MEAL: MEASURING ENERGY AVAILABILITY AND LIFESTYLE FACTORS AMONG FEMALE COLLEGIATE ATHLETES

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Project summary & update:

Dietary intake can directly affect athletic performance. Athletes who consume insufficient calories to support their needs are at risk of low energy availability. Other lifestyle factors such as sleep quality and mental well-being also impact exercise performance. Our study, Measuring Energy Availability and Lifestyle (MEAL) factors among female collegiate athletes, is determining energy availability (EA) through direct measurement, and subsequently evaluating how EA is associated with exercise performance. Sleep quality and stress level are also assessed to determine the extent to which they each influence exercise performance.

A cross-sectional sample of physically active female college students (current N = 75, collegiate athlete sub-group = 51) has had dietary intake, body composition, resting metabolic rate, stress level, and exercise performance measured. In addition, select biomarkers are obtained from a fingerprick blood sample (hemoglobin, vitamin D, Omega-3 Index) and saliva sample (uric acid and C-reactive protein) to evaluate their relationship with EA. Participants wear an accelerometer-based device for five days to determine exercise energy expenditure and track sleep. Energy availability is calculated as energy intake (kcal/day) – exercise energy expenditure (kcal/day) divided by fat-free mass (kg).

Data collection and analysis is ongoing with a target completion date on or before April 1, 2025. Study results will help health and sport science professionals working with athletes to better understand the integrated relationships between dietary intake, lifestyle factors, and exercise performance. We are thankful for the support from the ACC for this project.