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Original article

Nutritional status of students practicing fencing atttending sports schools☆

La nutrition des élèves pratiquant l'escrime en sport-études

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Abstract

Aim. – The aim of this research was to assess the influence of various factors on nutritional status in children and adolescents practicing fencing and to carry out a detailed analysis of nutritional status in the studied population, taking into account the most significant variable.

Current knowledge. – One of the most important issues of human nutrition is the assessment of nutritional status of children and adolescents, especially those who practice sport. There are still a lot of gaps in the knowledge on nutritional status of young athletes. The reason for this is a variety of sports disciplines and forms of training which requires detailed research and screening of young athletes' growth and development.

Prospects. – In the studied population of children and adolescents practicing fencing typical gender differences in body stature and body composition occurring with age were observed, as well as favourable changes in blood lipid profile, glucose level and haematological indices.

Résumé

Objectifs. – L'objectif de cette étude est d'évaluer l'influence de plusieurs facteurs sur le statut nutritionnel des jeunes escrimeurs et d'apporter une analyse détaillée de ce statut pour une population donnée, prenant en compte la variable la plus significative.

Actualités. – L'une des questions les plus importantes dans le domaine de la nutrition humaine est l'évaluation des statuts nutritionnels des enfants et adolescents, et particulièrement ce qui pratique une activité physique. Il y a encore des zones d'ombre dans la connaissance du statut nutritionnel de ces jeunes sportifs. La raison principale est qu'il existe une grande diversité de disciplines et de modalités de pratiques qui requièrent une recherche détaillée et une étude sur la croissance et le développement des jeunes sportifs.

Perspectives. – Dans la population étudiée, des différences typiques selon le genre ont été observées pour la masse corporelle, le métabolisme, selon les âges tout comme des modifications positives du taux de lipides, de glucose, et d'indices hématologiques.

Keywords: Nutritional status; Anthropometrical measurements; Biochemical indices; Haematological indices; Children; Adolescents; Fencing; Sport; Athletes

Mots clés : Statut nutritionnel ; Mesures anthropométriques ; Indices biochimiques ; Indices hématologiques ; Enfants ; Escrime

1. Introduction

One of the most important issues of human nutrition is the assessment of nutritional status of children and adolescents, especially those who practice sport. Detailed nutrition guidelines for athletes have been worked out [29,35] and nutritional status of athletes has been the aim of many studies [5,12,18]. However, knowledge on nutritional status in young athletes is still incomplete, because of the variety of sports disciplines and forms of training which requires thorough research and screening of young athletes' growth and development.

The aim of this research was to assess the influence of various factors on nutritional status in children and adolescents practicing fencing and to carry out a detailed analysis of nutritional status in the studied population, taking into account the most significant variable.

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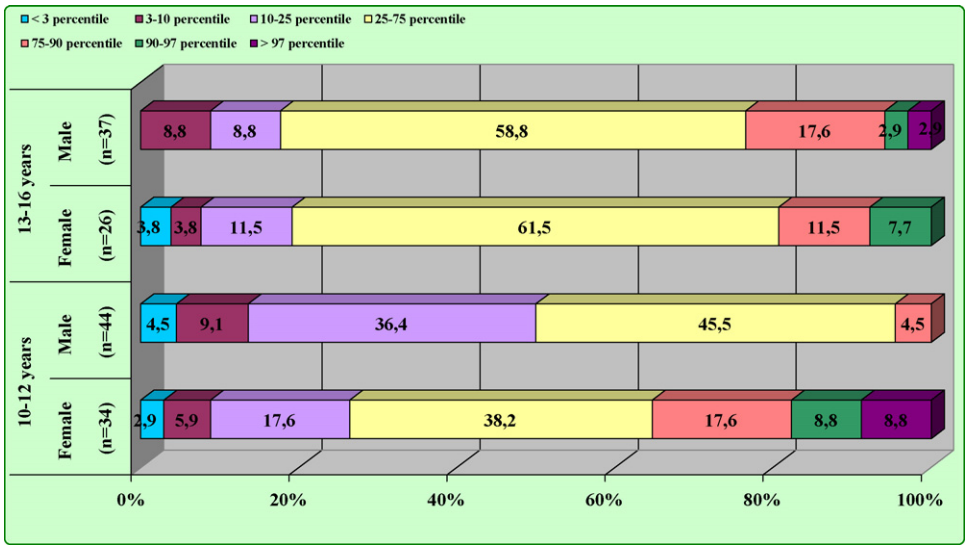

