

59 - PROFILE ANTHROPOMETRIC, SOMATOTYPE AND MOTOR PERFORMANCE OF ATHLETES FEMININE FUTSAL AMAZONENSE SELECTION SUB-20 CATEGORY.

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INTRODUCTION

Practiced world-wide the futsal it comes receiving great attention on the part from involved researchers in sciences of the sports in Brazil. In Amazon it had a vertiginous growth of the modality, however the scientific productions had not followed this demand, therefore the accomplishment of research becomes necessary that comes to still more contribute with the development and evolution of this modality.

This sport is characterized by acyclic movements, with fast and intense actions in a short interval of time. These actions include: races with direction changes, jumping, dribbling, kicks, pitching, passes and constants you disarm. Having knowledge these characteristics it is possible to identify which are the changes alterations in the physiological demands. During a departure. In elapsing of the game normally the used energy is proceeding from the anaerobic metabolism, lactic or alactic, and the moments of recovery of the aerobic metabolism.

In this way he is essential that the athletes have a good physical conditioning, in such a way aerobic how much anaerobic, this to happen is necessary that the program of physical training for this modality well is planned and directed for the scientific principles of the sporting training. The physical aptitude in the specific context of the futsal mentions an amplitude to it of individual characteristics that include anthropometrics and physiological factors (SANTI et.al MARIA., 2009).

To know the anthropometrics characteristics, somatotype and of physical aptitude of the group of athlete, will give subsidies that will facilitate in the lapsing of the physical training to the involved ones with the physical preparation in the futsal. The evaluation of the corporal composition quantifies the structural components of the body: muscle, bones and fat (McARDLE et. al., 2008). The periodic physical evaluations make possible to the physical preparers the knowledge of the physical conditions of the athletes to more control and to prescribe the physical preparation in adjusted way.

Therefore, this study it has as objective to describe the anthropometric, somatotype profile and motor performance of the integrant athletes of the amazonense election category sub 20 in preparatory phase for the Brazilian Championship of Elections 2010 that one will become held in Old Port in the period of 25 the 31 of October.

METHODOLOGY

This study a time is of character description-exploratory that has as objective to describe the profile of a group. The statistical 0 variable used to evaluate the corporal composition and motor performance had been: average, shunting line-standard, frequency and percentage, for somatotype had been used only percentile frequency and. All the descriptive statistics was made through the use of the Statistical Package for Social Sciences (SPSS) for Windows in version 11,5.

The population of this study is to the twelve athletes of feminine futsal of the amazonense election sub20. The sample was composed for $n = 9$ athletes, who had participated voluntarily, what she corresponds 75% of the population of the study. The athletes have $18,5 \pm 0,8$ years of age, $55,44 \pm 3,24$ kg and $157,6 \pm 6,3$ cm. The athletes had been inclusion criteria who possessed equal or superior age the 18 years and the criterion of exclusion to the athletes with up to 17 years.

The tests had been carried through in the Gymnasium of the Newbie of soccer Nest of Eagles located in the Quarter of the Crowned one, Zone East of Manaus, in days 13 and 14 of the month of August of 2010. In the first day of tests the anthropometrics evaluations (stature, weight, circumferences, bone diameters) and of corporal composition (through the measurement of skin folds) and in according to the tests of force had been carried through, speed, agility and aerobic resistance.

The stature was measured according to protocol used for Fernandes Son, 2003 apud Viana (2007), where stadiometer portable of the mark "Wiso" was used, with capacity to measure up to 2 meters. The weight was surveyed in an electronic scale of the Filizola mark model PL200 with capacity of weighing until 200kg, having the precision of 50g and carefully calibrated.

The circumferences had been measured through the recommendations made for Hunter (2004), where it measured the following corporal segments: thorax, waist, abdomen, hip, relaxed arm, contracted arm, forearm, thigh proximal portion and leg. These segments had been measured with the use of an anthropometric tape Cescorf with capacity of 2m.

For the somatotype the method of Carter was used & Heat (1990) apud Fernandes Son (2009). The measurement of the bone diameters was made with the one use caliper rule with tips blunt, the measured diameters had been the following ones: bi femoral condyle, bi styloid radio-ulnar, bi humeral epicondyle umeral, and bi-maleolar.

To estimate body fat, we used an indirect method of assessment by measuring skinfold caliper with a scientific Cescorf, with sensitivity of 0.1 mm, width of 88mm and pressure reading 10g/mm^2 . The equation of Pollock & Wilmore, 1993 apud Fernandes Filho, 2009, being measured the skin folds triceps, supplies iliac and thigh was used to calculate the percentage of fat of the sample.

