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Sparta Testing and Vertical Jump Co-Predict Fastball Speed in Collegiate Pitchers

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In competitive baseball, the most common pitch is the fastball; its velocity associates with strikeout rate and fielding-independent pitching values. The most effective predictors of pitch velocity are currently debated. Coaches and trainers are increasingly relying on advanced systems of assessment, such as Sparta Performance Science (SPS); fewer are relying on simple assessments, such as the vertical jump (VJ). Data supporting the added value of complex assessments are limited. **PURPOSE:** To test the effect of VJ and SPS performances on fastball velocity among collegiate pitchers. **METHODS:** We enrolled 30 pitchers at a Division 1 athletics program in Northern California. Every pitcher on the team's roster between 2014 and 2017 was tested. During collection, heights and body weights were documented; an SPS force plate measured Load, Explode, and Drive data; and VJ height was recorded as the best of 3 performances. Fastball velocity was quantified as the mean mph of the fastest 3 in-game pitches at the time of testing. Multiple linear regression tested the effect of VJ and SPS data on pitch speed, controlling for appropriate confounders. **RESULTS:** Players were evenly distributed throughout year in school. Average VJ was 19.8 ± 2.5 inches, fastball velocity was 87.4 ± 4.0 mph, SPS Load was 54.2 ± 8.6, Explode was 51.5 ± 8.4, and Drive was 54.2 ± 8.8. Multiple linear regression, holding the players' height and grade constant, found each additional inch of VJ predicted a 0.5 mph increase in pitch velocity ($p<0.001$; 95% CI: 0.21-0.70). The collection of predictors explained 56% of the variance in speed ($p<0.001$). In this model, each additional unit of Load predicted a 0.2 mph decrease in speed ($p<0.001$) while each additional unit of Explode predicted a 0.2 mph increase ($p<0.001$). The most powerful predictor was year in school: for each additional year, fastball velocity increased by 2.1 mph ($p<0.001$). SPS Drive was not a significant predictor ($p=0.491$). **CONCLUSION:** In the age of sophisticated analytics equipment, the VJ remains a compelling predictor of fastball velocity, but it predicts in tandem with the SPS technology. The information gathered from a comprehensive athletic evaluation can help coaches evaluate the athleticism of their athletes and inform decisions regarding individualized conditioning programs.