Title - Assessing the Relationship Between Body Composition and 50-km Running Performance
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Assessing the Relationship Between Body Composition and 50-km Running Performance: J. Houck, A. Bosak, C. Carver, A. Smith, M. Sokoloski. Department of Health Professions, Liberty University, Lynchburg, VA.

Interest in ultramarathon participation and research has grown substantially over the past decade, with one of the main focus in research being race performance. Previous studies have focused on body composition in relation to race performance at distances ranging from 5-km to multi-day adventure races. However, no previous studies have assessed body composition and performance measures at the 50-km distance. **PURPOSE:** To investigate the relationship that may exist between body fat percentage (BF%) and body mass index (BMI) with race finishing time and position in ultramarathon runners who competed in a mountainous 50-km race.

METHODS: Forty-six ultramarathon runners (male = 31, female = 15; BF%: 19.75 ± 5.64; BMI: 23.7 ± 2.58) participated in this study and were given a preliminary screening questionnaire on-site during packet pick-up on the day prior to the 50-km race. The participants' height was calculated using a leveled measuring tape. Weight and body composition measurements were taken using a bioelectrical impedance analysis (BIA) system. Finishing times and positions were collected from the race website four days after the event. Pearson correlations were calculated to determine if a correlation existed between overall race finish time/position and BMI and BF%. **RESULTS:** All forty-six participants completed the 50-km race (22967.37 ± 3001.1 seconds). Significant correlations were noted between race finish time and BF% ($r = .548$, $p = 0.00$) and race position and BF% ($r = .532$, $p = 0.00$). There were no significant correlations between overall race finish time and BMI ($r = 0.036$) or race position and

BMI (r = 0.004). **CONCLUSION:** BF% measurements may be more accurate in loosely predicting potential overall finish time and position as compared to using BMI calculations. The results suggest that a runner with a lower body fat percentage may finish with a faster time and therefore better order of finish as compared to a runner with a higher body fat percentage. Future studies may focus on the potential change in body composition and its impact on race performance in male and/or female ultramarathon runners.