



**Analyzing Pitching Mechanics- What to look for
Critical Points for Biomechanics and Injury**

A. Introduction

- 1) Biomechanical parameters thought to be important for safe and effective pitching
- 2) Correlation between parameters, age, and pitching velocity

B. Stages of Pitching

- 1) Wind-up
- 2) Early cocking
- 3) Late cocking
- 4) Acceleration
- 5) Follow-thru

C. Wind-up

- 1) Stance limb stability
 - Stable base to initiate pitch
- 2) Upright and balanced trunk
 - Minimize AP sway

D. Early Cocking

- 1) Hand on top of ball
 - Prevent early external rotation and supination
- 2) Leading with pelvis
 - Starting kinetic chain with lower extremity
- 3) Stride vs. circumduction
 - Prevent early opening of the pelvis and torso

E. Late cocking

- 1) Arm in throwing position
 - Prevent hyperangulation of the shoulder
- 2) Lead shoulder remains closed
 - Prevent hyperangulation of the shoulder
- 3) Stride foot toward home plate
 - Prevent over/under rotation



F. Tired Pitcher

- 1) Throws will increase lumbar lordosis
- 2) Drops elbow
- 3) Maintains velocity but loses fine control
- 4) Loses movement on his pitches

G. Video Analysis

- 1) Current Video cameras can diagnose improper pitching mechanics which lead to shoulder and elbow injuries
- 2) Video can teach younger pitchers proper mechanics

H. Summary

1. Key parameters
 - a) Hands 'on-top' of ball at hands apart
 - b) Lead with the hips and pelvis
 - c) Elbow at its highest point when the stride foot lands
 - d) Lead shoulder remains closed until stride foot lands
 - e) Stride foot points towards home plate