

Week 1

Why Are You Doing This Offseason Program?

Because^[1] year round baseball is the #1 risk factor for injury

The 3 thresholds for pitching injury are:

- ✓ Pitching more than 8 months per year
- ✓ Pitching more than 100 innings per year
- ✓ Pitching more than 80 pitches per game

Reference:

1. Olsen, S.J., 2nd, et al., *Risk factors for shoulder and elbow injuries in adolescent baseball pitchers.* Am J Sports Med, 2006. 34(6): p. 905-12.



Position Statement for Tommy John Injuries in Baseball Pitchers

Updated July 2014

EPIDEMIC

During the past few years there has been an "epidemic" rise in the number of professional pitchers requiring ulnar collateral ligament reconstruction ("Tommy John surgery").¹ This is like déjà vu, as a similar sharp rise was seen in adolescent pitchers near the turn of the century.^{2,3} These two rises are indeed connected; that is, today's pro pitcher in his 20's was an adolescent pitcher a dozen years ago. Thus in many cases, the injury leading to Tommy John surgery in today's young pro pitchers actually began while they were adolescent amateurs. Observations by orthopaedic surgeons support this link, as the torn ulnar collateral ligament (UCL) in a pro pitcher usually looks like it has worn out over time.

RISK FACTORS FOR ADOLESCENT PITCHERS

Research has shown that the amount of competitive pitching and pitching while fatigued are strongly linked to injury.^{4,5,6} Other risk factors may include pitching on multiple teams,⁵ pitching year-round,⁶ playing catcher when not pitching,⁷ poor pitching mechanics,^{8,9} and poor physical conditioning.^{10,11} Recommendations for youth pitchers are shown on the ASMI Position Statement for Youth Pitchers.¹²

COMMON MISCONCEPTIONS ABOUT TOMMY JOHN SURGERY

"Pitchers should get Tommy John surgery as soon as possible, as they will be better and throw harder after the surgery."

Even though a surprising 25% to 50% of amateur players, parents, and coaches believe this,¹³ it is not true. Indeed, MLB pitchers often show some improvement in performance upon return from Tommy John surgery.¹⁴ However such improvements for a professional or amateur pitcher are due to the surgeon fixing the problem followed by the pitcher working intensely with the physical therapist, athletic trainer, strength coach, and pitching coach. The time without pitching after surgery also helps the athlete's body. Performance eventually decreases over time for MLB pitchers after Tommy John surgery (similar to the typical decrease over time for healthy MLB pitchers).¹⁴⁻¹⁶ It is also important to realize that 10% to 20% of pitchers never make it back to their previous level after Tommy John surgery.^{17,18} Furthermore, a recent study by MLB and ASMI showed no differences in pitching biomechanics between professional pitchers with a history of Tommy John surgery and professional pitchers with no history of injury.

"Too much pitching is a big reason for all of the Tommy John injuries these days."

Exactly. When an orthopaedist performs surgery on a torn ulnar collateral ligament ("Tommy John" ligament), the surgeon will almost always see a ligament that has frayed over time from overuse and repetition. In previous generations, Major League pitchers grew up competitively pitching only a few months each year, but nowadays leagues and teams are available for adolescents to play competitive baseball almost all year. Research has shown a strong link between too much competitive pitching and arm injuries.⁴⁻⁷

"Throwing curveballs is a big risk factor for elbow injuries in young pitchers."

While biomechanical research¹⁹⁻²¹ and epidemiologic research^{4,6,7,22} have not shown a strong connection between curveball and elbow injuries, a youth pitcher may not have enough physical maturity, neuromuscular control, and proper coaching instruction to throw a curveball with good mechanics. The first steps should be to learn, in order: 1) basic throwing, 2) fastball pitching, 3) change-up pitching.

"Lowering or eliminating the mound would reduce the stress on the elbow and reduce the number of UCL injuries."

