

HUMERAL CONDYLAR FRACTURE

(Medial &/or Lateral)



American Cocker Spaniel



French Bulldog



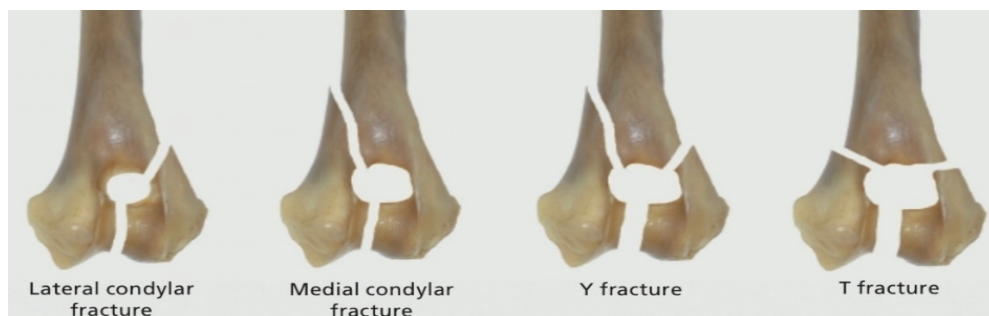
English Spring Spaniel

****At Risk Breeds****

WHAT ARE HUMERAL CONDYLAR FRACTURES?

Fractures of the humerus (upper arm bone) are common in dogs & cats with approximately half of all humeral fractures occurring in the distal (lower) portion of the bone, at or near the elbow joint. The vast majority of distal humeral fractures involve the elbow joint & are classified according to their anatomic location. The end of the humerus that forms the upper part of the elbow joint is composed of 2 halves, called the medial & lateral condyles, which are separated down the middle in young dogs by a growth plate that normally fuses upon reaching adulthood. Distal humeral condylar fractures are much more common in dogs than they are in cats.

Lateral condylar fractures occur when forces concentrated on the lateral portion of the elbow joint cause breakage along this vertical growth plate & through the lateral portion of the bone above it. This type of fracture is most common in young dogs & may occur with minimal trauma as a result of the relative weakness of the growth plate. It is also NOT uncommon to see this type of fracture in mature dogs, with spaniel breeds being at increased risk due to a genetic predisposition to incomplete growth plate closure in this location. While lateral condylar fractures are most common, sometimes the medial condyle or both condyles may be fractured (called a “Y” or “T” fracture).



HOW ARE HUMERAL CONDYLAR FRACTURES DIAGNOSED?

Fractures of the humeral condyles are diagnosed by taking x-rays of the elbows. Because of the discomfort caused by this injury & the need for very precise positioning, sedation & pain medication are necessary to take diagnostic x-rays. Occasionally, more advanced forms of diagnostic imaging of both elbow joints, such as a CT scan, can provide additional information that will be necessary for treatment.

HOW ARE HUMERAL CONDYLAR FRACTURES TREATED?

Surgery is the best treatment for humeral condylar fractures. Because these fractures run through the joint surface, perfect alignment of the fractured fragment with inter-fragmentary compression is necessary in order to restore elbow function. The operation involves precisely realigning the bone fragments & stabilizing them using bone plates, screws & pins.

Fracture repair can be challenging due to the involvement of the joint (& the consequent need to meticulously reconstruct the fracture to minimize the future development of osteoarthritis (OA), the small size of the fragments & the underlying weakness of the growth plate that can affect the healing process after a fracture. However, with appropriate surgical techniques from a veterinarian with extensive humeral condylar fracture repair & surgery experience, most dogs are comfortable after surgery & can start to bear weight on the limb in as little as 1 or 2 days.

Transcondylar Screw + K Pin(s)



Transcondylar Screw + Plate



WHAT AFTERCARE IS NEEDED?

