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Enhancing Performance and Health Outcomes with Optimal Exercise and Nutrition Programming

Commentary

Chris Algieri[1]

[1] *Nova Southeastern University, Fort Lauderdale, Florida/USA*

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Corresponding author: Chris Algieri, calgieri@nova.edu

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Introduction

Exercise and nutrition, when used as a mode to improve health outcomes is well-researched and accepted by researchers and clinicians, alike. Numerous health organizations have developed general recommendations such as physical activity and exercise to inform the public how to improve health outcomes. More often than not, these guidelines are vague and do not suggest how to achieve optimal health via exercise and nutrition. These guidelines also fail to consider physiological and psychological variability for patients and individuals aiming to follow such guidelines. For example, current recommendations include exercise intensities based on low, moderate, and vigorous activity and many people may not understand the physiological cost of such exercise intensities. Presently, accessible consumer-grade technology allows for accurate measurements of relative heart rate, exercise time, distance, and estimated caloric expenditure[1] which is presumed easy for any person to understand. Therefore, creating guidelines that target specific and measurable variables, such as relative heart rate may be more advantageous for individualized health optimization.

Notably, recommendations should aim to include optimal loads and intensities of exercise. Athletes at almost every level and fit individuals engage in large quantities of exercise, especially high intensity exercise. Research has found that high volumes of exercise training is related to low numbers of sick days in aerobically trained athletes[2]. The previously flawed notion that too much high intensity exercise may lead to a suppressed immune system and lead to sickness does not consider adequate nutrition, stress, and other factors[3]. A suppressed immune system may be due to inadequate dietary intake, suboptimal environmental factors, previous illness, and not simply exercise intensity, alone[4]. Thus, research should aim to better understand thresholds of high volume and intensity exercise that may begin to compromise immune function and encompass adequate nutritional intake of macro and micronutrients, environmental, and behavioral factors[3]?

In addition to optimal exercise recommendations, ideal nutritional strategies for high intensity, high volume exercise requires rigorous experimental investigation. Opportunities exist to evaluate how macro and micronutrient intake can uphold immune function throughout consistent bouts of long duration, high intensity exercise. Of primary interest, research should aim to evaluate a proper dose-response relationship of carbohydrate intake to keep glycemic responses

low, aiming to improve weight loss or weight maintenance, while also protecting immune function[5]. Research has shown the human gut microbiota is largely impacted based on the type and quantity of carbohydrate ingested[5]. A methodological challenge exists when keeping carbohydrate intake low for weight loss, while also maintaining optimal gut microbiota and maintaining energy to engage in daily bouts of high volume, vigorous intensity exercise. Future research should aim to assess optimal ranges of carbohydrate intake, exercise load and volume to optimize weight loss, maintain energy, and enhance the gut microbiome.

References

1. Loncar-Turukalo T, Zdravevski E, Machado da Silva J, Chouvarda I, Trajkovik V. Literature on Wearable Technology for Connected Health: Scoping Review of Research Trends, Advances, and Barriers. *J Med Internet Res.* 2019;21(9):e14017.
2. Martensson S, Nordebo K, Malm C. High Training Volumes are Associated with a Low Number of Self-Reported Sick Days in Elite Endurance Athletes. *J Sports Sci Med.* 2014;13(4):929-933.
3. Venkatraman JT, Pendergast DR. Effect of dietary intake on immune function in athletes. *Sports Med.* 2002;32(5):323-337.
4. Kau AL, Ahern PP, Griffin NW, Goodman AL, Gordon JI. Human nutrition, the gut microbiome and the immune system. *Nature.* 2011;474(7351):327-336.
5. Chassard C, Lacroix C. Carbohydrates and the human gut microbiota. *Curr Opin Clin Nutr Metab Care.* 2013;16(4):453-460.