In as the day of evaluations the physical aptitude and motor performance of the athletes through tests had been analyzed that request the specific capacities of the futsal game. The tests had been carried through following the logical following it training; technique, speed, force and resistance. Being only evaluated the physical qualities of the athletes.

For the speed we use the test of 20 meters considered by (Santi Maria et. al., 2009), a time that great part of sprints carried through in the game do not exceed this distance, for it had been used three cones one demarcating the departure line and two located 2 meters after arrival line, that was demarcated with one ribbon in the floor of squares. The tests to evaluate the abdominal resistance and agility integrate the tests of the Project Brazil Sport. For the first one long cushions and four cones had been used for as, located in the geometric form of a square with 16m^2 .

The force was measured through the test of horizontal impulse, where a metric ribbon of 5 meters was used. The taken value was the lesser distance between the heel and the initial part of the ribbon. The athletes had had 2 attempts to jump and were registered the greater prop up, as considered for the Project Brazil Sport.

For the aerobic resistance test (Bangsbo was used the Yoyo Endurance, 1996 cited for Santi Maria et. al., 2009) that

also it justifies its use for the scientific principle of the specificity, for this we use an amplifying box of sound, a portable computer and the proper sonorous archive of the Yoyo Endurance Test. The calculation of the $\dot{V}O_{2\max}$ was carried through with the use of the equation the proposal for Léger, 1982 apud Pear tree et. al., 2009.

RESULTS

Variable	Average	Shunting line Standard
Age (years)	18,55	0,88
Corporal Mass (kg)	55,44	3,24
Stature (cm)	157,61	6,39
IMC (kg/m ²)	22,40	1,94
%G	18,53	5,02

Table 1: Evaluation anthropometric and corporal composition

After to be made the descriptive analysis of the variable can be perceived that the average sample of this study possesses the Index of Corporal Mass (IMC) of $22,40 \pm 1,94 \text{ kg/m}^2$, being inside of the considered standard normal according to World-wide Organization of Health (OMS), 1997. In relation to the percentage of fat (%G) the sample presented the average of $18,53 \pm 5,02$, varying the classification of excellent until average, according to classification table proposal for Pollock & Wilmore, 1993 apud Fernandes Filho, 2009.

For the classification of somatotype was used somatocarta cited by Fernandes Filho (2009). In this 0 variable the used statistical analyses had been percentile frequency and. Table 2 presents the values and the classification of the sample.

Somatotype Classification	Frequency	Percentage
Ectomorph Mesomorphic	1	11,1
Endo Mesomorphic	5	55,6
Endomorph Mesomorphic	1	11,1
Ectomorph Balanced	1	11,1
Meso Endomorph	1	11,1

Table 2: Somatotype characteristics of the sample

These results point that 66.7% have as characteristic predominant the endomorph, 33.3% ectomorph and only 11.1% are predominantly mesomorphics.

Variable	average	Shunting Line Standart
Abdominal	37,66	3,31
Agility (4x4)	5,59	0,31
Speed (20m)	3,38	0,17
$\dot{V}O_{2\max}$ (ml/kg/min ⁻¹)	56,6	3,12
Horizontal Impulsion	1,87	0,14

Table 3: Motor Performance and physical aptitude of the sample.

These results can show the level of aptitude of the athletes. According to classification suggested for Erlacher (2002) the sample presents the excellent $\dot{V}O_{2\max}$, moreover for the abdominal test, that the located muscular resistance analyzed, the sample presented the result that can be classified excellent (Pollock & Wilmore, 1993).

QUARRELS

The futsal is a sport with seasons of competitions (SANTI MARIA et. al., 2008) and can be considered as a predominantly anaerobic modality. The main physical qualities of the modality (speed, force and resistance) make with that the effort of the athletes is always in high intensity with short intervals of recovery. On account of this the corporal composition of the practitioners must be well controlled a time that the extreme fat will act as weight "died" in the motor actions, compromising in this way the income of the athlete. Studies made for Boileau & Lohman, 1997 apud Santi Maria et. al., 2009 show to great indices of correlation between percentage of fat and sporting income.

In this study the athletes had presented a value of average percentage of fat $\%G = 18,53 \pm 5,02$. In study made for Queiroga (2004) with the participant athletes of the Goblet Brazil de Futsal having the same characteristics of this study were found for the percentage of fat an average value $\%G = 23,2$. This result sample that the sample of the present study presents the percentage of inferior fat to the study made for Queiroga, 2004.

In relation to the somatotype profile, literature displays a lack in this modality and sort when compared with the other sports of et squares (LEVANDOSKI. al., 2007). For Melo, 2000 apud Fernandes Filho, 2009 somatotype is the present morphologic conformation, classified in three components (endomorph, mesomorphic and ectomorph) that they identify morphologic characteristics and of corporal composition.

