



Overuse Injuries in Young Athletes

Recently, many local and national media outlets have drawn attention to newly implemented pitch count rules for Little League Baseball. In fact, if you are a fan of the Little League World Series, you probably heard the commentators discuss this topic in detail. These rules have been instituted to prevent common overuse injuries to youth pitcher's shoulders and elbows. In summary, if a pitcher throws more than 85 pitches in a game then he/she has to come out of the game and rest for two days before they are allowed to pitch again. (They can remain in the game at another position.) Little League Baseball has instituted other rest rules for pitchers:

- If the pitcher throws 46 or more pitches in one day, he has to rest for two days.
- If the pitcher throws 21-45 pitches in one day, he has to rest for one day.
- No rest is required for the pitcher if he throws less than 21 pitches.
- A pitcher may not throw in more than one game per day.

The common denominator of all these pitch count rules is rest. Rest allows the growth plates (physis) in a youth pitcher's shoulder and elbow to recover from the extreme stresses placed on them. The growth plates in children are the weak link in their skeletal makeup and vulnerable to injury when recurrent stresses are placed on them. In children, the majority of growth in the upper arm (humerus bone) occurs at the physis near the shoulder. If this growth plate is not allowed to heal and recover from throwing, it can widen and/or become damaged, which may result in pain, stiffness, and growth disturbances. Injury to this growth plate has been coined "Little Leaguer's shoulder."

The counterpart to the shoulder is "Little Leaguer's elbow." The same pattern of injury is seen here except that the growth plate is much smaller on the inside (medial) of the elbow. Here the same damage can occur at the growth plate as evidenced by widening on an x-ray. Injuries to the inside of the elbow can also irritate the ulnar nerve, injure and stretch ligaments, and, if enough damage has occurred to the medial physis, the elbow may become locked and not move.

If sufficient rest is given to youth throwers then the vast majority of these overuse injuries can be avoided. It is important to remember that these pitch counts should apply to all throwing that the youth player does. For example, if the pitcher comes out of his Little League game after the allotted 85 pitches, then moving them to a position that is associated with a lot of throwing (e.g. catcher) may prove troublesome for their shoulder or elbow.

As the athlete moves into middle school and high school, the athletic seasons and training for different sports often overlap. It becomes even more important for the player, coaches, and parents to pay attention to how much throwing their child is doing, not just in baseball or softball. It is not uncommon for one athlete to pitch for two baseball teams, be the quarterback on the local football team, play recreational softball, and attend tryout to "showcase" baseball camps all within the same few weeks.



Rest for the throwing athlete is the most important criteria to keep young arms injury free. However, there are other extremely important facets of athletic training to prevent shoulder and elbow injury. Stretching should not be overlooked and cannot be stressed enough. All parts of the body, not just the shoulder and elbow, should be sufficiently stretched before and after throwing. Proper mechanics of a baseball throw, tennis serve, or football pass utilizes the entire human body from the feet to the neck. I have seen countless athletes who have injured their arms after altering their mechanics for sprained ankles, leg injuries, or back pain. Thus, another important component to staying injury free is proper throwing mechanics. It should be emphasized to young throwers to develop proper fundamentals when

throwing. Not only does this improve accuracy, velocity, and endurance, but it goes a long way to prevent injury. There is a reason that Nolan Ryan pitched for over 20 years in the Major Leagues without significant arm injury....dedication to proper mechanics, training, rest and stretching.

Most arm pain in young throwers will resolve with rest, ice, and anti-inflammatory medicine (e.g. Ibuprofen or Naproxen). The rest period required may range from a couple of days to a couple of weeks. An evaluation by a physician is advised if arm pain persists after a few weeks of rest, there is loss of motion, or if the pain persists with non-throwing activities. In summary, arm pain in young throwers will likely resolve if essential rest and recovery periods are observed. If these principles are ignored, then valuable time may be lost on the playing field...which could have easily been avoided.