The Relationship Between Body Composition and Baseball Performance in Division II Baseball Players

Muth, B., Witmer, CA., Davis, SE., Guers, J. East Stroudsburg University, East Stroudsburg, PA

bmuth1@esu.edu, cwitmer@esu.edu, sdavis@esu.edu, jguers@udel.edu

PURPOSE: This study was designed to investigate the relationship between body composition, specifically percent body fat (%BF) and percent lean body mass (%LBM), and both performance tests (Agility T-Test, Vertical Jump, Medicine Ball Toss, 30-yard Sprint, and 1-Mile Run) and in-game performance measures (Batting Average, On-Base Percentage, Slugging Percentage, and Total Bases) in collegiate baseball athletes. METHODS: Twelve male Division II collegiate baseball athletes (Age: 19.8 ± 1.32 years, Mass: 91.08 ± 16.29 kg, %BF: 15.87 ± 6.34, %LBM: 84.13 ± 6.34) volunteered to participate in this study. Body composition measurements were collected pre- and post-season using air displacement plethysmography. Performance test data was collected during the post-season, while in-game performance measures were collected by researchers via the university's Sports Information Director. RESULTS: No significant change was found in body composition pre- to post-season (F = 0.07, p = 0.794). Of all the variables evaluated, only the time results of the Agility T-Test (r = 0.667, p = 0.035), 30-yard Sprint (r = 0.669, p = 0.034), and 1-Mile Run (r = 0.697, p = 0.037) demonstrated a significant positive correlation with post-season %BF. Simply stated, times for each of the variables increased as %BF increased. CONCLUSION: Findings from this study suggest the importance of addressing body composition within baseball training goals, since a more favorable body composition (higher %LBM, lower %BF) was associated with better performances on several tests commonly used to assess performance potential in collegiate baseball players.