



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 4th- 5th, 2017
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 6



Assessing The Impact of Body Fat Percentage And Lean Mass, on Wingate Performance

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The Wingate test is commonly utilized to assess the anaerobic power capabilities of athletes across various sporting disciplines. Although prior studies have assessed the impact that body composition values have on anaerobic performance in above averagely fit populations, it appears that no study has evaluated the relationship between body fat percentage (BF%), lean leg mass (LLM), and trunk lean mass (TLM) on Wingate performance in no less than averagely fit males. **PURPOSE:** To investigate the relationship between BF%, LLM, and TLM on Wingate performance in no less than averagely fit college-age males. **METHODS:** After having descriptive data recorded, 38 averagely fit college-age males had their BF%, LLM, and TLM assessed via a bioelectrical impedance analyzer. BMI was also calculated. Subjects participated in an 8 min dynamic warm-up on a leg cycle ergometer, followed by the completion of a maximal effort 30s sprint. Pearson Correlations were then performed between %BF, LLM, TLM, peak power (PP), and mean power (MP) with significance difference determined at $p \leq 0.05$. **RESULTS:** High to moderately high positive correlations existed between PP and TLM ($r = .834$, $p = .000$), LLM ($r = .773$, $p = .000$), BMI ($r = .657$, $p = .000$) as well as between MP and TLM ($r = .904$, $p = .000$), LLM ($r = .880$, $p = .000$), and BMI ($r = .619$, $p = .000$). However, no relationship occurred between BF% and PP ($r = -.064$, $p = .123$) while a low negative relationship occurred between MP ($r = -.234$, $p = .049$) and BF%. **CONCLUSIONS:** TLM, LLM, and BMI appear to have a strong positive relationship with Wingate performance in no less than averagely fit males, while BF% appears to have little to no relationship with Wingate performance. Further research may be necessary in order to determine if fitness level, sport specificity, or a different type of body fat percentage measurement technique may play a factor when considering if BMI, BF%, LLM, and TLM has a relationship with Wingate performance.