According to same authors the endomorph is related the fat or relative slimness, the mesomorfa to the development relative muscle-skeletal to the stature and the ectomorfa represents the relative linearity of the physicist.

When make reference to reference the somatotype it was observed that in this study the endomorph component is predominant in relation the mesomorphic and ectomorph, where the component endo mesomorphic was found in 55,1% of the sample, of this form one perceives that although the athletes to present good values of percentage of fat had presented somatotype values below of the waited one. Similar values had been found by et.al Queiroga., 2004 and Levandoski et. al., 2007.

Although the somatotype values to disclose great relation with the endomorph, when evaluated the motor performance and of physical aptitude the results had been sufficiently satisfactory.

The speed, measured through the test of 20m, presented the result of $3,38 \pm 0,17 \text{ s}$, the lack of studies in literature makes it difficult the classification of this test, however according to Project Brazil Sport this result is considered excellent in athlete of up to 17 years.

In the agility test the sample presented the result $5,59 \pm 0,31 \text{ s}$. Viana & Rock, 2010 in a study with athlete of futsal with average of age of 18,5 years had found for the same has tested an average value of 6,1s. Levandoski et. al., 2007 presented the value of 6,4s, according to these authors the values below of 6 seconds can be classified as "very good", of this form it can be perceived that the sample of the gift is well conditional how much to this capacity.

When evaluated the located muscular resistance, through the test of abdominal in 1 minute, the sample presented an average value of $37,66 \pm 3,31$ for Pollock et. al., 1993 apud Levandoski et. al., 2007, the average gotten in women of this age band is of 29 the 32 repetitions being considered above average the result presented for the athletes of this study.

The force is the more important motor capacity for this modality, it can be divided in: maximum force, explosive force and muscular resistance (WEINECK, 2003). This capacity was measured through the test of horizontal impulse. The sample got $1,87 \pm 0,14$ m, according to Project Brazil Sport, that evaluate girls up to 17 years, this result can be considered very good. However, the absence of pointers, for a bigger age band, and of studies with the 0 variable of slew makes it difficult one better interpretation of this 0 variable (Viana & Rock, 2010).

The futsal for demanding of the athletes fast actions with short intervals of recovery is characterized as a predominantly anaerobic sport, however at the recovery moments it is important that the athletes are well conditional aerobically. Submitted individuals the vigorous aerobic training tolerate higher lactate levels and improve its acid-basic regulation (McARDLE et. al., 2008). To evaluate the aerobic power endurance was used yoyo test, results points that the sample is very well conditional aerobically, therefore presented an average value of the maximum consumption of oxygen VO_{2max} of $56,6 \pm 3,12$ ml/kg/min⁻¹. Fornaziero et. al., 2009 had compared had carried through a study comparing the performance of footballers in the test yoyo and effort in rolling mat. The results do not show significant difference statistical enter the values of VO_{2max} in the mat ($56,00 \pm 6,33$ ml. [kg.min]⁻¹) and Yo-Yo ($57,20 \pm 4,67$ ml. [kg.min]⁻¹). Being this test, therefore, a good instrument for the evaluation of the aerobic power of the futsal athletes.

CONCLUSIONS

The results gotten in the present study show a great similarity with the profiles of physical aptitude of the research with same delineations selected for comparison. Thus suggesting the existence of a standard for the practitioners of the futsal modality.

When analyzed the agility of the athletes we verify that our sample better presented performance that of the studies selected for comparison.

When we analyze the abdominal muscular resistance we verify that the participants of this study present a better performance.

The lack of studies with same delineation makes it difficult the comparison and analysis of the changeable speed, force, resistance and still of the somatotype.

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PROFILE ANTHROPOMETRIC, SOMATOTYPE AND MOTOR PERFORMANCE OF ATHLETES FEMININE FUTSAL AMAZONENSE SELECTION SUB-20 CATEGORY.

ABSTRACT

This work had as objective to determine the anthropometric, somatotype profile and of physical aptitude of athlete of the Amazonense Election of feminine futsal category sub-20. Years of age had been analyzed 12 girls with 18,5 average $\pm 0,8$; 55,44 $\pm 3,24$ kg and 157,6 $\pm 6,3$ cm. The applied tests abdominal had been modified, agility (4x4), horizontal impulse, race of speed of 20 meters and yoyo endurance test. Average abdominal resistance of 37,66 repetitions per minute. Horizontal impulse with average 187 cm. In the agility test the gotten average of performance was of 5,59 seconds. In yoyo endurance test the Vo^2 found was of 56,6. In the race of speed of 20 meters the average time was of 3,38 seconds. The gotten predominant somatotype characteristic is the endomorph. The lack of studies with same delineation suggests that more inquiries are carried through, in the direction to identify to the profile of players and level of motor performance for lapsing and orientation of the trainings as indicating standards for the modality.

