



**SOUTH DAKOTA
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Relationships Between Nutrient Intake, Performance, and Body Composition in Male Collegiate Wrestlers

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INTRODUCTION

- Wrestlers rely on anaerobic capacity, and muscular strength and power (Cieśliński et al. 2020)
- Body Composition and nutrition are key components of success for this weight class sport (Chaabene et al. 2017)
- Few studies have examined the physiological and nutritional aspects that influence wrestling performance
- Defining these relationships may help professionals develop appropriate recommendations for weight class sports

OBJECTIVE

Examine relationships among nutritional intake, anaerobic, and strength measurements of performance, and fat free mass (FFM)

METHODS

- 3-day food record
 - Nutrient analysis
- 7-Site Skinfold assessment
 - Body composition
- Isokinetic Dynamometer
 - MVIC peak torque
- Cycle Ergometer
 - Time to Exhaustion (s)
 - Total Work (KJ)

Statistical Analysis:

- Pearson Product moment correlation
- First-order partial correlations
- Significance $p \leq 0.05$

RESULTS

Wrestlers	Age (year)	Body Mass (kg)	Height (cm)	Fat-Free Mass (kg)	Body Fat %	Years of experience
n = 11	21.1 ± 1.7	82.1 ± 18.7	174.9 ± 8.5	73.9 ± 11.9	9.0 ± 6.0	14.9 ± 2.2

- Energy, carbohydrate, and fat intake were positively correlated with extension and flexion PT, TTE, and TW ($r=0.652-0.902$)
- No correlations remained significant after partialing out the influence of FFM ($p>0.05$)

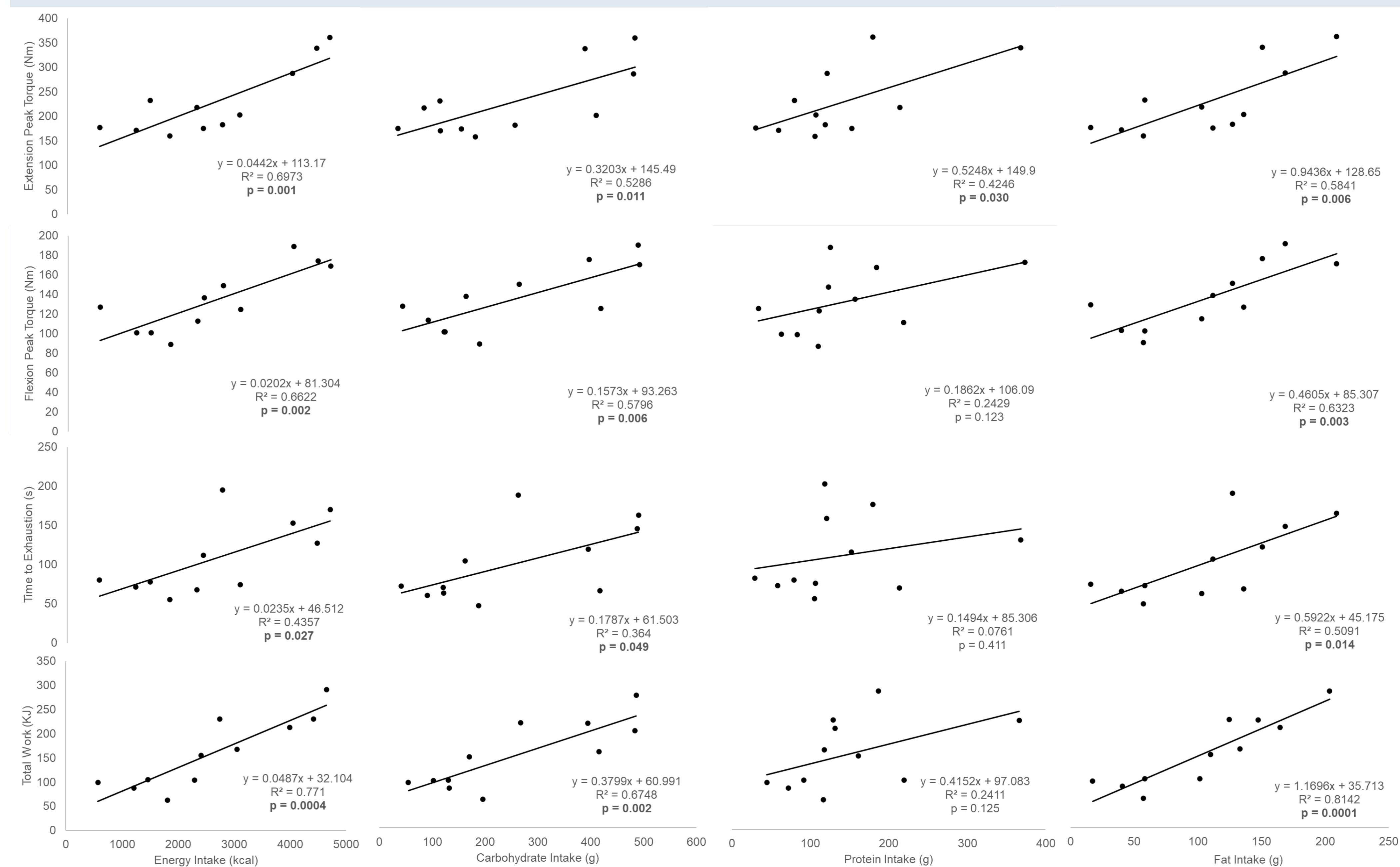


Figure 1. Scatterplots demonstrating correlations between performance variables and macronutrient intakes, ($p \leq 0.05$).

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IMPLICATIONS

- Suggested collinearity between FFM, nutrient intake, and performance measurements
 - FFM accounts for the majority of relationships between intake and performance
- Maintaining high FFM during competition season may help maintain performance
 - Adequate nutrition positively impacts FFM
- Individualized recommendations are necessary for optimal performance
 - Focus on maintenance of FFM during weight cutting

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