
Relationships Between Jumping and Baseball Performance

Exercise Science

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Purpose

Evaluating the relationships between sport performance characteristics and sport specific variables can aid practitioners in development of strength and conditioning programs. Therefore, the purpose of this study was to evaluate the relationships between vertical jumping ground reaction force (vGRF) characteristics and both hitting and pitching performance in collegiate baseball players.

Methods

8 position players (pos) (86.1 ± 9.0 kg) and 8 pitchers (p) (85.4 ± 15.7 kg) participated in this study. Players with less than 100 at bats or less than 20 innings pitched were excluded from this study. As part of an athlete monitoring program, all athletes participated in countermovement jump testing on a portable force plate sampling at 1000 Hz. Pearson's correlations were run between hitting and pitching statistics and assessed vGRF variables.

Results

Concerning pos, statistically and practically significant relationships were found between triples and body mass (bm) and between RBI and peak power (pp) ($r=0.67$, $r=0.66$). P with greater bm gave up fewer runs, earned runs and walks ($r=-0.63$, $r=-0.68$, $r=-0.71$). Similarly, p with greater PP gave up fewer hits, runs and earned runs ($r=-0.67$, $r=-0.77$, $r=-0.78$). Other practical relationships were observed, but statistical significance was not achieved, likely due to the small sample size.

Conclusion

While the small sample size likely diminished this study's chances of achieving many statistically significant relationships, the presence of many practically significant relationships demonstrates the importance of developing explosive force production characteristics in training.

Link: <https://s3.us-east-2.amazonaws.com/lagrangecollegecitations/StantonSEACSM.pdf>