

# SHOULDER JOINT—LIGAMENT AND TENDON CONDITIONS

## BASICS

### OVERVIEW

- The shoulder joint is a “ball-and-socket” joint, made up of bones (the scapula or shoulder blade and the humerus or upper bone of the front leg) that is supported by ligaments and tendons
- A “ligament” is a band of connective or fibrous tissue that connects two bones or cartilage at a joint; a “tendon” is a band of connective or fibrous tissue that connects a muscle to a bone
- Shoulder-joint ligament and tendon conditions make up the majority of causes for lameness in the canine shoulder joint, excluding osteochondritis dissecans (condition characterized by abnormal development of bone and cartilage, leading to a flap of cartilage within the joint)

### SIGNALMENT/DESCRIPTION of ANIMAL

#### Species

- Dogs

#### Breed Predispositions

- Medium- to large-breed dogs

#### Mean Age and Range

- Skeletally mature dogs 1 year of age or older
- Usually 3 to 7 years of age

### SIGNS/OBSERVED CHANGES in the ANIMAL

- Depend on severity and long-term nature (chronicity) of the disease
- Decrease in muscle mass (known as “muscle atrophy”)—consistent finding for all conditions
- Bicipital tenosynovitis (inflammation of the tendon and surrounding sheath of the biceps tendon)—onset usually subtle; often of several months’ duration; trauma may be the inciting cause; subtle, intermittent lameness that worsens with exercise; short and limited swing phase of gait owing to pain on extension and flexion of the shoulder; pain inconsistently demonstrated on manipulation of shoulder
- Rupture of the tendon of the biceps brachii muscle—signs similar to bicipital tenosynovitis; may have sudden (acute) onset due to a known traumatic event; usually subtle, long-term (chronic) lameness that worsens with exercise
- Mineralization of the tendon of the supraspinatus muscle—onset usually subtle; long-term (chronic) lameness that worsens with activity
- Forcible separation (known as an “avulsion”) or fracture of the tendon of the supraspinatus muscle—signs similar to mineralization of supraspinatus tendon
- Deterioration and scarring (known as “fibrotic contracture”) of the infraspinatus muscle—usually sudden (acute) onset during a period of outdoor exercise (such as hunting); shoulder lameness and tenderness gradually disappear within 2 weeks; condition results in long-term (chronic), persistent lameness 3 to 4 weeks later, which is not particularly painful; decrease in muscle mass of the infraspinatus muscle (muscle atrophy); when patient is walking—lower limb swings in an arc away from the body, as the paw is advanced

### CAUSES

- Indirect or direct trauma—likely
- Repetitive strain injury (indirect trauma)—most common

### RISK FACTORS

- Overexertion and/or fatigue
- Poor conditioning before performing athletic activities
- Obesity

## TREATMENT

### HEALTH CARE

- Outpatient—early diagnosis
- Inpatient—long-term (chronic), severe disease requires surgical intervention
- Bicipital tenosynovitis (inflammation of the tendon and surrounding sheath of the biceps tendon)—50% to 75% success with medical treatment; requires surgery with evidence of long-term (chronic) changes and failure of response to medical management
- Rupture of the tendon of the biceps brachii muscle generally requires surgery

- Mineralization of the tendon of the supraspinatus muscle—may be an incidental finding; requires surgery after excluding other causes of lameness and attempting medical treatment
- Forcible separation (avulsion) or fracture of the tendon of the supraspinatus muscle—often requires surgery because of persistent bone-fragment irritation of the tendon
- Deterioration and scarring (fibrotic contracture) of the infraspinatus muscle—requires surgery
- Ice packing (known as “cryotherapy”)—immediately following surgery; helps reduce inflammation and swelling at the surgery site; performed 5 to 10 minutes every 8 hours for 3 to 5 days or as directed by your pet’s veterinarian
- Regional massage and range-of-motion exercises—improve flexibility; decrease loss of muscle mass (muscle atrophy)

#### ACTIVITY

- Medical treatment—requires strict confinement for 4 to 6 weeks; premature return to normal activity likely worsens signs and leads to a long-term (chronic) condition
- Following surgery—depends on procedure performed; your pet’s veterinarian will provide instructions regarding postoperative activity and restrictions

#### DIET

- Weight control—decreases stress placed on arthritic joints

#### SURGERY

- Bicipital tenosynovitis (inflammation of the tendon and surrounding sheath of the biceps tendon)—recommended with poor response to medical treatment and long-term (chronic) disease; goal is to eliminate movement of the biceps tendon within the inflamed synovial sheath
- Rupture of the tendon of the biceps brachii muscle—reattach tendon to the humerus (upper bone in the front leg) with a screw and spiked washer or pass the tendon through a bone tunnel and suture it to the tendon of the supraspinatus muscle
- Mineralization of the tendon of the supraspinatus muscle—surgically cut into the tendon; remove the calcium (mineral) deposits
- Forcible separation (avulsion) or fracture of the tendon of the supraspinatus muscle—remove the bone fragment(s)
- Deterioration and scarring (fibrotic contracture) of the infraspinatus muscle—surgical division of the tendon and removal of part of the tendon; the surgeon often will feel a distinct “pop” after removal of the last scar tissue; procedure should allow complete range of motion of the shoulder joint

#### MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

- Nonsteroidal anti-inflammatory drugs (NSAIDs) to decrease pain and inflammation—examples are carprofen, deracoxib, etodolac, meloxicam, tepoxalin
- Medications intended to slow the progression of arthritic changes and protect joint cartilage (known as “chondroprotective drugs”), such as polysulfated glycosaminoglycans, glucosamine, and chondroitin sulfate—may help limit cartilage damage and degeneration; may help alleviate pain and inflammation

##### ***Bicipital Tenosynovitis (inflammation of the tendon and surrounding sheath of the biceps tendon)***

- Injection of steroids (such as prednisolone acetate) into the joint (known as “intra-articular injection”)—initial treatment of choice
- Nonsteroidal anti-inflammatory drugs or steroids administered by mouth (known as “systemic treatment”)—not as effective
- Lameness markedly improved, but not eliminated—give a second intra-articular injection in 3 to 6 weeks
- Incomplete resolution—recommend surgery

#### FOLLOW-UP CARE

##### EXPECTED COURSE AND PROGNOSIS

- Most patients require a minimum of 1 to 2 months of rehabilitation after treatment
- Medically managed bicipital tenosynovitis (inflammation of the tendon and surrounding sheath of the biceps tendon)—often successful after one or two treatments (50% to 75% of cases) with no long-term (chronic) changes
- Surgically treated bicipital tenosynovitis (inflammation of the tendon and surrounding sheath of the biceps tendon)—good to excellent results (90% of cases); recovery to full function may take 2 to 8 months
- Surgically treated rupture of the tendon of the biceps brachii muscle—good to excellent prognosis; more than 85% of patients show improved return to function.
- Surgically treated mineralization of the tendon of the supraspinatus muscle—good to excellent prognosis; recurrence possible, but uncommon
- Surgically treated forcible separation (avulsion) or fracture of the tendon of the supraspinatus muscle—good to excellent prognosis; recurrence possible, but uncommon

- Surgically treated deterioration and scarring (fibrotic contracture) of the infraspinatus muscle—good to excellent prognosis; patients uniformly return to normal limb function

