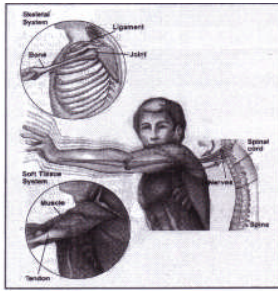


## Treatment and Prevention of Shoulder Injuries in Athletes



Athletes involved in overhead activity sports, such as baseball, place incredible demands on their shoulders. The shoulder is capable of a wide range of motion and is the most flexible, complex joint in the body. This tremendous flexibility comes at a price, as it results in the shoulder being the most unstable joint in the body. This instability is the result of the anatomical structure that provides the shoulder joint its flexibility. The head (ball) of the humerus being larger than the glenoid fossa (socket) of the shoulder. To remain stable, the shoulder must be anchored by its muscles, tendons, and ligaments.

Mobility must be balanced with stability to prevent the shoulder from slipping out of place. This balance is achieved by muscle power, coordination, and stamina combined with appropriate tension in the supporting ligaments. To achieve the required mobility necessary, an extremely critical and sophisticated biomechanical balance must be maintained. If slightly out of balance, the shoulder becomes vulnerable to damage.

### Causes of Injury

Fatigue and poor mechanics result in "micro trauma" (tiny repetitive injuries).

Muscle fatigue can occur if the athlete throws too many times in one session, does not have enough rest between throwing sessions, or throws too much during the course of a season. Poor mechanics cause the shoulder's muscles, tendons and ligaments to be excessively stressed. This overload of the tissues can result in injury.

Initially the athlete may not realize that damage has occurred, since no obvious trauma has taken place and the pain is minor. The athlete will often attribute the symptoms as typical soreness and continue to throw through the soreness. As the trauma to the soft tissues of the shoulder increases, the magnitude of pain increases. The necessary "balance" of the shoulder joint is further compromised, thus leading to further injury. At this point the muscles and tendons become irritated or torn, and the ligaments become stretched or torn.

### Rotator Cuff Injuries

The rotator cuff is comprised of four muscles that act conjointly to help maintain the shoulder joint's stability and provide power to the arm during the throwing motion. Because of the tremendous force created in providing power to the throw, combined with the shoulder's delicate "balance" of stability, an injury to the rotator cuff can cause significant pain and disability. Tendonitis and tears to the rotator cuff

are common injuries in the overhead athlete. Stretching or tearing of ligaments and tendons can result in abnormal slipping of the "ball" on the "socket". This excessive movement of the bones can cause pain, slipping or popping in the joint, and feelings of numbness, heaviness, and weakness in the arm.

### **Treatment**

Initial treatment often consists of rest, ice, anti-inflammatory meds, and physical therapy. A physical therapist can facilitate a treatment regimen including anti-inflammatory modalities,

such as ice, ultrasound, and electrical stimulation along with a rotator cuff / scapular stabilizer rehab program to improve endurance, strength, and shoulder biomechanics. Such treatment will return most athletes to competition. In some situations however, surgery for rotator cuff tears, impingement, instability, etc. maybe necessary.

The best treatment for shoulder disorders is prevention. Proper throwing mechanics, training methods, and conditioning can be invaluable in preventing injuries. "Off-season" is the time to begin a conditioning program that will lead to a successful season.