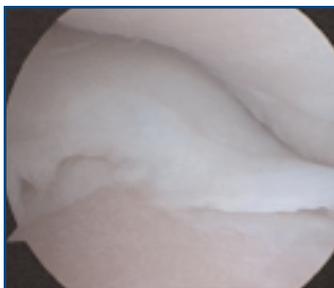


# CUTTING EDGE

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**E**lbow dysplasia is a common cause of forelimb lameness in large and giant breed dogs. Breeds that are overrepresented include the Labrador Retriever, Golden Retriever, Chow Chow, Rottweiler and Bernese Mountain Dog.

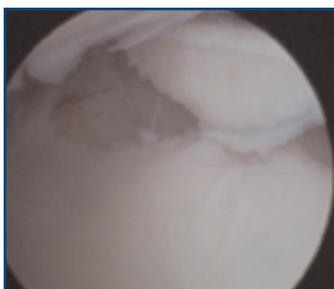
## ELBOW DYSPLASIA IN LARGE DOGS



above: Cartilage loss

Elbow dysplasia includes a group of specific diseases, including primary incongruity of the elbow joint, fragmented coronoid process (FCP), ununited anconeal process (UAP), and osteochondrosis (OCD) of the humeral condyle. The common themes surrounding this group of diseases are that they all appear to have both a genetic and environmental influence, and all will ultimately lead to the development of degenerative joint disease (DJD).

below: Loose fragments



Clinical signs related to elbow dysplasia most commonly occur in the young, rapidly growing large breed dog. Forelimb lameness, sometimes bilateral, is usually observed by the client. The client often times mistakes the lameness for a **sprain**. A stiff, stilted gait is often observed, along with pain noted upon manipulation of the elbow joint, especially in full extension. With severe cases, marked elbow effusion is often noted both on palpation and visual observation. With onset of moderate to severe DJD, flexion of the elbow is limited by periarticular fibrosis. In young dogs, the key differentials include the

growing pain diseases including panosteitis and hypertrophic osteodystrophy.

Diagnosis of elbow dysplasia is most commonly done with orthopedic evaluation and survey radiographs. An ununited anconeal process shows up readily on radiographs, and is primarily found in Shepherds. Identifying a fragmented coronoid process, or condylar OCD lesion is more challenging. In many dogs, the primary lesion is not seen on routine radiographs, but secondary signs of DJD are noted. The first radiographic abnormality we usually see is roughening of the dorsal aspect of the anconeal process of the ulna. In patients with subtle lameness, or inconclusive radiographs, advanced imaging may be required, including CT evaluation or nuclear bone scan. CT evaluation allows in depth examination of the joint including identification of loose bone fragments, such as FCP or OCD of the humeral condyle. Bone scintigraphy may be used to localize the source of pain when forelimb lameness is subtle and pain cannot be found in the elbow during the orthopedic examination. Bone scans are economical, easy to perform, and one leg can be compared with the other to look for **hot spots** of radioactivity.

Treatment of elbow dysplasia includes both medical and surgical management. Medical therapy for elbow dysplasia focuses on minimizing pain and maintaining a good quality of life. Body weight must be closely monitored, and if obesity is present,

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**Dallas**  
4444 Trinity Mills Rd., Suite 203  
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T 972.267.8100  
F 972.267.8700

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4651 N. Belt Line Rd.  
Mesquite, Texas 75150  
T 972.226.3399  
F 972.226.0800

**Plano**  
10225 Custer Rd.  
Plano, Texas 75025  
T 214.667.2233  
T 214.667.2250

**Southlake**  
2340 W. Southlake Blvd.  
Southlake, Texas 76092  
T 817.379.5444  
F 817.379.0222

a calorie restricted diet is prescribed. Conservative management focuses on the use of cartilage protectants (glucosamine/chondroitin and fatty acid therapy), pain medications, such as non steroidal antiinflammatories, and occasional use of narcotics for advanced pain. Most pet food companies currently provide a **joint** formula which contains many cartilage friendly products. Activity is limited to low impact exercises, such as leash walking or swimming, but some type of exercise is definitely encouraged. We encourage owners to avoid jumping activities, and any exercise that requires the **stopping, planting and turning** activities seen while chasing balls, agility drills, etc. Consultation with a physical therapist may also be considered if response to therapy is slow.

Ununited anconeal processes are still treated with an **open** approach and surgical removal of the loose fragment; however the remaining disorders are treated arthroscopically. Bilateral arthroscopic procedures can be performed concurrently to minimize patient morbidity and owner expense. The goals of elbow arthroscopy are to determine the extent of articular cartilage damage, identify the lesion (FCP,

OCD flap), and remove any loose or diseased bone/cartilage fragments. Most often, two small portals are created for placement of the arthroscope and hand instruments. Visualization of the joint is greatly enhanced using a fiber optic arthroscope. The scope provides magnification of the articular structures, along with enhanced lighting of the field of view.

Diseased bone fragments are removed a variety of ways, including a powered shaver, small curettes, or small grasping instruments. Arthroscopy is also able to provide an accurate indicator of long term prognosis following surgery, based upon the degree and extent of articular cartilage damage. Often times, the loose fragment of bone within the joint can cause a large degree of full thickness cartilage damage along the adjacent humeral condyle. Once the protective cartilage layer has been worn away, the nerve endings located within the bone become exposed, and pain ensues. In patients with a large degree of cartilage loss, prognosis for improved comfort after the surgery is guarded. Long term medical management is recommended. If we can safely remove the fragmented coronoid process or OCD flap, and if

the cartilage damage is minimal, then prognosis for improved comfort after surgery is good.

In cases where we do not find any loose bone or cartilage fragments, then we are left with a diagnosis of primary incongruity. Unfortunately, there is no definitive treatment for incongruity of the elbow. Corrective osteotomies of the ulna have been performed in an attempt to smooth the articular surface but results have been unpredictable. The abnormal **wear and tear** that occurs with incongruity between the humerus, ulna and radius is not easily modified, and degeneration of the joint slowly progresses with time. If incongruity is found, roughened and abnormal areas of the cartilage can be addressed with the scope. The scoping procedure is useful in these cases in that it does provide an accurate diagnosis and prognosis for the owner.

The take home message for owners of dogs with elbow dysplasia is that arthroscopy can benefit a large percentage of these patients. However, we emphasize to the owners that scoping is not a **cure all**, and continued medical management is necessary for the majority of the patients for the remainder of their lifetime.

### Our Doctors

Robert D. Barstad, DVM, MS  
Small Animal Surgery

Scott G. Bertrand, DVM  
Diplomate American College  
of Veterinary Surgeons

Julie M. Ducoté, DVM  
Diplomate ACVIM (Neurology)

Peter J. Early, DVM  
Diplomate ACVIM (Neurology)

Joanne N. Franks, DVM  
Diplomate American College  
of Veterinary Surgeons

Darryl E. McDonald, DVM, MS  
Diplomate American College  
of Veterinary Surgeons

Robert M. Radasch, DVM, MS  
Diplomate American College  
of Veterinary Surgeons

H. Fulton Reaugh, DVM, MS  
Small Animal Surgery

Brent E. Wilkens, DVM  
Diplomate American College  
of Veterinary Surgeons

Katherine L. Wells, DVM  
Small Animal Surgery

Nancy Zimmerman-Pope, DVM, MS  
Diplomate American College  
of Veterinary Surgeons