** PRESENTED BY SGROI TA**

Correlates with Injury in Youth and Adolescent Pitchers

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Introduction: Shoulder and elbow injuries are common among youth and adolescent baseball players. While previous cross-sectional studies have identified breaking pitches as a risk factor for injury, breaking pitches have not been associated with higher shoulder and elbow torques in motion analysis.
Hypothesis: We hypothesized that pitch velocity and kinematic factors would be more important predictors of injury than breaking pitches.
Study Design: Cross-sectional study.
Methods: Demographic and kinematic data were collected on normal youth and adolescent pitchers in pre-season training using dual orthogonal high-speed video analysis. Pitching history was also collected. Players were asked whether they had ever experienced a pitching-related shoulder or elbow injury. Multivariate logistic regression analysis was performed on those variables that correlated with injury to identify the most important predictors.
Results: Four hundred and twenty pitchers were included, of whom 31% had a history of a pitching related injury. After multivariate logistic regression analysis only subject height ($p=0.009$, $R^2=0.023$), pitching for more than one team ($p=0.019$, $R^2=0.018$), and pitch velocity ($p=0.006$, $R^2=0.194$), served as independent correlates of injury status. A model constructed with these three variables could correctly predict 77% of injuries. Within our cohort, the presence of a 10 inch increase in height was associated with an increase in history of injury by 20% and a 10 mile per hour increase in velocity was associated with an increase of likelihood of history of injury by 12%. Playing for more than one team increased the likelihood of a history of injury 22%.
Conclusion: Pitch velocity, pitcher height, and pitching for more than one team correlate with a history of shoulder and elbow injury.
Clinical Relevance: †‡Current recommendations regarding breaking pitches may not prevent injury. Pitchers should be cautioned from pitching for more than one team. Taller pitchers and high velocity pitchers may be at risk for injury. To fully prevent injury, age-based velocity limits could be considered.