

Rapid Weight Loss in Athletes: A Look at Suppressive Effects on Immune System

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Abstract : For most competitions, athletes usually engage in a process called rapid weight loss (RWL) and subsequent rapid weight gain (RWG) in the days preceding the event. Besides the perfection of performance, weight regulation mediates a self-image of being “a real athlete” which is mentally important as a part of the pre-competition preparation. This feeling enhances the focus and commitment of the athlete. There is a large body of evidence that weight loss, particularly in combat sports, results in several health benefits. However, intentional weight loss beyond normal levels might have unknown negative special effects on the immune system. As the results show, a high prevalence (50%) of RWL is happening among combat athletes. It seems that energy deprivation and intense exercise to reach RWL results in altered blood cell distribution through modification of body composition that, in turn, changes B and T-Lymphocyte and/or CD4 T-Helper response. Moreover, it may diminish IgG antibody levels and modulate IgG glycosylation after this course. On the other hand, some studies show suppression of signaling and regulation of IgE antibody and chemokine production are responsible for immunodeficiency following a period of low-energy availability. Some researchers hypothesize that severe glutamine depletion, which occurs during exercise and calorie restriction, is responsible for this immune system weakness. However, supplementation by this amino acid is not prescribed yet. Therefore, weight loss is achieved not only through chronic strategies (body fat losses) but also through acute manipulations prior to competition should be supervised by a sports nutritionist to minimize side effects on the immune system and other body systems.

Keywords : athletes, immune system, rapid weight loss, weight loss strategies

Conference Title : ICAPHEF 2020 : International Conference on Applied Physiology, Health, Exercise and Fitness

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : December 17-18, 2020