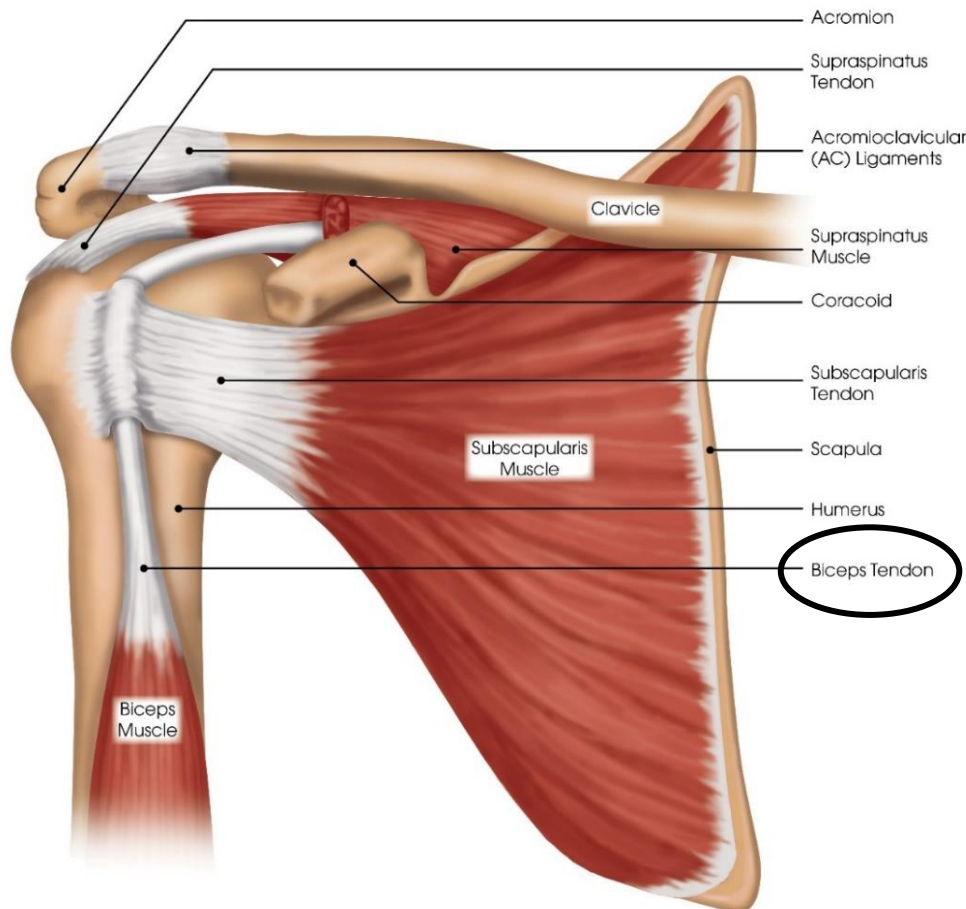


STEVEN CHUDIK MD  
SHOULDER, KNEE & SPORTS MEDICINE

## Proximal Biceps Tendon Rupture

The long head of the biceps muscle attaches to bone at the shoulder and at the elbow via tendons. The biceps muscle is important for bending the elbow and supinating the forearm (rotating the hand to the palm up position). At the shoulder, the biceps tendon runs in a groove on the bone of the humerus (arm), makes an almost 90-degree turn, enters the shoulder joint between subscapularis (front) and supraspinatus (top) rotator cuff tendons, then attaches to the top of the glenoid (socket of the shoulder joint). The biceps is held in the bony groove of the humerus by the transverse humeral ligament and portions of the coracohumeral and superior glenohumeral ligaments. After an injury to these restraining ligaments, the tendon may begin



