiving surfaces and regular massage are all great for our dogs. Remember if your dog is an athlete to stretch him before and after intense exercise rather than expecting him to perform with cold, tight muscles.



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As well as its role in preventing obesity, nutrition can play an important role in preventing and treating OA. Diets high in omega-3 and low in omega-6 fatty acids alter cell membranes and reduce the inflammatory response that results in pain. While glucosamine and chondroitin are helpful, the optimal dose and ratio has not been determined. There is little data to show that they prevent OA, but given that the damage that results in OA probably starts a long time before symptoms become apparent there is an argument to be made for using them to supplement the diets of younger animals. Other “nutraceuticals” have also proven helpful for relieving the pain of OA. It has been my experience that what works for one dog may not necessarily work for another and that some experimentation may be necessary. Needs may also change over time, and switching supplements may prove helpful. While initially being used to treat flare-ups of pain, some dogs will need to be maintained on nonsteroidal anti-inflammatory drugs (NSAIDs). We have heard a lot about how dangerous these drugs are, but for most animals they are safe and provide a vastly improved quality of life. In some cases opiate analgesics may also be helpful.

Keeping your Beardies in good musculoskeletal alignment throughout their lives is great preventative medicine. Chiropractic adjustments done in a timely fashion can spare a lot of misery as the dog ages. Acupuncture can provide excellent pain relief, as can a lot of massage and other manipulative processes.

Optimally, of course, we would love to be able to cure and reverse the damage to the joints, not just try to reduce the pain. In the past we tried injecting steroids into the joints, but these ultimately cause more cartilage destruction. Polysulfated glycosaminoglycans (PSGAG – Adequan) injected intramuscularly inhibit the enzymes that break down cartilage thereby reducing its resistance to compression and resiliency. They also act as precursors for formation of new cartilage; increase the viscosity of joint fluid by increasing hyaluronate concentrations in the joint, while reducing levels of prostaglandin E<sub>2</sub> – released in response to joint injury and causing inflammation and ultimately pain. In horses PSGAG may be injected straight into the joint, but this is not done in dogs. A new treatment which is beginning to be seen more and more is the use of stem cells grown from fat harvested from the recipient dog and injected into the joints. Because they are specific to the dog there is no rejection. The stem cells grow new cartilage, and the results are quite remarkable in many cases. The biggest



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downside is currently the expense, but we can only hope that this will eventually fall.

Perhaps in the not too distant future we will be able to restore our dogs' and our own arthritic joints to optimal function; a very exciting prospect.