

Athletic Performance and Potential Performance-Inhibiting Factors

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ABSTRACT

Collegiate athletes have complicated requirements to maximize performance. These requirements vary for each athlete depending on their unique need; and likewise, there may be several performance-inhibiting factors. **PURPOSE:** To assess various potential performance-inhibiting factors on Division-1 athletes' perception of recovery and performance. **METHODS:** A small sample of endurance athletes [N=16, Male=13, Age=19.44 ± 1.50, Wt (kg)=70.77 ± 8.29, LBM (kg)=63.76 ± 10.72] were recruited to complete the following tests: body composition (InBody), inflammatory symptoms screening questionnaire, perceived recovery status scale, and the sports performance satisfaction questionnaire. Correlations and linear regression models were used to elucidate any predictive relationship between InBody metrics (BMI, PBF, LBM, SMI) and primary performance outcomes - including inflammatory symptom scores, perceived recovery, and performance questionnaires. **RESULTS:** Various correlations between InBody metrics and primary outcomes were found, albeit weak and inconsistent in their predictive ability. BMI (22.18 ± 1.55) was highly related to inflammatory symptom scores (8.93 ± 6.23; $r=.784$, $p<.001$) and significantly predicted inflammatory symptom outcomes ($R^2=.614$, $p<.001$). Further, performance satisfaction questionnaire scores were significantly correlated and predicted by skeletal muscle index ($r=.526$, $p=.044$; $R^2=.277$, $p=.044$) and trending towards significance with percent body fat ($r=-.475$, $p=.073$) and lean body mass ($r=.506$, $p=.054$). None of the metrics measured were significantly related to perceived recovery. **CONCLUSION:** The limited findings and weak correlations are likely attributed to the small sample size. These findings suggest skeletal muscle index is key to physical performance even for endurance athletes. However, the inconsistent relationship between inflammatory symptoms, perception of performance, and body composition metrics (SMI, PBF, LBM) necessitates further examination of additional physical factors that may impede performance. Further research will be conducted to gain an n-size of 60 athletes. Additionally, these athletes will be followed for 10 weeks with varying post-practice protein supplementation to assess changes over time in symptomology, recovery, and perceived performance.