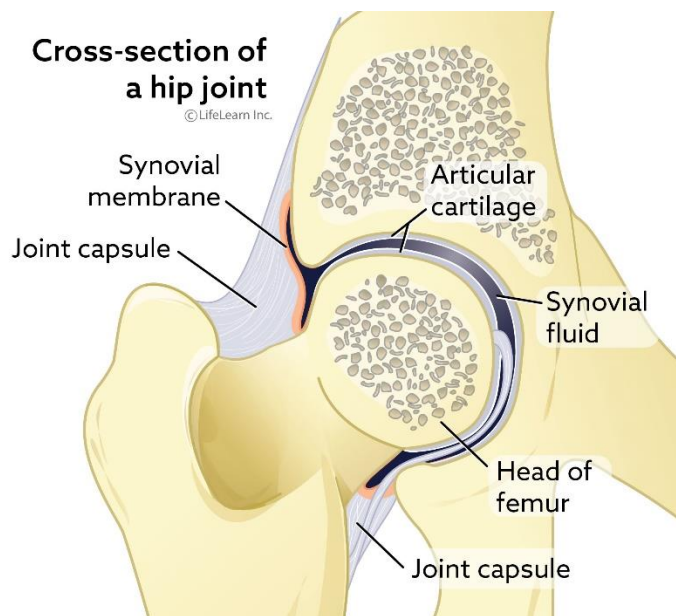


Degenerative Joint Disease in Dogs

What is a joint?

A joint connects two or more bones together. Most joints in the body are mobile, allowing the bones to move in relationship to each other. The vast majority of moveable joints are held together by an outer layer of tough fibrous tissue called the **joint capsule**. The thin inner lining of the joint capsule, called the **synovial membrane**, produces joint fluid (synovial fluid) to lubricate the



joint. The ends of the bones are covered by a smooth layer of cartilage, called **articular cartilage**. The joint fluid and the articular cartilage reduce friction within the joint, allowing it to move smoothly. The articular cartilage does not contain any blood vessels to supply it with nourishment or oxygen. Instead it receives some of its nutrients from small vessels in the bone that lies beneath it and the rest by absorbing nutrients from the joint fluid.

What is degenerative joint disease (DJD)?

As our pets age, the tissues lining the joints may deteriorate and degenerate. Degenerative joint disease (DJD) refers to **arthritis** or **osteoarthritis**, which is the result of the gradual deterioration of the articular cartilage within one or more the joints. Arthritis is a general description for any condition that causes inflammation in the joints (see handout "Arthritis in Dogs").

This smooth resilient articular cartilage degenerates, becoming brittle over time. With severe DJD, the degenerated cartilage may actually split away from the bone and become loose within the joint. DJD can occur following a number of joint diseases, including infection, and may develop after bone or joint injury or surgery. Obese dogs are more likely to develop DJD, as a direct result of the mechanical stress that excessive weight puts on the joints.

Although DJD is not usually an inflammatory disease, mild inflammation plays a part in causing clinical signs. When the cartilage cells become damaged, they release substances that result in inflammation, causing pain and further damage to the cartilage. Once DJD begins, it can become a vicious cycle. As the degeneration continues, the joint becomes more unstable; scar tissue and/or bony growths will form within the joint in an attempt to stabilize it, contributing further to the DJD.

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What are the signs of DJD?



The most obvious sign of DJD in dogs is lameness; however, dogs give us many signs other than limping that indicate they are suffering from arthritic pain including:

- sleeping more
- slower on walks or not wanting to walk as far
- resent being touched or brushed in certain areas
- accidents in the house or walking while urinating or defecating
- taking more time standing up from a lying down position
- difficulty getting into the car
- carrying their heads or tails lower than normal
- reluctance to go up stairs; jumping on the bed; or furniture, or complete avoidance of things
- sitting with their hind legs stretched out (lazy sit)

Is there anything I can do to prevent DJD?

Many dogs with from DJD are overweight. If your dog is overweight, it is imperative that he or she loses weight in a controlled manner. Low or restricted calorie diets are helpful in preventing excessive weight gain and for losing weight. There are many weight-reducing diets available that work very well for most dogs. Your veterinarian can help you design an

appropriate weight loss program for your pet (see handout "Obesity in Dogs").

How is DJD treated?

