

Evaluating the Role of Dietary Micronutrients in Recovery Following Running and Cycling High Intensity Interval Training



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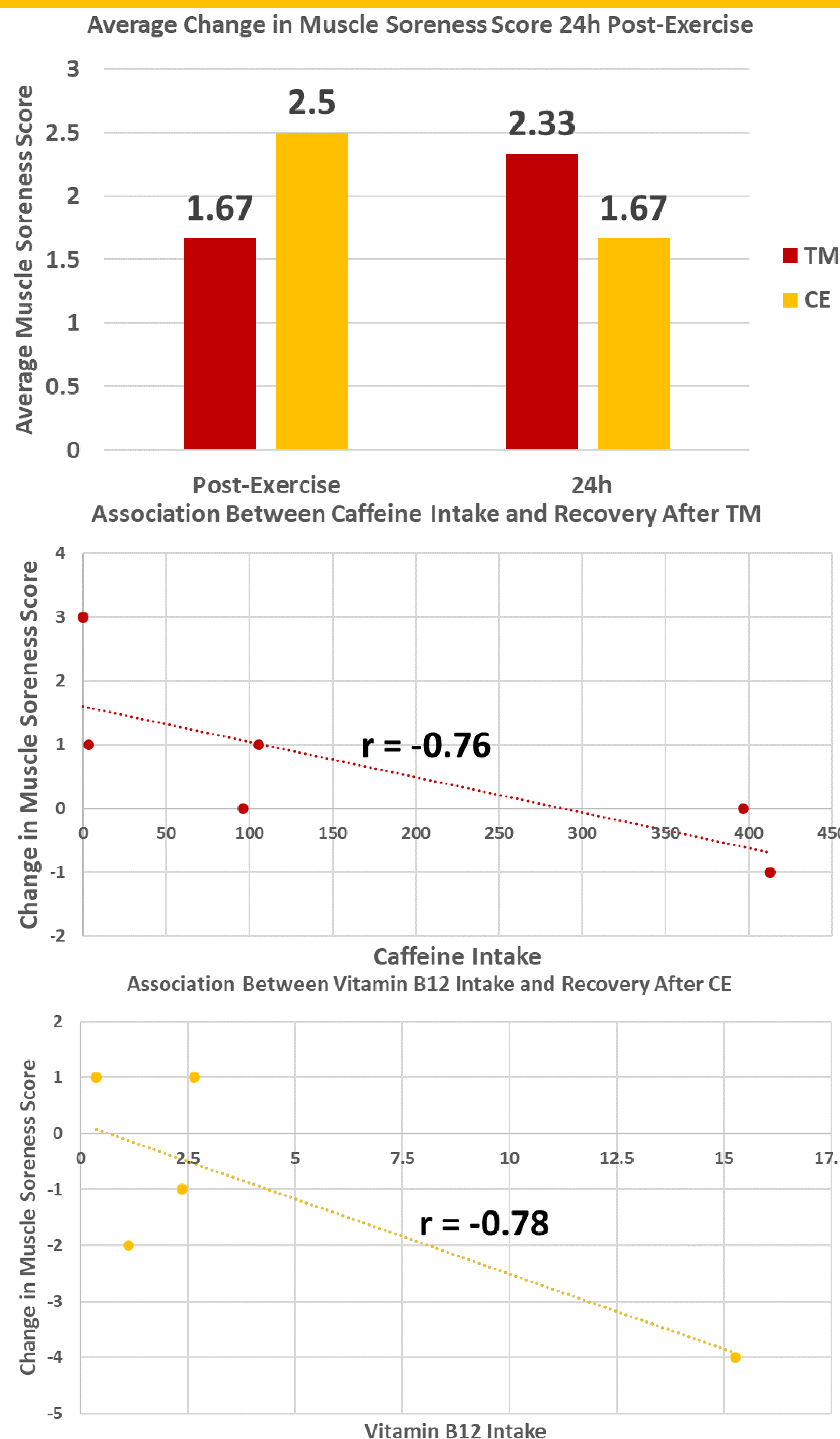
Background

High-intensity interval training (HIIT) is a popular form of exercise that is being performed by the general population as well as athletes. Proper nutrition before exercise is important for performance, however, it is also essential for recovery. Certain micronutrients in the diet, such as electrolytes and antioxidants, may play a larger role in recovery as a result of their ability to mitigate delayed onset muscle soreness (DOMS). Examining diet following different HIIT modalities will be useful for general and clinical populations as well as athletes, informing dietary decision-making for promoting optimal recovery. The purpose of this crossover-design study was to determine which dietary micronutrients were correlated with better recovery from DOMS after treadmill running and stationary cycling in young, healthy, recreationally active adults. We hypothesized that Vitamin B12 would have the highest correlation with recovery regardless of exercise modality.

Methods

- 6 participants (2 F, 4 M; 28.3 ± 2.1 yrs)
- No current HIIT training
 - HR_{max} and 4x4 HIIT treadmill (TM)/cycling (CE) protocols
 - Active Period (AP: 4 min): 85-95%
 - Recovery Period (RP: 3 min): 60-70%
- ASA24 – nutrient intake
- Likert 0-6 Scale - DOMS
- Pearson's r calculated for correlations between micronutrient intake and recovery from DOMS

Results



Conclusions

- Caffeine had strongest correlation with recovery from DOMS following running vs. Vitamin B12 following cycling
- Equal increase in muscle soreness immediately following HIIT in both modalities
- Continued ↑ in DOMS following treadmill running while ↓ after cycling during recovery

Future Directions

1. Increase sample size.
2. Measure circulating creatine kinase as an objective marker of muscle soreness
3. Measure performance during a maximal effort countermovement jump to investigate the effects DOMS following HIIT has on performance
4. Investigate efficacy of 4x4 HIIT programs in clinical populations while measuring DOMS

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