KEY- WORDS: futsal female, physical fitness, somatotype.

VOIR LE PROFIL ANTROPOMETRIQUE, SOMATOTYPE ET MOTRICES DES ATHLETES FEMININES DE FUTSAL DE L'EQUIPE NATIONALE U-20 AMAZONAS CATEGORIE

RÉSUMÉ

Cette étude visait à déterminer le profil anthropométrique, somatotype et la condition physique des athlètes de l'Amazonie futsal féminin des moins de 20 catégories. Nous avons analysé neuf filles avec une moyenne de 18,5 $\pm 0,8$ ans, 55,44 $\pm 3,24$ kg et 157,6 $\pm 6,3$ cm. Les tests appliqués ont été modifiés abdominale, l'agilité (4x4), saut en longueur, le sprint de 20 mètres et essai d'endurance yoyo. la force abdominale moyenne 37,66 répétitions par minute. Saut en longueur avec une moyenne 187 cm. Dans le test de l'agilité de la performance moyenne réalisée a été 5,59 secondes. Dans le yoyo test d'endurance Vo^2 a été trouvé à 56,6. Dans la vitesse de défilement de 20 mètres de la durée moyenne était de 3,38 secondes. La caractéristique obtenue est principalement endomorphie somatotypical. Le manque d'études avec le même design suggère qu'une enquête plus approfondie afin d'identifier le profil des joueurs et le niveau de performances du moteur pour la prescription de formation et d'orientation pour la seconde en mode standard.

MOTS-CLÉS : futsal féminin, la condition physique, somatotype

PERFIL ANTROPOMÉTRICO, SOMATOTÍPICO Y DEL RENDIMIENTO MOTOR DE LAS ATLETAS DEL FÚTBOL DE SALA FEMENINO DE LA SELECCIÓN AMAZONAS SUB-20 CATEGORIA

RESUMEN

Este estudio tuvo como objetivo determinar el perfil antropométrico, somatotipo y la condición física de los atletas del fútbol sala femenino amazónica Sub-20 de categoría. Se analizaron nueve niñas con una media de 18,5 $\pm 0,8$ años de edad, 55,44 $\pm 3,24$ kg y 157,6 cm $\pm 6,3$. Las pruebas aplicadas fueron modificados agilidad abdominal, (4x4), salto de longitud, corriendo 20 metros y poner a prueba la resistencia del yoyo. fuerza abdominal media 37,66 repeticiones por minuto. Salto de longitud con un promedio de 187 cm. En la prueba de la agilidad del rendimiento medio obtenido fue 5.59 segundos. En el yoyo test de resistencia Vo^2 se encontró que 56.6. En la velocidad de circulación de 20 metros el tiempo promedio fue de 3.38 segundos. La característica se obtiene principalmente endomorfia somatotypical. La falta de estudios con el mismo diseño sugiere una mayor investigación para identificar el perfil de los jugadores y el nivel de rendimiento del motor para la prescripción de la formación y orientación para los segundos en modo estándar.

PALABRAS CLAVE: femenina de fútbol de sala, condición física, somatotipo

PERFIL ANTROPOMÉTRICO, SOMATOTÍPICO E DE DESEMPENHO MOTOR DAS ATLETAS DE FUTSAL FEMININO DA SELEÇÃO AMAZONENSE CATEGORIA SUB-20.

RESUMO

Este trabalho teve como objetivo determinar o perfil antropométrico, somatotípico e de aptidão física de atletas da Seleção Amazonense de futsal feminino categoria sub-20. Foram analisadas 12 meninas com média de 18,5 $\pm 0,8$ anos de idade; 55,44 $\pm 3,24$ kg e 157,6 $\pm 6,3$ cm. Os testes aplicados foram abdominal modificado, agilidade (4x4), impulsão horizontal, corrida de velocidade de 20 metros e yoyo endurance test. Resistência abdominal média de 37,66 repetições por minuto. Impulsão horizontal com média 187 cm. No teste de agilidade a média de desempenho obtida foi de 5,59 segundos. No yoyo endurance test o Vo^2 max encontrado foi de 56,6. Na corrida de velocidade de 20 metros o tempo médio foi de 3,38 segundos. A característica somatotípica predominante obtida é a endomorfia. A carência de estudos com mesmo delineamento sugere que mais investigações sejam realizadas, no sentido de identificar o perfil de jogadoras e nível de desempenho motor para prescrição e orientação do treino segundo indicadores padrões para a modalidade.

PALAVRAS-CHAVES: futsal feminino, aptidão física, somatotipo.