Current biomechanical studies disagree about whether elbow torque while throwing on flat ground is less, greater, or the same as when pitching on a mound.²³⁻²⁵ Regardless of mound height, the real solution is for young pitchers to do less full-effort pitching and more sub-maximal throwing (practice throws, playing other positions, playing other sports). To become a successful adult pitcher, the youth should not strive to be a "youth pitcher" but instead should be a young athlete that is a good pitcher.

"Baseball in Latin America must be doing something right, because the prevalence of Tommy John surgery is so low among professional pitchers from Latin America."

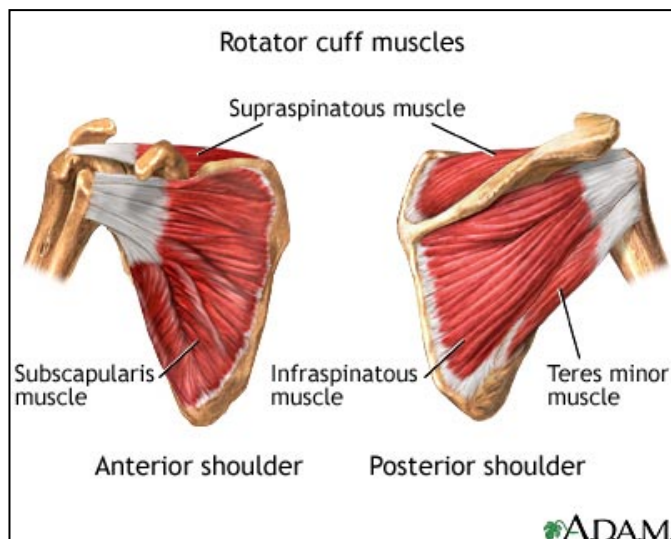
Not true. A recent survey revealed no difference in the prevalence of Tommy John surgery between pitchers from the U.S. and pitchers from Latin America. The survey showed that 16% of U.S. born-pitchers and 16% of Latin American pitchers in professional baseball have a history of Tommy John surgery.

RECOMMENDATIONS FOR PROFESSIONAL PITCHERS AND TEAMS FOR REDUCING RISK OF TOMMY JOHN INJURY

1. Optimize pitching mechanics to ensure using the whole body in a coordinated sequence (kinetic chain). A biomechanical analysis is recommended, as it provides objective data to the pitching coach, strength coach, and pitcher. A biomechanical analysis can also serve as a baseline for re-evaluation later in the pitcher's career, after performance improvement or after return from injury.
2. Vary speeds for each of your pitch types. This will not only reduce the overuse on the elbow, but also can be an effective

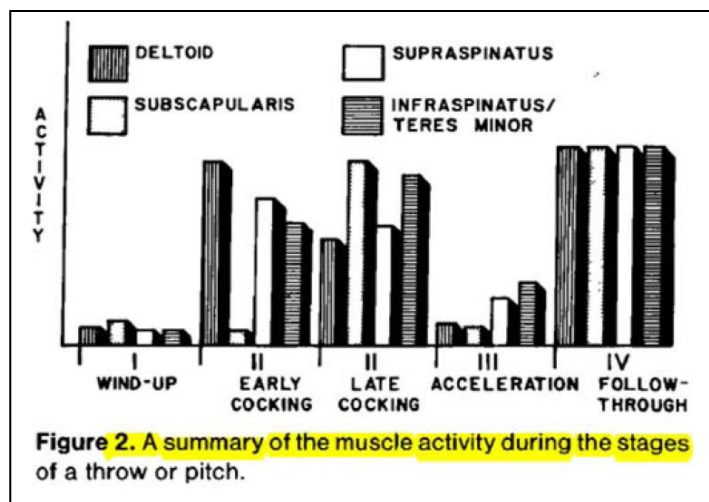
Why This Program?

To strengthen the rotator cuff, the 4 muscles in the shoulder that keep it stable:



And to help the throwing arm handle the most stressful part of the throwing motion, the Follow-Through.

During the Follow-Through, the back of the shoulder (the posterior rotator cuff) undergoes an eccentric contraction (when the muscle lengthens):



"You can only accelerate as fast as you can decelerate."

-Dr. Tom House
National Pitching Association