

Guidelines to Prevent Shoulder and Elbow Injuries in Youth and Adolescent Baseball Players

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Approximately, 3-4 million children and adolescence between the ages of 4 and 17 participate in organized baseball throughout the country. Many of these young athletes develop elbow and/or shoulder pain commonly seen in physical therapy clinics and orthopedic surgeon's offices throughout the country.

Major League Baseball and USA Baseball have teamed up to educate and help prevent baseball injuries through Pitch Smart, a resource for safe pitching practices (PitchSmart.com). Pitch Smart uses current research and guidelines from the American Sports Medicine Institute (ASMI) to guide coaches and parents to keep our kids safe.

ASMI guidelines to help protect pitchers from shoulder and elbow injuries:

Don't throw too much. Daily, weekly and annual overuse is the greatest risk to a pitcher's arm health. Numerous studies have shown that pitchers who throw more pitches per game and those who do not adequately rest between appearances are at an elevated risk of injury. While medical research does not identify optimal pitch counts, pitch count programs have been shown to reduce the risk of shoulder and elbow injury in Little League Baseball by as much as 50% (Little League, 2011). The most important thing is to set limits for a pitcher and stick with them throughout the season.

Don't pitch through arm fatigue. Individuals are 36 times more likely to develop shoulder and elbow injuries when routinely pitching with arm fatigue.

Don't pitch more than 100 innings per year. If an athlete throws over 100 innings they are 3.5 times more likely to be injured than those who did not exceed 100 innings pitched.

Don't throw more than 8 months per year. Athletes who throw > 8 months per year are 5 times as likely to suffer an injury requiring surgery of the elbow or shoulder. Pitchers should refrain from throwing for at least 2-3 months per year and avoid competitive pitching for at least 4 months per year.

Don't pitch on consecutive days. Pitchers who pitch on consecutive days have more than 2.5 times greater risk of experiencing arm pain.

Don't play catcher following pitching. If the player catches following pitching they are 2.7 times more likely to suffer a major arm injury.

Don't play on multiple teams at the same time. There is increased risk of injury due to the difficulty in monitoring pitch limits and rest time. If the player is on multiple teams, make meticulous efforts to keep track of the amount of pitches thrown to allow adequate rest.

Don't forget the shoulder in strength and conditioning programs. Numerous studies have shown that deficits in upper extremity strength and mobility are strongly correlated to serious arm injuries. Shoulder and forearm strengthening exercises can build strength, endurance and motor control which can prevent

injury.

Be cautious with throwing curve balls and sliders. While existing research has not consistently shown a strong connection between the curveball and injuries, Yang et al., found that amateur pitchers who threw curveballs were 1.6 times more likely to experience arm pain while pitching and Lyman et al, found that youth pitchers who throw sliders are 86% more likely to experience elbow pain.

Be cautious with the radar gun. Radar guns do not directly cause harm to a pitcher, however, the gun may cause the pitcher to over throw beyond their normal comfort level. This could possibly create arm strain.

Following these guidelines may keep the throwing athlete safe from the debilitating shoulder and elbow injuries seen on a regular basis in physical clinics.

Pitch Count Limits and Required Rest Recommendations

Research has shown that pitch counts are the most accurate and effective means of doing so.
(pitchsmart.com)

Age	Daily Max (Pitches)	Required Rest (Pitches)				
		0 Days	1 Days	2 Days	3 Days	4 Days
7-8	50	1-20	21-35	36-50	N/A	N/A
9-10	75	1-20	21-35	36-50	51-65	66+
11-12	85	1-20	21-35	36-50	51-65	66+
13-14	95	1-20	21-35	36-50	51-65	66+
15-16	95	1-30	31-45	46-60	61-75	76+
17-18	105	1-30	31-45	46-60	61-75	76+

(Dr. Mishock is one of only a few clinicians with doctorate level degrees in both physical therapy and chiropractic in the state of Pennsylvania.)