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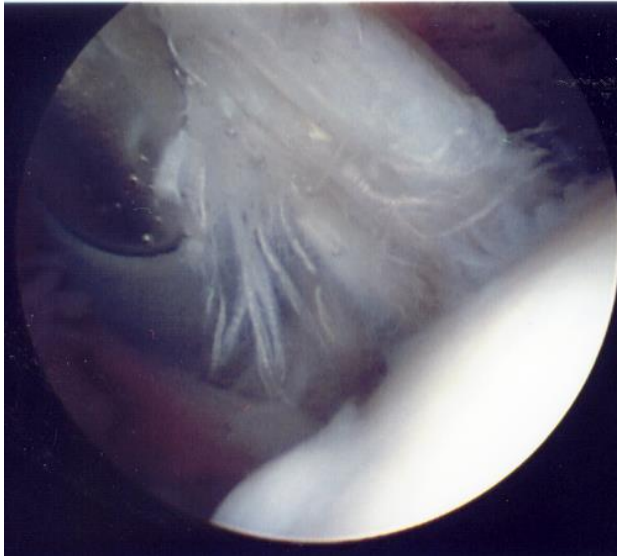
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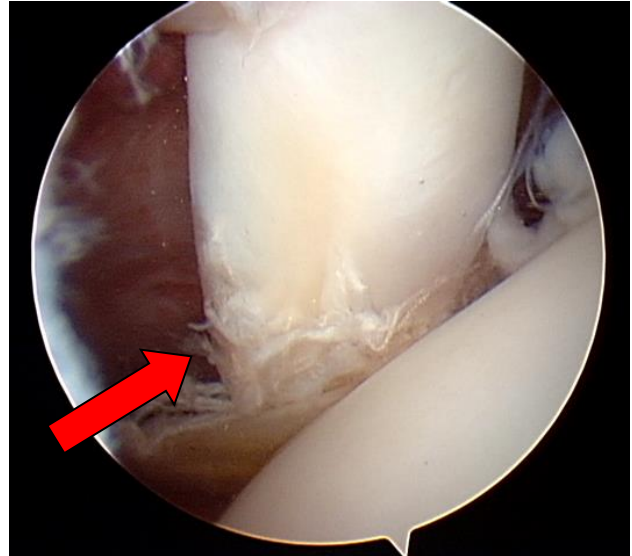
to move in and out of this groove with shoulder motion, resulting in instability of the biceps. The abnormal motion of the biceps tendon damages and tears the tendon as it crosses back and forth over the bony edge of the groove. Injury to these restraining ligaments is often associated with a partial or complete tears of the subscapularis or supraspinatus rotator cuff tendons. Over time, or with a significant injury mechanism, the biceps tendon can completely rupture or tear.

### Frequent Signs and Symptoms

- Snapping or shifting felt as the arm is rotated outwardly passively or inwardly against resistance
- Pain and occasionally tenderness or swelling over the front of the shoulder
- Pain and snapping that are worse with shoulder and elbow motion
- Crepitus (a crackling sound) when the shoulder is moved
- Popeye deformity of the biceps muscle in the front of the arm



Arthroscopic view of partially torn biceps tendon



Unstable proximal biceps tendon dislocated medially from the biceps groove

### Etiology (Causes)

- Traumatic injury to the shoulder or rotator cuff, such as landing on an outstretched arm or forcing the shoulder backwards
- Degenerative (wear and tear) tear of the rotator cuff tendons that increases stress on the biceps tendon



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### Risk Factors

- Contact sports, throwing sports, weightlifting, and bodybuilding
- Heavy labor
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before practice or play

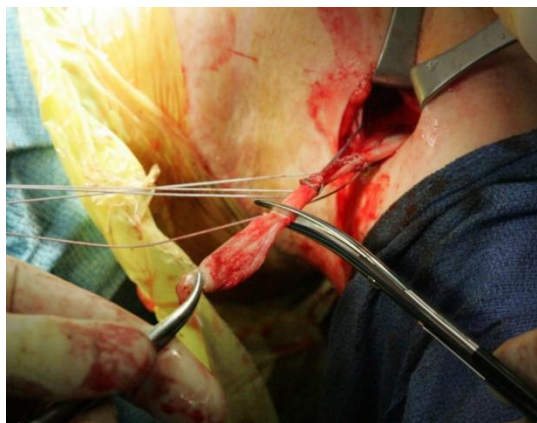
### Prevention

- Appropriately warm up and stretch before practice or competition
- Allow time for adequate rest and recovery between practices and competition
- Maintain appropriate conditioning:
  - Shoulder and elbow flexibility
  - Muscle strength and endurance
  - Cardiovascular fitness
- Use proper technique

### Outcomes and Treatment Considerations

If there is no associated rotator cuff tear, complete proximal biceps ruptures can be treated conservatively with physical therapy. This will result in some visual deformity of the biceps in thinner patients but will not limit function. Many patients elect a surgical biceps tendon repair or may require surgery to repair associated rotator cuff tears.

Partial ruptures and biceps instability typically cause pain and require surgical intervention to either complete the tear and release the biceps tendon (biceps tenotomy) or remove the damaged portion of the tendon and repair it just below the shoulder joint (biceps tenodesis).



Removal of damaged portion of biceps tendon prior to fixation below the shoulder joint



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### Potential Complications

- Prolonged healing time if not appropriately treated or if not given adequate time to heal
- Recurrence of symptoms, especially if activity is resumed too soon
- Persistent clunking with shoulder and elbow function
- Weakness of elbow bending and forearm rotation
- Prolonged disability (uncommon)
- Shoulder pain
- Stiffness or loss of motion of the shoulder
- Biceps “Popeye” deformity
- Cramping biceps muscle pain
- Musculoskeletal nerve injury

### Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (**DO NOT** take within seven days before surgery), are used to reduce inflammation. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur. Other minor pain relievers, such as acetaminophen, also may be used.
- Pain relievers are usually not prescribed for this condition, although your physician will determine this. Use only as directed and only as much as you need.

### Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 15 to 20 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

### Notify My Office If Symptoms Worsen

