Morphologic Profile and Speed of Futsal Players With Regard to Playing Position

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Abstract: Nowadays the majority of sports are introducing morphologic traits and particular motor each other your own necessities becoming evident that these varieties influence in fulfillment of athletes. Just now was attended a learning about Futsal players childish and youthful categories of Paraíba-Brasil. Through varieties anthropometries, body composition and speed thus relating with positions for categories. Three teams did part of this learning besides they were championship finalist paraibano 2002 that in this categories were evaluated sixty-eight players, been thirty-four childishes average age of 13,4 years old ± 0,7 and thirty-four youthful average age 16,3 years old ± 1,01. The indicators analyzed were stature, corporal weight, fold coetaneous and the test of 30 meters. The results were analyzed through test Turkey HSD and a test “t” of Student to independent varieties showing differences meanings in all of analyzed varieties and regarding play position only goalkeepers differentiated of other players, bus speed.

Keywords: Morphologic Profile; Speed; Futsal.

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INTRODUCTION

The interest in knowing the amount of the different body components (muscular mass, bone mass, vicerás and body fat) and their relationships with the sporting income appears of the necessity of obtaining relevant and define information concerning the structural and decisive patterns of the performance, while factors that facilitate and/or complicate the acting.

The competitive sports assume peculiar characteristics in relation to the athlete’s morphologic and functional development, to example of the excess of body fat that, besides constitute during a game, according to WILMORE & COSTILL (2001), it also exercises strong influence on the acting in speed, endurance, balance, agility and potency.

Another complicate factor would be the low corporal weight in function of the deficiency of fat free mass also committing the athletic acting as the maximization of the fat free mass that favors the sports that demand force, potency and muscle resistance. Therefore, as much the fat excess as the deficiency of thin mass they associate the reduction of the athletic acting in fast sports.

Characterizing the Futsal as a sport of high demand of physical factors, technicians and tactical, it is justified the necessity to develop specific conditions, capable to promote fast and necessary attitudes in the execution of their motor gestures. The specificity added to the attractiveness of this sport practiced in clubs, schools and institutions that support and participate in tournaments and championships in several categories, it has been contributing significantly for to the evolution and the crescent recognition of Futsal in the society.

In agreement with the Brazilian Confederation of Futsal (CBFS), the official competitions only happens from the infantile and juvenile categories, phases in that teenagers are entering in the process of acceleration of the general development influenced by the puberty. The inferior categories already participates in regulated competitions for almost all the state federations (I AX & GOMES 2001).

Differently of the soccer, the futsal is played in a block with official spread of 40x20, with the equips making available five holder players distributed in the following positions: goalkeeper - G, central - C, hauls right and left line. A and the pivot - P, besides seven to ten reservations according to the regulation of the competition.

The goalkeeper has the function of defending and attacking too, in agreement with the current rules. The central is known as the trapper and main marker of the team, the haul are responsible for the pattern of movement of the game and for the finalization and the pivot is that skilled and fast player in the function of arresting, to distribute and to conclude.

Those characteristics certainly demand physical capacities and specific motor patterns. Studies developed by ARAÚJO et al. (1996) determine that Futsal is a modality of intermittent character, being characterized by the prevalence of intense and short efforts with metabolic action of the three energy systems (anaerobe alactic, lactic and aerobic) with levels of predominance differentiated.

According to AXE & GOMES (2001), the aerobic resistance represents the essence of a departure of Futsal, being the lactic anaerobic resistance noticed in the alternations between the offensive and defensive actions, and the resistance anaerobic alactic evidenced, during the technical actions. In this sense, the speed has fundamental importance for athletes that compete in
sports with fast actions like Futsal and displacements, dribble, the feints and the kicks.

It is also known that the anthropometric characteristics and the body composition influences in a Futsal player acting. In that way it becomes necessary not only study those athletes’ morphologic profile, but also to relate them the game positions in reason of the demand type that the athlete is submitted.

Another current concern comes back to the study of the athlete’s profile considering their game position. It is important to analyze the athlete inside of their real conditions “specific”, because the morphologic structure and the capacities of physical acting exercise differentiated and important roles in the acting.

Considering the exposed above added to the lack of specific studies in the area, it was defined as objective of that study:

- To draw the anthropometric profiles of the players’ of Futsal speed that belong infantile and juvenile categories, relating them with the functions carried out in block;

REFERENCES

The athletes’ body composition has been investigated by several specialists involved with the sporting income. As the competitive demands increase, it also increase the concern in reaching desirable values of fat body and mass muscle ideals to the necessity of the sport.

Nowadays, the anthropometric technique is one of the procedures of larger applicability for studies of external measures of body dimensions (GUEDES & GUEDES 1998). This method is one of the spread and used in Brazil, once it uses low cost equipments of simple execution (LOPES & PIRES NETO 1996).

The anthropometry allows to measure the growth through the evaluation of the stature and the body weight, as well as the amount and the pattern of distribution of the fat body through the thickness of the cutaneous folds and sum of the different anatomical areas (GUEDES & GUEDES, 1998; COSTA 2001).

In relation to the calculation of the perceptual of grease are few the equations proposed for children and young among the existent ones stand out the equations that received larger acceptance, like BOILEAU (1985); SLAUGHTER et al. (1988); GUEDES & GUEDES (1998); HEYWARD & STOLARCZIK (2000).

The sum of cutaneous folds can happen in different situations, with the sum of folds of the members and the trunk separately, besides other combinations, for example, the sum of eight or nine folds (COAST 2001).