Fig. 1. Distribution of students practicing fencing attending sports schools in percentile categories for height.

2. Population and methods

A population of 141 children and adolescents practicing fencing attending primary and secondary sports schools in Poznań participated in the study. Anthropometrical measurements and biochemical and haematological indices were assessed. The measurements were made in the morning and the blood was taken after an overnight fast. The research was approved by the Bioethics Committee of the Poznan University of Medical Sciences.

Anthropometrical measurements included body weight and height. Body mass index (BMI) was also calculated. To assess weight, height and BMI, percentile growth charts for Poznań children [21,22] were used. The cut-off values for body height and weight were below the third percentile and above the 97th percentile [20]. Using skinfold thicknesses, percentage of body fat and fat-free mass were calculated from the formulas worked out by Socha [31]. For these calculations, Microsoft Excel for Windows 2003 was used.

Serum protein, glucose, total cholesterol, HDL-cholesterol, triacylglycerols, iron, total calcium, magnesium and phosphorus were assessed by means of the bioMerieux kit and serum sodium, potassium and ionized calcium were assessed by means of the AVL 9140 (USA) electrolyte analyser. Serum LDL-cholesterol was calculated. Haematological indices were assessed using the Sysmex F-500 haematological analyser.

Statistical analysis was carried out by means of the SPSS 11.5 PL for Windows computer programme. The studied population was divided into four subgroups taking into account the most significant variable "gender–age".

3. Results

The characteristics of the studied population of students practicing fencing attending sports schools was presented in our previous article [6].

Table 1 shows mean anthropometrical parameters in the students practicing fencing attending sports schools. The variable

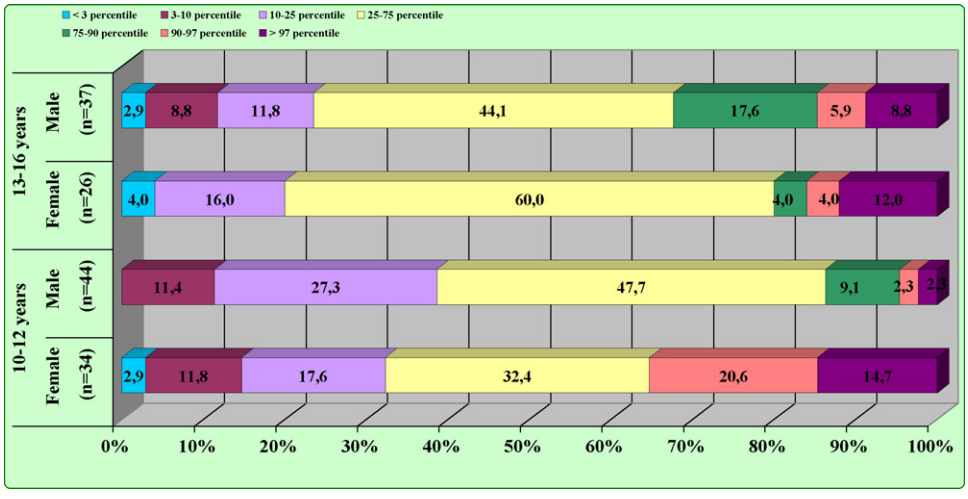

Fig. 2. Distribution of students practicing fencing attending sports schools in percentile categories for weight.