Most dogs can go home as soon as the day after surgery with only a light bandage on the limb. When a dog goes home after surgery, one of our physical rehabilitation technicians will demonstrate the passive & active exercises that should be performed at home with the patient. Short walks on a short leash can be started immediately, but all unrestricted or unsupervised exercise, such as running or jumping needs to be avoided. As with most fractures, pain medications are usually given for a week or 2. Dogs that have undergone surgery will need to be taken to their vet for a check-up one week & then 2 weeks after surgery to have their sutures/ stitches removed.

Regular physical rehabilitation therapy appointments are a beneficial addition to the at-home exercises in patients healing after surgical repair of an elbow fracture. At these appointments, modalities such as laser therapy & underwater treadmill are used to facilitate healing & improve joint function & limb use.

We typically plan to reevaluate dogs about 4-6 weeks after surgery with a physical exam & x-rays to assess limb function & bone healing. At this point, if healing is progressing well, a gradual increase in physical activity may be initiated. Typically if all goes well, a dog can be expected to return to full physical activity by 4-6 months post-injury.

WHAT ARE THE RISKS & POSSIBLE COMPLICATIONS OF HUMERAL CONDYLAR FRACTURES IN DOGS?

Although surgery is highly successful in the majority of patients, there are potential risks & complications. These may include implant breakage, infection & poor bone healing. Long term, some degree of OA is practically inevitable, but in many cases, this doesn't cause any major problems.

All aspects of your dog or cat's care, including the risk of any underlying complications will be carefully explained by your veterinarian & surgeon in detail during your initial consultation with your veterinarian & surgeon before any treatment is started.

WHAT IS THE PROGNOSIS FOR HUMERAL CONDYLES FRACTURE SURGERY IN DOGS?

The prognosis following surgery for fractures of the outside (lateral aspect) of the humeral condyle is generally good, although because of joint surface involvement, some degree of OA will eventually develop in the elbow joint.

Home Preparation for Your Pet's Home Recovery

HOME PREPARATION

Prior to your pet coming home, you should determine where you are going to confine your dog during this post-operative period. Making your dog as comfortable as possible is as important as having a good rehabilitation/recovery plan. As your dog's mobility is to be restricted, we recommend that you utilize the following:

- A dog crate that is large enough that he/she can stand up & turn around

(for only pets that are NOT self-destructive or anxious being kennel for long period of time).

- A gated off area such as the kitchen (for rooms without furniture for patient to jump on)
- Confinement to a room (for rooms without furniture for patient to jump on)

Surfaces such as hardwood floors, tile, linoleum, etc. can be very slippery. We suggest that you place some throw rugs with rubber backing or yoga mats on these surfaces to make it easier for your dog to walk around.

HOUSE RULES

- No jumping at all! No jumping on/off the bed/couch/furniture/windows! No jumping on you! Overextension of the elbow could compromise the repair of your dog's leg & delay the healing time.

- Stairs: For the first 2 – 4 weeks following surgery, stairs should be limited to a short flight to get in or out of the house. Your pet needs to be on a short leash & slowly guided up & down 2 – 3 stairs. If you have stairs in your home, limit your dog's access to them with something like a baby gate to prevent unsupervised use of stairs. Longer flights of stairs should NOT be used for strength training but are allowed with supervision after the 4-6 weeks post-surgery as long as your dog is consistently using their leg & is NOT allowed to run or jump up the stairs.

- No active play! Refrain from active play with your dog & do NOT allow him/her to play with other dogs until your veterinarian tells you otherwise (likely after the 4-6 week post-operative x-rays to confirm bone healing).

POST FRACTURE SURGERY

POST-OPERATIVE CARE & ASSESSMENT

Post-operative radiographs are taken to evaluate alignment, apparatus & apposition. Post-operative pain management is indicated. Activity should be restricted to leash walking & physical rehabilitation until the fracture has healed. Physical rehabilitation encourages controlled limb use & optimal limb function after fracture healing & is particularly important for fractures involving the joint. Care must be taken to develop customized protocols for each patient depending on location of the fracture, stability & type of fracture fixation, potential for healing, abilities & attitudes of the patient & willingness of the client. Radiographs should be repeated at 4-6-week intervals until fracture bridging is observed. Lag screw(s) & plate(s) are left in place unless they cause any problems.

