

Nutrition and athlete immune health: Food first but not food only

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Infections affecting the respiratory and gastrointestinal tracts pose a serious problem for elite athletes, second only to injury in surveys of factors that limit an athlete's availability to train and compete. Nutrient availability influences immunity because macro- and micro-nutrients are involved in a multitude of immune processes; for example, macronutrients are involved in immune cell metabolism and protein synthesis, and micronutrients in antioxidant defences. The impact that severe nutritional deficiency has on immunity is clearly demonstrated in malnourished children with advanced Kwashiorkor who suffer lymphoid atrophy and increased infections. In severe malnutrition and starvation protein deficiency is considered largely responsible for clinical immune suppression. Thankfully there is currently limited evidence that the dietary strategies of elite athletes clinically suppress immunity. Nevertheless, in accordance with a food first strategy, athletes are recommended to follow a varied diet that avoids frank deficiencies of any of the macro- or micro-nutrients required for proper immune function, irrespective of their dietary preference (e.g., omnivorous, plant based).

Growing evidence indicates that for some nutrients there are times when intakes above recommended levels may have beneficial effects on immunity; likely by optimising the delicate balance between immune resistance (the ability to destroy microbes) and tolerance (the ability to dampen defence yet control infection at a non-damaging level). New research findings on respiratory infection, including COVID-19 infection, place tolerogenic supplements like vitamin D (also vitamin C, probiotics and others) firmly in the spotlight as candidates to reduce respiratory illness burden in athletes.

This presentation is relevant for both the practitioner and scientist as it will provide up-to-date nutritional recommendations for athlete immune health and highlight important directions and methodological considerations for research in this space.