Most of the damage caused by DJD is irreversible. The goals of treatment are to improve the quality of life by minimizing pain and discomfort and to delay the progression of disease. The quality of life for a dog with DJD can be improved by modifying the environment so that the dog can get around more readily and by providing pain relief. Fortunately, modern analgesics (anti-inflammatory and pain-relieving medications) can effectively control pain with few side effects. In addition, medications and nutritional supplements are available that can slow the progress of the disease and promote cartilage healing.

You should not give your pet any pain reliever prescribed for human use unless prescribed by your veterinarian. Many over-the-counter medications and human prescriptions can cause serious problems and side effects.

NSAIDS (non-steroidal anti-inflammatory drugs) can be used to control inflammation in the joints and provide pain relief. Drugs used include meloxicam (Metacam®), carprofen (brand name Rimadyl®), deracoxib (brand name Deramaxx®), firocoxib (brand name Previcox®), and robenacoxib (brand name Onsior®). Prior to administering any pain medication to your dog, your veterinarian will recommend blood tests to ensure that his liver and kidneys are functioning adequately and that there are no other underlying problems that could be worsened by using these drugs. Your veterinarian will also recommend periodic monitoring of your dog's liver and kidney function once treatment for this condition has been started.

Several other medications are used to treat different aspects of pain caused by DJD.

- **Gabapentin** is an effective drug for relieving pain, especially when given with other pain medications and can often allow decreased doses of other medications. It is used in human medicine to treat neuropathic pain as well as seizures. It can often be used as a single agent for early arthritic pain.
- **Tramadol** is a mild relative of morphine without all the side effects seen with morphine. It works very well on its own or in combination with other drugs to provide pain relief. It rarely can cause constipation or vomiting.

- **Amantadine** is a pain reliever that acts to block the sensation of pain at the nerve pathways. It is not effective as a sole medication but increases the pain-relieving effect of other medications.

If you think your pet's medication is causing any side effects, please discontinue its use and contact your veterinarian.

Can the progression of DJD be slowed?

Ongoing arthritis research has led to the development of drugs and supplements that are effective in controlling the destruction of cartilage in dogs with DJD. They work by:

- improving the blood supply within the joint
- preventing the formation of some of the harmful enzymes that continue the destruction of cartilage within the joint once it has started
- promoting the formation of fibrous tissue to heal damaged areas, and
- promoting cartilage repair.

What supplements and other medications can be used to provide pain control in arthritic dogs?

Your veterinarian may recommend injections of chondroprotectants (brand names Adequan® or Cartrophen®). These medications promote cartilage repair, help slow down cartilage damage, aid in other aspects of joint repair, and stimulate the production of more joint lubricating fluid.

Nutraceuticals are nutritional supplements rather than pharmaceuticals (or drugs). Some of the more popular and evaluated supplements and nutraceuticals include glucosamine (a glycosaminoglycan), chondroitin sulfate, and omega-3 fatty acids DHA and EPA. For more information on these supplements, see handouts "Chondroitin", "Glucosamine" and "Nutraceuticals for Joint Support in Dogs with Osteoarthritis".

Omega-3 fatty acids are powerful antioxidants that help relieve inflammation in arthritic joints of dogs. More information about omega-3 fatty acids can be found in the handout "Fatty Acid Supplements". Their usage in veterinary medicine is growing in popularity and they are a useful treatment in conjunction with other medications for any patient experiencing DJD or osteoarthritis.

Other studies and numerous anecdotal cases suggest these products are beneficial, and that they are free of side effects. Numerous products that contain these compounds, along with other trace elements and vitamins,

and are palatable to dogs are commercially available. Some of these products are available over the counter without a prescription. Since supplements are not highly regulated at this time, some supplements may not contain the labeled amount of ingredients and differences in quality may exist between products made by different manufacturers. Your veterinarian may have preferred brands of these supplements that he or she will recommend.

What other treatments are available for treating DJD in dogs?

Rehabilitation is a rapidly growing area of veterinary medicine similar to human physiotherapy. Certified rehabilitation practitioners offer many different treatments for arthritis including laser therapy, hydrotherapy, ultrasound, and muscle therapy. Acupuncture may also be an effective tool for pain relief.

Stem cell therapy and platelet rich plasma (PRP) injections are also being used to treat arthritic patients in some veterinary clinics and referral hospitals.

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