

## ***MEDVET CLINICAL REVIEW***

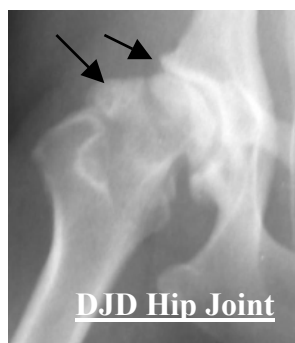
# **Medical Management of Degenerative Joint Disease**

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Degenerative joint disease (DJD), commonly referred to as arthritis or osteoarthritis, is a damaging process that occurs in joints as a result of trauma, infection, aging, instability, malformation, or just “wear and tear”. Rarely does DJD occur without an apparent underlying cause. There are many causes of DJD, but the changes that occur in any affected joint are similar.

Every true joint in the body consists of bone that is covered by cartilage and bathed in clear slippery joint fluid. Cartilage is thin and spongy and when coated with the joint fluid, provides a smooth friction-free surface ideal for maintaining joint mobility and comfort. Sheets of tissue called joint capsule encapsulate the bone, cartilage, and fluid. This tough capsule produces joint fluid and adds stability of the joint. It is all of these components that are ultimately altered as a result of DJD.

The process by which DJD occurs is very complex and involves a wide variety of body chemicals, tissues, and biomechanics. Simplified, DJD is a series of cascading events resulting from any combination of the aforementioned causes. Initially, damage to the fragile cartilage lining causes it to recede and areas of underlying bone are exposed. Unlike cartilage, bone is a poor shock absorber and does not provide the same smooth gliding surface. In addition, the normally abundant joint fluid becomes thinner and is produced in smaller amounts, diminishing joint lubrication. The joint capsule is infiltrated with scar tissue becoming thicker and less compliant, resulting in diminished joint mobility. Bone spurs (osteophytes) are reactive protrusions of bone formed around and within the affected joint. These boney changes can be seen with an X-ray and are the most obvious indication that DJD is present. All of these changes ultimately combine to produce varying degrees of discomfort, decreased joint flexibility, and associated lameness.



Notice the formation of bone spurs (arrows) and the resultant abnormal X-ray appearance of the DJD joint compared to the normal hip joint.

Unfortunately, DJD is an irreversible process. However, in many cases proper medical or surgical management can slow/minimize disease progression and greatly improve your pet’s quality of life. The proper treatment plan for DJD is variable and depends on a many factors including: patient age, size, activity level, and body condition, joints(s) involved, cause of the DJD, and the severity of the problems experienced. Because DJD is a result of an underlying joint abnormality, identification of the specific problem is critical.

Medical management of DJD is typically reserved for patients that have mild to moderate or intermittent symptoms, are awaiting surgical intervention, are not surgical candidates, or have an underlying problem that is not amenable to surgery. The goal is to manage the patient’s symptoms and minimize the DJD progression over time. Weight management, proper exercise, medication, and supplements are all components of medical management. Complimentary or holistic therapies can be

considered but should be used in conjunction with, not instead of, proven traditional treatments. Potentially effective complimentary modalities include acupuncture, herbal supplements, and cold-water fish oils. Any holistic medication or treatment should be used with caution, as most do not have scientific data to back up efficacy claims.

**Weight Management:** Since the majority of veterinary patients with DJD are overweight, the first and most important part of any treatment plan is weight loss. Excess body weight results in increased stress on affected joints, creating a viscous cycle of reduced activity, muscle loss, and further joint degeneration. Many obese pets will respond dramatically to weight loss alone and may not require any additional treatment! Proper nutritional management and a weight loss plan are critical. Body weight goals need to be set, weight reduction diets used, and the feeding of “treats” and human food must be curtailed. A weight loss regime should ideally be under the supervision of a veterinarian.

**Proper Exercise:** Proper exercise can greatly improve joint mobility, comfort, and function while also helping to maintain proper body weight. Pets with DJD are often either over or under-exercised. Sporadic strenuous “high impact” activity (rough-housing, chasing balls, etc.), while enjoyable for your pet, does little to maintain muscle mass and stresses unhealthy joints resulting in discomfort. Inactivity results in muscle loss, weight gain, decreased joint mobility, and increased “stiffness”. Consistent “low impact” activity (walking on a leash on grass, jogging, swimming, etc.) is much better. Ideally, activity is broken up into multiple short sessions per day rather than a single long one.

Physical rehabilitation is a well-established modality for treating DJD in human patients and has the same indications and benefits for pets as well. Aquatic treadmill therapy, hydrotherapy, and low impact resistive exercises can improve joint mobility, enhance cartilage health, build muscle mass, and increase joint comfort all. Therapeutic exercise also decreases anxiety and produces a positive emotional state for pets otherwise restricted by DJD.

**Medication:** Nonsteroidal anti-inflammatory drugs (NSAIDs) are the medication of choice for treating patients suffering from DJD. This class of drugs works by blocking enzymes in the body that produce pain, swelling, and other effects in response to DJD. Examples include aspirin, carprofen, etodolac, and miloxicam. New generation NSAIDs also enhance cartilage healing and health and can be used long-term or on an as needed basis. The lowest effective dose given on a consistent basis often produces the best results. These drugs can have side effects but are generally well tolerated and are effective at alleviating the pain and stiffness associated with DJD.

**Supplements:** There is increasing interest in the potential benefits of “joint supplements” for treating DJD. Glucosamine, chondroitin sulfate and manganese ascorbate are the most commonly used oral supplements and are also referred to as “nutraceuticals”. Their proposed mechanism of action is to reestablish the cartilage’s ability to repair itself in the face of DJD by supplying a source of critical building block materials. These materials, supplied in abundance, in theory enhance the joint’s capacity for repair. Unfortunately, the FDA does not regulate nutraceuticals, therefore composition and result claims are difficult to verify. To date, there have been no studies that conclusively support the efficacy claims made by manufacturers. At the very least these compounds can do no harm and anecdotal reports of significant benefits are widespread. Owners are encouraged to try these products and judge for themselves.

Although considered a drug not a supplement, Adequan®, is similar to the other nutraceuticals in its mechanism of action. It is an injectable form composed of polysulfated glycoaminoglycans and has virtually no side effects. Numerous clinical trials have shown its ability to help unhealthy cartilage heal and grow. This preparation appears to offer the most benefit of all the “supplements” and can be used in conjunction with NSAIDs. Its use should be considered in any DJD medical management protocol.



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