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The Correlation between Body Composition and Muscular Peak Power

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ABSTRACT

Purpose: The relationship between body composition and performance has been a topic of interest in the field of sports and exercise science. The aim of this study was to investigate the correlation between body composition and peak power.

Methods: A total of 39 participants were recruited and underwent a body composition analysis and the Wingate Power test for muscular peak power. Statistical analysis was performed to determine any significant associations between body composition parameters and peak power output.

Results: The muscular peak power is negatively correlated with body fat percentage (R=0.518, P<0.001). The Peak power is highly correlated with leg lean mass (R=0.915, P<0.001).

Conclusion: While the positive correlation between greater leg lean mass and higher peak power is expected, our findings revealed a negative association between body fat percentage and leg muscular peak power. These results suggest that reducing body fat may be a viable intervention for enhancing peak power.

PURPOSE

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METHODS

SUBJECTS

- **33 Participants**
  - 18 Males
  - 15 Females
- **Age**: 20.04 ± 0.32 yrs

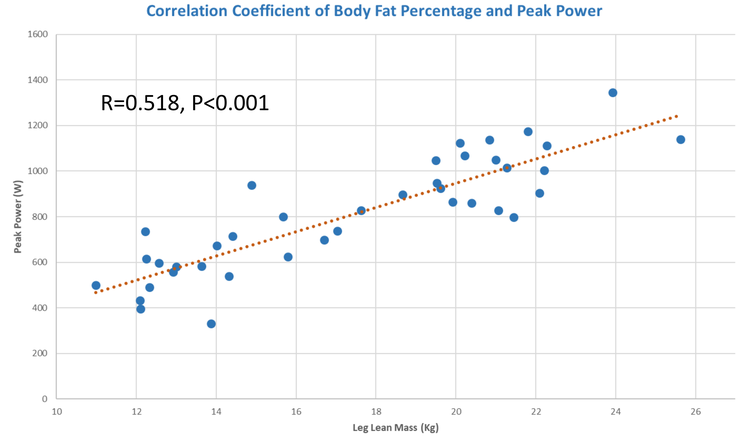
TESTING & MEASUREMENTS

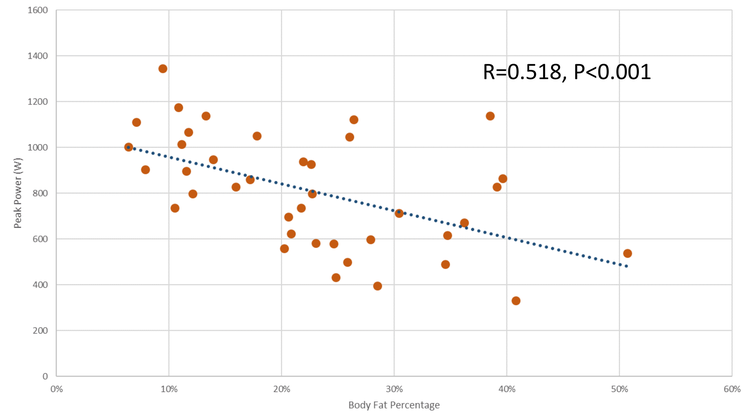
- **Wingate**
  - Monark Cycle Ergometer
  - Resistance: 7.5% Body Weight
  - 30 seconds
  - Maximal Effort
- **Electromyogram**
  - iWox
  - Vastus lateralis and the gastrocnemius of the right leg
  - Obtained during the Wingate test

STATISTICS

- Pearson Correlation Coefficient
- IBM SPSS 28

RESULTS





CONCLUSION

While the positive correlation between greater leg lean mass and higher peak power is expected, our findings revealed a negative association between body fat percentage and leg muscular peak power. These results suggest that reducing body fat may be a viable intervention for enhancing peak power.