

Are there Nutritional Recommendations for Wheelchair Basketball Available?

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The study of nutritional requirements of team sports athletes is growing considerably in recent years, allowing determining their nutritional needs both, in training and competition. However, scientific research does not seem to progress in the same way with Paralympic team sports, such as wheelchair basketball. Scientific literature does not allow determining the most effective nutritional practices to improve performance and recovery of these athletes nor to reduce the incidence of injuries other than the chronic disability of the subjects [1,2].

Among the different Paralympic sports, the wheelchair basketball has one of the highest energy expenditure during its practice but if it is compared to conventional basketball, the energy cost is lower and, therefore, also its caloric requirement. Thus, it might not be recommendable to use the equations to obtain the energy expenditure in traditional basketball players with this population. In addition, it could be most important to take into account the type of injury of athletes, because his great influence in the body composition and energy expenditure since it can modifies the strength, speed, agility, play position, thermoregulation and even the functionality of the sympathetic system, among other factors (e.g., paraplegia is related to a reduced functionality of nervous system and slower gastric emptying, which delays the absorption of nutrients together with a restricted synthesis of adrenaline and noradrenaline and less lipolysis of the adipose tissue) [3,4].

A recent study showed that the mean value of energy expenditure at rest of wheelchair dependent basketball players was 62.7 ± 15.0 kcal/h. Further, weekly energy expenditure in sport specific activities of 1712 Kcal/week was found [5]. In addition, Paffenbarger et al. (2011) recommend adding 2000-3000 kcal per week or approximately 300-350 kcal per day to obtain the greatest possible reduction of the risk of myocardial infarction [6].

Therefore, in any case, the first step will be to measure the body composition of the players. There are different methods to measure it: air displacement plethysmography (BOD POD), dual energy X-ray absorptiometry (DXA), bioelectrical impedance analysis (BIA), isotonic dissolution, hydrodensitometry and Kinanthropometric. DXA is the most recommended method for this population due to his precision and the measurement of the different segments as: right/left leg, right/left arm and trunk but also because allows the total subsection of the player's body [7]. Nevertheless, Kinanthropometric is the least expensive and easiest method to carry out with these players allowing to obtain data as wingspan, seated height (cm), body weight (kg), skinfolds (mm), perimeters (cm) and the subsequent calculation of body density [7,8].

Regarding nutrients requirements there is not scientific literature available about this population. Therefore, the planning of the nutritional intake in respect to training and competition might to be based, at the moment, on the Nutritional Guidelines for traditional basketball players: carbohydrates: 7-12 g/kg weight/day; protein: 1.4-1.7 g/kg weight/day; Fat: 20-35% of total daily energy intake [9]. However, the use of these Guidelines could lead to make mistakes in the

nutritional planning as the nutrient requirements of these players vary from one to another not only because of their body composition but also because of their degree of disability and chronic injury.

This short commentary aims to highlight the absence of nutritional recommendations in this population, which means a greater health risk for the players than in those without chronic disabilities. It aims to encourage researchers and professionals in nutrition and sport sciences to carry out specific studies regarding nutritional requirements for training and competition, taking into account the different degrees of disability and level of training in Paralympic team sports as wheelchair basketball.

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