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ORIGINAL ARTICLE

Nutritional behavior of Polish canoeist's athletes: The interest of nutritional education

Comportement alimentaire des kayakistes polonaise : intérêt d'une formation à la nutrition

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Canoeists

Summary
Objective. — Properly balanced daily diet is necessary to generate energy during exercise and increases the energy substrates de novo synthesis after exercises. The objective of this study was to evaluate the intake of energy, basic nutrients and supplements with daily diets by professional slalom canoeists, which have not been under control of dieticians, before and after the nutritional education.
Materials and methods. — The intake of nutrients was assessed with 24-h recalls in two seasons during the year for the next two years. After the first year of this study sportsmen and their coaches had individual and group consultations concerning the nutritional guidelines and their nutritional mistakes.
Results. — Nutritional mistakes of sportsmen relied on incomplete coverage of the recommendations for energy (in the first year of study women met recommendation in 55.3%, men in 62.5% in the second year respectively in 58.6 and 74.4%) and carbohydrates (in the first year of study women met recommendations in 51.7% diet, men in 64.8% in the second year respectively in 59.8 and 81.0%). What is more, almost half of population did not meet recommendations for total fat intake compared to the value of 30% energy from fat. In the first year of study only 50.6% of women and 57.1% of men met these recommendations and in the second year 54.4% women as well as 64.7% men. It was also found that nutritional education might result in improved eating habits.

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Conclusions. — Improvement of nutritional habits after workshops with nutritionists justifies the need to continue nutritional education among professional slalom canoeist and their coaches.

MOTS CLÉS
Formation à la nutrition ;
Dépense énergétique ;
Glucides ;
Lipides ;
Albumines ;
Kayakistes de slalom ;
Sport

Résumé
Objectif. — Le but de cette recherche est d'analyser la façon dont est évaluée l'assimilation des besoins énergétiques et des éléments nutritifs contenus dans les aliments et compléments alimentaires par les kayakistes de slalom avant et après avoir suivi une formation à la nutrition.
Matériel et méthodes. — L'analyse a été réalisée après l'interview des dernières 24 heures. Après la première année de recherche, on a effectué plusieurs consultations individuelles et collectives avec les sportifs et leurs entraîneurs. Ces consultations ont concerné les erreurs de nutrition commises et les règles de bonne alimentation pour les sportifs.
Résultats. — Les erreurs nutritionnelles rencontrées chez les sportifs portaient sur une évaluation insuffisante des besoins énergétiques notamment en hydrates de carbone. Qui plus est, près de la moitié de la population n'a pas eu de recommandations sur les besoins et l'apport en matières grasses. Il a également été prouvé que l'éducation nutritionnelle peut entraîner une amélioration des habitudes alimentaires.
Conclusions. — Amélioration des habitudes alimentaires après des ateliers avec des nutritionnistes, ce qui justifie l'intérêt de poursuivre l'éducation nutritionnelle chez les canoteurs de slalom professionnel et leurs entraîneurs.

1. Introduction

For the proper functioning of the human organism, it is important to provide the necessary amount of energy and all nutrients with daily diet [1,2]. Properly balanced diet should be a good source of carbohydrates, fats and proteins, which are the major sources of the energy. The demand for energy, needed to maintain proper weight and body composition, depends primarily on gender, age and physical activity level (PAL) [3,4].

High sports scores achieved during the competitions are the result of intense preparation, repeated several times during the training and start period by professional sportsmen. The major objective in preparation for competing is storing in an athlete's body optimal energy reserves in the form of glycogen, which is cumulated mainly in the muscles and the liver [1,5,6]. It has been also observed that during the intensive training the intake of energy, carbohydrates and proteins is higher [7,8]. Additionally, energy expenditure should be equal to the energy delivered from average daily diet [3,9,10]. According to the current nutritional recommendations, the share energy from carbohydrates, fats and proteins in energy value of daily diets should be at 50—70, 15—30 and 10—15% respectively [4,8].

It has been well reported that daily diets of sportsmen and other populations do not meet recommendations for energy and carbohydrates [11—16]. Nutritional education, focused on correction of eating habits, seems to be the appropriate action to improve dietary habits of sportsmen. Especially medical doctors and trainers should be involved in this process [11,17—19].

The objective of this study was to evaluate the energy, basic nutrients and supplements intake with daily diets by professional slalom canoeist which were not under control of dieticians before and after the nutritional education.

2. Material and methods

In this study, 8 women and 29 men of Polish national team of slalom canoeists were involved. These sportsmen had master international class or first class in the canoeing discipline. The age of athletes (in the first year of studies) ranged from 16—26 years for women, and 16—27 years for men. In order to participate in this study, sportsmen had to have at least a four-year training period and a very high level of physical activity. They were qualified to the group with high physical activity level as was previously reported [8]. Shortly, sportsmen were qualified to the group with very high physical activity level, when out of daily activities, they had at least 60 minutes with an average exercise intensity (60—70% VO_2 max.) and another 60 minutes with a high-intensity exercise (90% VO_2 max.), or 120 minutes with an average exercise intensity, which generally corresponds to two full units training during the day. In both years studies were conducted during the same periods of the training cycle e.g. training period — autumn-winter season; start period spring-summer season.

During the study anthropometric measurements and body composition were evaluated in the autumn-winter season in both years of studies, at the same time when the nutritional pattern was done. Height, weight, body mass index, fat mass (FM), muscle mass and total water content (TBW) were assessed.

Based on measurements of height as well as body mass the body mass index was calculated (BMI). In order to properly identify persons under 18 years of age ($\leq$ 18 years), with