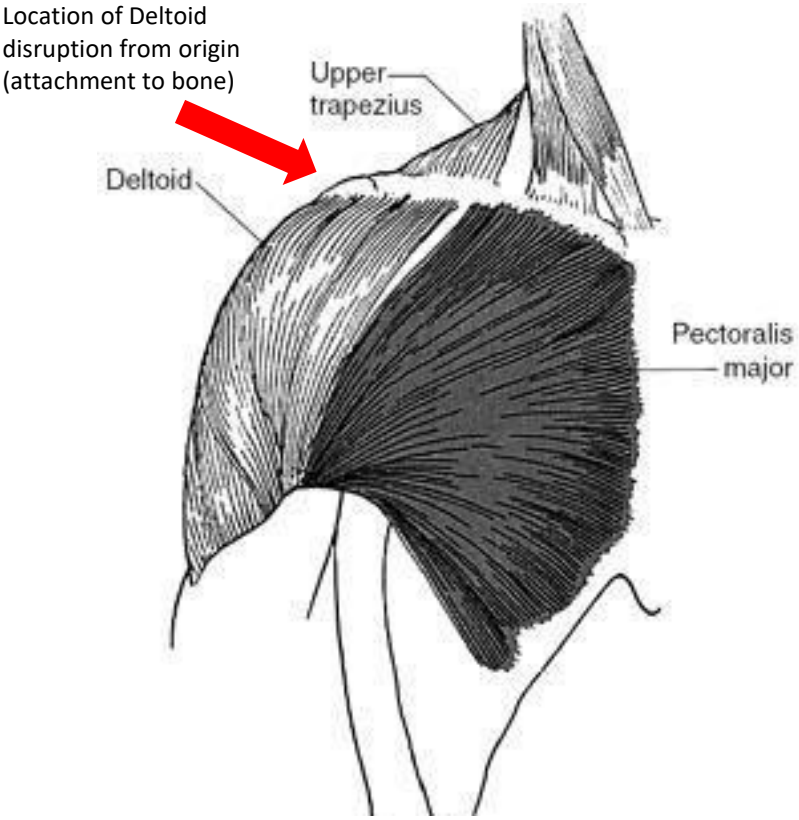
Deltoid Muscle Disruption

Deltoid muscle disruption is a partial or complete rupture of the deltoid muscle or its attachment to bone. The deltoid is an important muscle for shoulder function and motion. With this rare injury, the deltoid muscle pulls off the roof of the shoulder (acromion), end of the collarbone, or part of the shoulder blade (scapula), resulting in loss of one attachment of the deltoid muscle and thus loss of function of this muscle. It is even less common for the deltoid to pull off the humerus (arm bone). This condition happens most commonly following open shoulder surgery when a surgeon has surgically taken down and repaired the deltoid muscle from the acromion and the deltoid repair fails because the patient is not compliant after surgery. Deltoid muscle disruption can result in poor shoulder function.

Frequent Signs and Symptoms

- A “pop” or rip or tearing and severe sharp pain in the shoulder at the time of injury
- Tenderness, swelling, warmth or redness, and later bruising over and around the shoulder
- Pain and weakness trying to raise the arm to the side, front, or behind, depending on the portion which is torn
- Loss of contour of the shoulder; more evident when trying to contract the muscle and lift the arm
- Loss of firm fullness when pushing on the area where the tendon ruptured (a defect between the end of the muscle and bone where they are separated from each other)



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- **Etiology (Causes)**
- Sudden episode of stressful over-activity, particularly a major force to an already maximally contracted deltoid muscle
- Direct blow or injury
- Possibly throwing
- Open shoulder surgery (particularly on the rotator cuff)

Risk Factors

- Sports that require excessive deltoid muscle stress, especially throwing sports
- Contact sports
- Poor physical conditioning (strength and flexibility)
- Previous deltoid muscle injury or surgery requiring detachment of the deltoid
- Oral anabolic steroid use

Prevention

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

Outcomes

- Often smaller deltoid muscle disruptions are not symptomatic and only present cosmetic issues and therefore, do not require surgery and have good outcomes without treatment. Larger and chronic (old) deltoid muscle disruptions may cause symptoms and physical limitations, particularly if the rotator cuff is compromised. These tears may require surgery and prognosis is less predictable with older and larger tears.

Potential Complications

- Weakness of the shoulder, especially if untreated
- Re-rupture of the muscle after treatment
- Prolonged disability
- Risks of surgery, including infection, injury to nerves (numbness, weakness, or paralysis), bleeding, hematoma, shoulder stiffness, shoulder weakness, pain with strenuous activity, and recurrent disruption
- Loss of shoulder contour
- Inability to repair deltoid because of scarring, retraction and chronicity (old) of the tear

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Treatment Considerations

Initial treatment usually consists of rest and icing the area. A sling may be given for comfort. Small or partial deltoid muscle injuries may be treated conservatively with shoulder motion, stretching exercises, and gradual strengthening. These may be done with the assistance of a physical therapist or an athletic trainer. Treatment of larger and complete tears may require surgical exploration and repair. Deltoid repair surgery can be technically difficult to perform because the deltoid does not have much tendon to hold sutures for repair. Tears in the mid-belly of the muscle are not amenable to repair. Delay in treatment also may not allow for surgical reattachment; therefore, early repair (within a few weeks) results in the best outcomes. Without surgery, weakness and poor function of the shoulder may persist. After surgery and immobilization for six weeks, physical therapy is usually needed to regain shoulder motion and strength over four to six months.

Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen **(DO NOT take within 10 days before surgery)**, or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Your physician may prescribe pain relievers. Use only as directed and only as much as you need.

Modalities (Cold Therapy)

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.

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