

USA Baseball Medical & Safety Advisory Committee

Position Statement on Youth Baseball Injuries

Updated: May 2006

Baseball is one of the safest sports available for today's youth. However, many of the serious injuries suffered by adult baseball pitchers may have begun to develop at the youth level. One of the missions of the USA Baseball Medical & Safety Advisory Committee is to provide scientifically based information to its youth baseball members to reduce the risk of injury and maximize the younger player's ability to perform and advance to higher levels.

Pitch Counts

Pitches are counted and monitored for professional, collegiate, and high school pitchers in order for them to reduce the risk of injury. A 1996 survey conducted by the USA Baseball Medical & Safety Advisory Committee (USA Baseball News, 1996) showed that most experts believed pitch counts should be kept for youth pitchers as well. In response to this charge, the committee sponsored an epidemiological study by the American Sports Medicine Institute (ASMI) to look at this issue. This study - published in *The American Journal of Sports Medicine* in 2002 - showed a significant relationship between the number of pitches thrown and the risk of shoulder and elbow pain in youth baseball. It is the opinion of ASMI and the USA Baseball Medical & Safety Advisory Committee that joint pain indicates the early development of a potentially serious joint injury. Thus pitch count limits are recommended for youth baseball. If - for some valid reason - a league is unable or unwilling to enact pitch count limits, the league should limit the number of batters faced. Since 9 to 12 year-old baseball pitchers average about 5 pitches per batter, pitch count recommendations can be converted into batter limitations by dividing by 5. However, pitch limitations are a better choice than batter limitations for accurately monitoring and controlling risk of overuse.

Pitch Types

The 2002 study by the ASMI also showed that youth baseball pitchers who throw curveballs or sliders have an increased risk of elbow and shoulder pain. Further research is required to define the specific risk of throwing breaking pitches but throwing curves and sliders, particularly with improper mechanics appears to be a potential cause of injury.

Multiple Appearances

Because a youth pitcher usually stays in the game at another position after pitching, the player is eligible to return to the mound later in the game, according to the rules of baseball. While it may be good strategy to have a starting pitcher come back in and finish a game, it is not a good idea from a health and safety perspective. Muscles, tendons, and ligaments need time to "cool down" after physical activity, just like they need to "warm up" before activity.

Showcases

Showcases are established to give young players the opportunity to display their skills to scouts at higher levels of baseball. Unfortunately, showcases often occur near the end of the players' season, when players are often fatigued and require rest and recovery. In other instances, players participate in a showcase after a prolonged period since their league ended and without adequate preparation to throw hard again. It is without a doubt that young throwers will try to overthrow at these events in an effort to impress the scouts and coaches, which further increases the risk of serious arm injury.

Multiple Leagues

In order to get more opportunity to develop skills, many young players play in multiple leagues. Although the amount of pitching in a league is often limited by league rules or the judgment of its coaches, individual pitchers sometimes exceed such limitations by pitching in more than one league at a time. The strength and skills needed to be a successful pitcher are developed by repetition; however, a pitcher must also give his body time to rest and recover in order to optimize his development.

Year-Round Baseball

In certain parts of warm-weather states (Florida, Texas, California, etc.) baseball leagues are available in all seasons. However, the principle of periodization states that an athlete should have different periods and activities in his annual conditioning schedule. Specifically, baseball pitchers need a period of "active rest" after their season ends and before the next preseason begins. During active rest a pitcher is encouraged to

participate in physical activities that do not include a great amount of overhand throwing.

Recommendations

Based upon its expertise and review of existing studies, the USA Baseball Medical & Safety Advisory Committee makes the following recommendations for minimizing a pitcher's risk of future serious arm injury and maximizing his chance of success

- Coaches and parents should listen and react appropriately to a youth pitcher when he/she complains about arm pain. A pitcher who complains or shows signs of arm pain during a game should be removed immediately from pitching. Parents should seek medical attention if pain is not relieved within four days or if the pain recurs immediately the next time the player pitches. League officials should inform parents about this consideration.
- Pitch counts should be monitored and regulated in youth baseball. Recommended limits for youth pitchers are as follows: 9-10 year old pitchers 50 pitches per game 75 pitches per week 1000 pitches per season 2000 pitches per year 11-12 year old pitchers 75 pitches per game 100 pitches per week 1000 pitches per season 3000 pitches per year 13-14 year old pitchers 75 pitches per game 125 pitches per week 1000 pitches per season 3000 pitches per year

Pitch count limits pertain to pitches thrown in games only. These limits do not include throws from other positions, instructional pitching during practice sessions, and throwing drills, which are important for the development of technique and strength. Backyard pitching practice after a pitched game is strongly discouraged.

- The risk of throwing breaking pitches until physical maturity requires further research but throwing curves and sliders, particularly with poor mechanics appears to increase the risk of injury.
- Pitchers should develop proper mechanics as early as possible and include more year-round physical conditioning as their body develops.
- It should be discouraged for a pitcher to return to the mound in a game once he/she has been removed as the pitcher.
- Baseball players - especially pitchers - are discouraged from participating in showcases due to the risk of injury. The importance of "showcases" should be de-emphasized, and at the least, pitchers should be permitted time to appropriately prepare.
- Baseball pitchers are discouraged from pitching for more than one team in a given season.
- Baseball pitchers should compete in baseball no more than nine months in any given year, as periodization is needed to give the pitcher's body time to rest and recover. For at least three months a year, a baseball pitcher should not play any baseball, participate in throwing drills, or participate in other stressful overhead activities (javelin throwing, football quarterback, softball, competitive swimming, etc.).

References

Andrews JR, Chmielewski T, Escamilla RF, Fleisig GS, Wilk KE. Conditioning program for professional baseball pitchers. American Sports Medicine Institute, Birmingham, AL, 1997.
Andrews JR, Fleisig GS. How many pitches should I allow my child to throw? USA Baseball News April,

Fleisig GS, Barrentine SW, Zheng N, Escamilla RF, Andrews JR. Kinematic and kinetic comparison of baseball pitching among various levels of development. *Journal of Biomechanics* 32(12):1371-1375, 1999.
Lyman S, Fleisig GS, Andrews JR, Osinski ED. Effect of pitch type, pitch count, and pitching mechanics on risk of elbow and shoulder pain in youth baseball pitchers. *The American Journal of Sports Medicine* 30(4):463-468, 2002.

Additional publications and research findings available at www.asmi.org