COMPLICATIONS

Proximal physal fractures of the humerus - elbow generally heal quickly; however, premature closure of the physis generally occurs & may affect bone length in immature dogs. K-wires & small pins may migrate. Damage to the physis from Salter IV fractures of the lateral portion of the condyle & subsequent fixation does NOT appear to cause shortening of the humeral-elbow diaphysis or distortion of the condyle. Intra-articular fracture may result in post-operative degenerative joint disease, although this is minimized with careful reduction & rigid fixation. Supracondylar & condylar fractures of the humerus may have prolonged healing periods, with the implant subjected to moderate stresses for extended periods. Bone resorption & implant loosening may eventually result. Fatigue breakage of implants can occur. Distal condylar fractures generally heal quickly in immature dogs, but healing is often delayed in older dogs. Decreased range of motion of the elbow often occurs after surgery.

** It is very important to start the at home physical rehabilitation exercise as follow in the chart below.**

For Young/Juvenile Dogs & Cats - exercise program start from week 1 to 6.

For Adult (middle to senior age) Dogs & Cats - exercise program start from week 1 to 12.

At Home Physical Rehabilitation Exercise Recovery Program

Rehabilitation Protocol for Patient With a ELBOW CONDYLAR FRACTURE

Treatments/Modalities	Day 1-7	Day 7-21	3-8 Wk	8-12 Wk and Beyond
Pain medications	As directed	As directed	PRN	PRN
Cryotherapy	10-15 min 3 times daily before walks or exercises First session immediately after surgery	Use after exercise for 15 min	PRN after exercises	PRN after exercises
Heat therapy		Apply heat to the adjacent muscles 10 min before PROM or exercise	As before 10 min twice daily	PRN
Massage	Twice daily for edema from toes toward heart	Continue twice daily	Massage adjacent muscles before active exercise	Massage adjacent muscles before active exercise

PROM	Gentle joint flexion/extension 10 reps, 3–4 times daily Elicit flexor reflex by toe pinching	Continue flexion and extension with mild resistance 10–15 reps 3 times daily	Continue PROM as previously described up to 4 wk	
Laser therapy	Daily or every other day for first week	Every other day for first week then twice weekly	PRN	
Walks	At 5 d start slow controlled leash walks for 5 min twice daily to encourage active ROM	Increase each walk by 1–3 min each week	Gradually increase to 10–15 min twice daily	20– to 30-min walks twice daily including 10 min of incline work as long as healing has taken place

Underwater Treadmill ^a		10–15 min once daily after day 10—incision healed	15–20 min daily	20–30 min 3 times weekly
Stairs ^a			Likely 6+ weeks after surgery Start with one flight and add one flight per week	Work up to 5 flights twice daily
Cavalettis ^a			5–10 reps over 5 rails once daily	10–15 reps over 5 rails twice daily
Swimming ^a			10–15 min with breaks daily	20–30 min once to twice daily

Please see special instructions for Distal Femoral Physeal **Fracture** regarding bandaging and rehabilitation.

PRN, As needed; *PROM*, passive range of motion; *ROM*, range of motion.

If you would like assistance with your pet's exercise recovery, please let your veterinary team know so we can provide a referral to a local veterinary physical rehabilitation center.

If you have any questions, please feel free to ask your primary veterinarian &/or veterinary surgeon.

TREAT Veterinary Surgery Service

Dr. Le-Nguyen, DVM (Practice Limited to Surgery)

(916) 230-8103

treatveterinarsurgeryservice@gmail.com

<https://treatveterinarsurgeryservice.com>