P.L.A.Y. Baseball Spring 2014

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Throwers Injury Program
• The First Step in Injury Prevention is AWARENESS

• Dr James Andrews quote at 2014 ASMI conference
  – "The best way to treat an injury is to prevent the injury."
• Baseball is a great sport to learn and participate in
  – At the same time it is a demanding sport especially the Pitcher
  – High torques, stresses on the shoulder and elbow
  – Shoulder and elbow injuries are on the rise
  – Millions of dollars spent on caring for baseball injuries

Most injuries are due to overuse, abuse or neglect
Injury Risk – Overuse...

• Pitching for more than 8 months per year
  – 5x more likely to have UE injury (Olsen et al)

• Average > 80 pitches per game
  – 4x more likely to have UE injury

• Playing pitcher and catcher on same team
  – 3x more likely to have UE injury (Fleisig et al)

• Pitching in showcases and multiple teams
  – Significant increase in injuries

• Overall Injured players: pitch more months, games, pitches per year, and more innings, pitches and warm ups per game. (Reinold inner circle)
ASMI (American Sports Medicine Institute)

• Position Statement for Youth Baseball Pitchers
  • Updated as of April 2013

  – Risk Factors for injury
    • Overuse is main risk factor for shoulder/elbow injury
    • Poor pitching mechanics
    • Poor physical fitness
• Watch and respond to signs of fatigue
  – Decreased accuracy, ball velocity, upright trunk during pitching (Escamilla et al)
• Prevent overhead throwing for 3-4 months per year
• Avoid pitching on multiple teams, and avoid playing pitcher and catcher on same team.
ASMI recommendations

• Pitch Counts
  – USA Baseball and Little League Baseball regulations
  – 9-10 yr old 50-75 pitches/game
  – 11-12 yr old 75-85/game
  – 13-14 yr old 75-95/game
  – 15-16 yr old 95/game

• Days rest per number of pitches thrown ( <14 yrs old)
  – 21-35 pitches = 1 day rest
  – 36-50 pitches = 2 days rest
  – 51-65 pitches = 3 days rest
  – 66+ pitches = 4 days rest
ASMI recommendations

Learn proper throwing mechanics:

 Having good pitching biomechanics lowers stress on shoulder and elbow (Davis JT et al)
 lower humeral internal rotation torque
 lower elbow valgus load
 more efficient
Shoulder Strengthening

• Good news! Any shoulder strengthening program is better than no program.
  – Throwers Ten Program
  – Tubing Program
  – Plyometric, medicine ball program
    • (Escamilla et al JSCR 12)
Long Toss Program

Has been used for many years but need to be cautious!

• 180 feet or more increases stresses on UE more than pitching off a mound
• 120 feet forces on UE is equal to throwing from a mound

Long toss does not increase arm strength

Focus on throwing on a line (limit amount of arc)
(Fleisig GS et al)
What we know will happen to a shoulder during the season

• Loss of Internal Rotation range of motion
  – Occurs from eccentric loads on the posterior Rotator cuff muscles (Reinhold et al AJSM 08, Freehill MT et al)

• Recommend light stretching during the season
• Horizontal Adduction stretch
  – Key point to keep shoulder down and in the joint during the stretch
  – Hold stretch 30 seconds x 3-5 sets
    » Contract/relax (Moore et al)
What we know will happen cont.

• Repetitive micro trauma to the shoulder muscles and ligaments causing episodes of shoulder inflammation
  – Recommend using ice 10-20 minutes after playing
    • Ice shoulder and elbow as needed
  – Recommend days off after pitching based on number of pitches

• During the season the shoulder muscles become weaker
  – Stay on a strength and endurance shoulder program during the season (Mullaney MJ et al)
Solution

• Preseason – strength, endurance, mobility and neuromuscular control
  • Goal to maximize physical fitness
  • Strengthen entire Kinetic chain (Legs, core etc.)

• In Season – maintain strength and mobility
  • Avoid all overuse signs of fatigue and pain
  • Follow ASMI recommendations
  • Early in the season use more pitchers, monitor players early in the season
    – Injuries in baseball are highest in the 1st month of season (Posner et al.)
  • Shoulder stretching, strengthening program during the season
  • Proper warm up before competition
  • Ice
Solution

• Post Season
  • Appropriate rest from overhead throwing 3-4 months
  • Cross-train fitness
  • Play a different sport

• Dr James Andrews key points
  – Open communication between coach, parent and athlete
  – Encourage fun competitive play at all levels
  – Watch for signs of sport “burn out” in the young athlete
Coaching/Parent Resources

www.stopsportsinjuries.org

www.asmi.org

Book - Any given Monday: Sports injuries and how to prevent them, for athletes, parents, and coaches – based on my life in sports medicine.

by Dr James Andrews
References

• American Sports Medicine Institute (www.asmi.org)
• STOP sports injuries – keeping kids in the game for life (www.stopsportsinjuries.org)
• Any Given Monday, Dr. James Andrews
• Escamilla RF, Barrentine SW, Flesig GS et al, Pitching biomechanics as a pitcher approaches muscular fatigue during a simulated baseball game, American Journal of Sports Medicine 2007 Jan, 35. pg 23-33
• Escamilla RF, Fleisig GS, Yamashiro K et al, Effects of a 4 week youth baseball conditioning program on throwing velocity. The Journal of Strength and Conditioning Research, Dec 2010, Vol 24 (12)
• Freehill MT, Archer KR, Diffenderfer BW et al, Changes in collegiate starting pitchers range of motion after single game and season. The Physicians and Sports Medicine, 2014