

Athlete Health in Elite Sports – Endurance

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Endurance athletes strive to maximise training volume as this seems to be the key determinant of performance development. High training volume is met not only with high energy requirements and often a struggle to meet them, but also frequent periods of immune system suppression and thus increased susceptibility for illnesses. Whilst nutrition plays an important role in athletes' health, it is not the only factor. Nutrition should be viewed as an essential part of a well-orchestrated system comprising of different parts such as training programme, recovery strategies, and general lifestyle. Each one of these components has a significant influence on the performance, health, and general well-being of athletes.

It is undisputed that exercise offers the biggest training stimulus for training adaptations and that the main role of nutrition is to provide sufficient energy stores for completion of exercise sessions and, at best and in certain scenarios, help to improve performance, enhance training adaptations and/or improve recovery. When it comes to health, evidence is clear that insufficient energy availability, and especially carbohydrate availability, can negatively affect athletes' health via the mechanisms described in the REDs paradigm. When exercise volume is very high, reaching sufficient energy intake can be difficult to achieve. As well, this problem can be exacerbated by the desire for athletes to consume, so called, healthy foods, as presented to them by recommendations for the general population. For instance, avoiding items high in fructose and sugars in general, while attempting to maximise the intake of foods high in dietary fibre could lead to the inability to reach daily energy and carbohydrate requirements. In addition, it is common to consider the daily energy requirements in the context of a 'calendar day' rather than adapting the energy requirements based on the previous and upcoming exercise sessions. Energy turnover in endurance athletes during a single bout of exercise can sometime double or even triple resting metabolic rate, and, thus, exercise bout for the athletes presents a time frame when the energy deficit is largest. As a result, for athletes, nutrition should be viewed in the context of training demands and, therefore, recommendations should differ from the ones for the general population.

Another issue related to energy status within endurance sports is the desire to reduce body mass for optimal power to mass ratio. This approach can not only end up negatively affecting health but also performance. While in many sports performance is determined by power production relative to body mass and thus low body mass is desired, it is not uncommon to see worsening of the power component of the equation after severe body mass loss programmes. Hence, low body mass does not always lead to better performance and, therefore, care should be paid into avoiding periods of severe energy deficits.

Ultimately, nutrition for endurance athletes should first and foremost be focused on getting the energy and macronutrient composition in line with the demands of exercise, and only then, should performance and health enhancing supplements be taken into consideration.