

Physicians Keep Up With Athlete Shoulder Problems

Physical Therapy in San Jose, Los Gatos, Foster City and Burlingame for Pediatric

Despite all the focus on childhood obesity, there are still a large number of teens involved in physical activity and exercise. For example, last year, more than seven million high school students participated in some kind of sports activity. That's more than half of all high school students. And records show the trend is on the rise. That's the good news. The downside of this good news is that along with increased involvement in sports (especially high-demand activities) comes an increase in injuries.

The focus on this article is shoulder injuries in adolescents. The material presented is part of an instructional course lecture sponsored by the *American Academy of Orthopaedic Surgeons* (AAOS). Physicians and surgeons treating athletes of all kinds must stay current on the type of shoulder injuries athletes experience and the treatment for them.

Two areas of specific study included: 1) fractures of the *clavicle* (collar bone) and 2) throwing injuries such as *Little Leaguer's shoulder* and shoulder instability. An unstable shoulder means the joint *subluxes* (partially dislocates) or has dislocated at least once if not more often.

With all joint injuries in young people, there's always a concern about damage to the growth plate. Disruption of this important structure can lead to chronic problems. Recognizing the possible effects of chronic overuse in overhead throwing sports has been an important step in setting up efforts to prevent such injuries.

Providing educational programs for overhead throwing athletes on proper pitching is essential. Putting limits on the number of pitches during practices and games is one step that has been taken. Requiring physician approval before resuming sports after an acute shoulder injury is also necessary. Too many athletes return to sports too soon and end up with a reinjury of the same shoulder or another kind of shoulder injury.

When injury does occur, treatment depends on type, location, and severity of the injury. Most clavicle injuries in this age group are in the middle of the bone. If the two ends of the broken bone stay in place and don't move apart, a simple sling can be used to immobilize the area until healing occurs. This type of nonoperative care is especially effective in younger athletes (less than 12 years old) because of their good potential for rapid bone growth.

Before these athletes can jump back into action, the surgeon must see that the child can move the arm fully and has strength equal to the uninvolved arm. X-rays must show that the bones have been knit back together. Older athletes with a displaced clavicular fracture may need a longer period of time for rehab and recovery.

In some ways, having a displaced fracture in an older individual has its advantages. Surgery to pin the bones together usually results in a more normal union of the fracture and faster return to sports. *Nonunion* (fracture doesn't heal) or *malunion* (heals with deformity) are more common in the nonoperative group.

Fractures of the *humerus* (upper arm bone) are much less common than injuries to the clavicle but no less concerning. The most common area for humeral fractures are *proximal* (at the top of the humerus). More specifically, it's the *physis* or growth plate that's affected in the adolescent age group (teens). In the younger athlete, rapid growth in this area means healing and bone remodeling is much faster than in athletes who have reached *skeletal* (bone) maturity.

Conservative (nonoperative) care is the usual mode of treatment unless the fracture is severely displaced, unstable, or misaligned. Surgery is done to *reduce* the fracture. This means the surgeon lines the bones back up and pins them in place.

Throwing injuries from repetitive microtrauma increases as the number of pitches increases over time (and with increasing age). Curve balls, sliders, and breaking balls increase the risk of shoulder (and/or elbow) pain and dysfunction. This is the kind of data that help baseball coaches and trainers see the need to start limiting the number and type of pitches thrown at an early age. Athletes should not be allowed to play in multiple leagues as a means of avoiding these limits. And proper pitching mechanics must be taught and practiced.

Despite Little League rules limiting the maximum number of pitches each day, Little Leaguer's shoulder is a definite problem for overhead athletes. It's a multifactorial injury based on repetitive, rotational forces overloading undeveloped muscles at a young age. Once again, the authors stress the importance of proper pitching mechanics and a preseason conditioning program.

And finally, a thorough review of shoulder instability was presented. There isn't agreement on the best way to treat this problem. Treatment may depend on whether the injury was from trauma, structural damage present, and where the athlete was in the growth cycle. The goal is to prevent recurrence (future dislocations). But whether a conservative plan of care is better than results from surgery is still the subject of much debate. Younger players who are skeletally immature are at the greatest risk for redislocations. If a program of conservative care is unsuccessful in restoring full, pain free shoulder motion, then surgery is advised.

Young, high-level athletes participating in high-risk sports may be the best candidates for surgery. The one exception to this is the athlete with joint *laxity* (loose ligaments). The type of instability these athletes face is *multidirectional* (in more than one direction). A strengthening program is still the best way to go with this group.

In summary, the authors recommend a total shoulder program including year-round stretching, strengthening, and coordination exercises involving the entire body (not just the pitching arm). Strengthening the core muscle groups helps spread the load. Stretching to prevent areas of tightness helps maintain proper shoulder mechanics and thereby prevent injuries.

Reference: Dean C. Taylor, MD, COL (Ret), and Kevin L. Krasinski, MD. Adolescent Shoulder Injuries: Consensus and Controversy. In *The Journal of Bone & Joint Surgery*. February 2009. Vol. 91A. No. 2. Pp. 462-473.