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Original article

Motor and morphological profile of tennis players from 11 to 15 years old

J.L. Schluga Filho[b], M. Romanovitch Ribas[a,b], L. de Oliveira Nogueira[b], C. de Andrade Jr.[a], P. Fernandes[b], J.C. Bassan[a,c,*]

[a] *Programa de Pós-graduação em Engenharia Biomédica (PPGEB – UTFPR), Curitiba, Paraná, Brazil*
[b] *Laboratório de Bioquímica e Fisiologia do Exercício, Faculdade Dom Bosco, Curitiba, Paraná, Brazil*
[c] *Laboratório Bioquímico e Densitométrico (LABDEN), Universidade Tecnológica Federal do Paraná, Curitiba, Paraná, Brazil*

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ABSTRACT

Objective: Determine the motor and morphological characteristics of amateur tennis players from 11 to 15 years old.
Method: 11 male athletes from the Paranaense Tennis Federation were evaluated during the competition period. Anthropometric variables (total body mass, height, circumference and skinfolds) were assessed.
Results: The following median values were obtained: 45.8 kg of total body mass, 160 cm of height, fat percentage of 14%, lean mass of 37 kg, and fat mass of 5 kg.
Conclusion: The study concluded that athletes show a profile of body composition similar to the profile of tennis players of the same age.

Perfil motor y morfológico de jugadores de tenis de 11 a 15 años de edad

Palabras clave:
Tenis
Antropometría
Potencia anaeróbica
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RESUMEN

Objetivo: Determinar las características morfológicas y motoras de jugadores aficionados de tenis de edades de 11a15 años.
Método: Fueron evaluados 11 atletas masculinos, afiliados a la Federación Paranaense de tenis, en periodo de competición. Se midieron las siguientes variables antropométricas: masa corporal total, altura, perímetros y pliegues cutáneos.
Resultados: Se obtuvieron los siguientes valores medianas: masa corporal total 45.8 kg; estatura 160 cm; 14% de masa grasa, 37 kg de masa magra y 5 kg de masa grasa.
Conclusión: Los atletas valorados en el presente estudio tienen un perfil de composición corporal similares al perfil de los jugadores de tenis de la misma edad.

* Corresponding author.
E-mail address: jcbassan@utfpr.edu.br (J.C. Bassan).

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Profile motor and morphological tennis players of the type of field of 11 to 15 years

Palavras-chave:
Tênis
Antropometria
Potência anaeróbia
Educação Física

R E S U M O

Objetivo: Determinar as características morfológicas e motoras de atletas amadores de ténis com idade de 11 a 15 anos.
Método: Foram avaliados 11 atletas do sexo masculino, inscritos na Federação Paranaense de Tênis em um período de competição. Os atletas foram avaliados para as variáveis antropométricas: massa corporal total, altura, circunferência e dobras cutâneas.
Resultados: Obtiveram os seguintes valores médios: 45.8 kg para massa corporal total, 160 centímetros de altura, percentual de gordura de 14%, em massa magra de 37 kg, e de massa de gordura de 5 kg.
Conclusão: O estudo concluiu que os atletas mostram um perfil de composição corporal semelhante ao perfil dos jogadores de tênis da mesma idade.

Introduction

The modality of field tennis is in constant growth and development in our country, and this ascension is due to the arising of Brazilian tennis players with international relevance like Gustavo Kuerten, from Santa Catarina. He has three Grand Slams awards, that was in Roland Garros and various Masters Series awards, making him first place in the Mundial Ranking of Association of Professionals Tennis Player (ATP) in December 2000.[1] The practice of field tennis can be classified as intermittent effort during the game, respecting the energy supply.[2] Therefore, it is suggested that what happens is a mixture of the aerobic and anaerobe energetic systems for energy supply.[3]

Moreover, the athlete's performance in a match requires physical abilities that allow him to make sudden and fast stops as well as to change direction. That happens due to the constant exchange of balls,[4] that occurs in matches that the lasting time can change between 60 and 300 min.[2] Observing the behavior of the morphological variables over the perimeters of the right side of the body compared to the left side, different muscle asymmetries can be developed.[5]

Such matter is justified by the specificity of the modality that prioritizes the sidedness that can develop undesirable imbalances in long term such as increasing of strength and hypertrophy induced by sport, evolving to recurrent injuries or diminishing the functional capacity.[6]

Regarding the body fat percentage, when it is reduced it can be advantageous for the those who practice tennis due to the movements in court, very often being executed in bursting movements that require good levels of agility and velocity.[7] It is important to point out that the explosive strength in the legs is imperative to obtain a good capacity of acceleration while the fast strength in the upper limbs is necessary to hit the ball hard.[4]

Having in mind that are only a few studies made with adolescent athletes, it is necessary to investigate the motor and morphological profile of these athletes in order to detect ideal patterns to the practice the modality. Determine the morphological characteristics of a amateur field tennis athlete with age between 11 and 15 years old.

Method

This research is a transversal study that consists in 11 male individuals, with ages between 11 and 15 years old, amateur tennis players registered at the Federação Paranaense de Tênis, in competition period in Paraná. Such athletes had a routine of two and a half hours of daily practice. The search for the information happened in August, 2013, by a physical education professional, that belongs to a group of the Laborátorio de Bioquímica e Fisiologia do Exercicio da Faculdade Dom Bosco. The athletes were evaluated in pre-established days, for that were used the club installations, where the boys used to practice, those installations had the necessary infrastructure. In order to obtain a more homogeneous group, some exclusion criteria were adopted: (a) athletes who presented muscle and joint injuries during the evaluation process; (b) athletes who use medication that could affect the responses during physiological tests; (c) athletes who refused to attend the research. All participants signed the Informed Consent according to the CNS Resolution 466/12. This research has been approved by the Committee of Research Ethics at Dom Bosco College, under the CAAE – 0084.0.301.000-11.

The anthropometric evaluation was composed by measurements of total body mass (MCT), total height (ESTT), circumference, triceps skinfold (DCT), subscapular skinfold (DCSE) and suprailiac skinfold (DCSI). The MCT was measured in an anthropometric scale (Tanita Bf-680w digital monitor) with 100 grams resolution; the ESTT was determined with a digital stadiometer (Seca®, Hamburg, Germany) with measure from 0 to 220 cm, 0.1 cm resolution, considering as the final result the arithmetic mean of three consecutive measurements, with the individuals with no shoes and light clothes.

The skinfolds (DCT and DCSE) were measured three times with an adipometer (Lange®, Beta Technology Incorporated, Cambridge, USA) with scale from 0 to 60 mm, 0.1 mm resolution, in the right hemibody, considering the final result as the arithmetic mean of the measurements. The DCT was obtained vertically in the midpoint of the length of the right arm between the acromion and the olecranon. The body adiposity was estimated by the pubescent equation, such protocol is recommended to kids and adolescents from 11 to 15 years old.[8]

Pre-pubescent = G% = 1.21 (S) – 0.008 $(S)^2$ – 1.7
Pubescent = G% = 1.21 (S) – 0.008 $(S)^2$ – 3.4
Post-pubescent = G% = 1.21 (S) – 0.008 $(S)^2$ – 5.5
S = sum of folds: triceps and subscapular.

To evaluate the perimeter, it was used the anthropometric tape (Cescorf) with 2 m of length and 0.1 cm resolution. The following perimeters were evaluated: relaxed arm, contracted arm, forearm, thorax in inspiration position, thorax in expiration position, waist, abdomen, hip, proximal thigh, medial thigh, distal thigh and calf.[9]