In the last times, the fat mass (MIG) became, also, an allied for the athletic acting and control of the performance. Studies developed by FILIN & VOLKOV (1998) verified that, during the first 15 years old, the weight of the muscles increases in approximately 9%, and in the 2 to 3 years (15-17/18 years) increase in 12%.

In relation to speed, understood as the capacity to realize motive actions with maxim intensity in a short space of time, it is quite influenced by the amount of MIG (HAHN, 1988; TAME et al., 1996; ADELINO et al 1999) and, also, for the age, sex, anthropometry, quality of the sporting technique, talent (GROSSER 1996).

The development is in function of the biological age and the child’s development, therefore children and young precocious develop their force earlier and they are capable to reach larger speeds in relation to those retarded development (TAME et al., 1996; WEINECK 1999).

For MANSO et al. (op cit), the reaction time and the cyclical speed reach the same values in children in ages prepuberal and puberal, when compared to adults, in function of the enormous plasticity that has the central (SNC) nervous system in this phase. For MOSKATONVA (1998), the age of maximum development of the explosion and of the speed in the 30 meters for the young soccer players is between 11-13 years old.

WILMORE & COSTILL (2001), in studies with children and young verified that boys presented a gradual development in the time (s) of the test of speed as the age developed between 13 and 14 years T = 7,0-7,5 seconds and among the 15 to 17 years T = 6,5-6,8 seconds. In relation to MIG presented larger proportions between the 14 and 15 years, with gradual increase until the 20 years; for to MG, the results were close up to 15 years.

SILVA (1999) realize a study in PELOTAS / RGS with four juvenile futsal teams with average of 16 year-old age, which were evaluate in relation to the body weight, the stature and the percentage of fat and thin mass. The values didn’t present significance in relation to the game position. However, when compared by teams, just the adiposity differed a club in relation to the others.

KISS et al. (1999) presented anthropometric results (weigh body and stature) of a Futsal team with 16 individuals. The results pointed a stature of 177,6 ± 3,3cm and body weight of 76,4 ± 6,2kg. PEREIRA & SILVA (2000) studied the 12 athletes futsal profile player from Brazilian team university from 22 to 27 years old, finding the following results: thin mass 61,55kg, fat mass 9,3kg and speed in the 30 meters of 4,18 seconds.

Table 1 - Medium results of the variables studied by category

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>PC</th>
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<th>%G</th>
<th>MIG</th>
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<th>ΣB</th>
<th>V</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>53.0±11.8</td>
<td>163.7±8.9</td>
<td>16.7±5.9</td>
<td>43.7±7.5</td>
<td>41.5±24.4</td>
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<td>84.1±37.8</td>
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<tr>
<td>J</td>
<td>62.1±8.3</td>
<td>172.7±6.3</td>
<td>15.5±3.4</td>
<td>52.4±5.9</td>
<td>40.3±13.6</td>
<td>33.4±7.0</td>
<td>73.6±19.2</td>
<td>7.3±0.3</td>
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<td>DI</td>
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<td>-9.1</td>
<td>1.2</td>
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<td>9.3</td>
<td>-9.9</td>
<td>1.2</td>
<td>-0.6</td>
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<tr>
<td>P*</td>
<td>.001</td>
<td>.000</td>
<td>.330</td>
<td>.000</td>
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<td>.000</td>
<td>.808</td>
<td>.000</td>
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</table>

Categories (C); Difference of Average (DI) and p < 0.05 (P*).
SOUZA (1999) developed a study with soccer player of several categories relating the game position. The results pointed the increase of the body weight and the stature and the reduction of the perceptual of grease with change in category.

SILVA et al. (1997) and LEY et al. (2002) studied the anthropometric differences and metabolic between soccer players of the juvenile categories, junior and professional. Both studies verified significant differences in the anthropometric variable in the juvenile group, when compared to the other groups.

**MATERIAL AND METHODS**

According to THOMAS & NELSON (2002), the descriptive research is a type of status study used to characterize resolutions of problems through observation, analysis and objective and complete descriptions. The descriptive research of stamp developmental, through traverse cut makes possible the investigation of the growth and the body composition of the subjects in different age groups.

**Sample**

The population of this study was constituted by the three finalists teams (1st, 2nd and 3rd places) of the Championship Paraibano 2002, in the Infantile (I) and Juvenile (J) categories. In the total were appraised 68 players in the age group from 13 to the 18 years old, being 34 of the infantile category, with average of 13,4 year-old age ± 0,7 months, and 34 of the juvenile category, with 16,3 year-old age ± 1,01 years.

Considering the game position, the sample presents the following distribution: 8 goalkeepers (4 infantile and 4 juvenile), 20 central, 20 lines and 20 pivots, distributed 10 for each category.

**Instruments and Procedures**

The athletes were appraised through the body weight, stature, cutaneous folds and a test of 30 meters. To facilitate the process accomplished in game block with measures varying among 36 to 40 meters, with stopped exit and race in the sense retlineo, accomplished consecutively in space of 4 seconds, being registered the medium value.

For evaluation of grease was used BOILEAU’s equation et al (1985): % G = 1.35 (.TR + IF). 0.012 (.TR + IF) 2. 4.4, developed through measures of references of multicomponent models, being more used for this population.

The body composition was evaluated through the mensuration of 08 cutaneous (tricipital, subscapular, suprailiaca, bicipital, axillary average, abdominal, medial thigh and medial call) folds, using a pliometro model Harpenden for the constant pressure of 10g/mm2 and easy manipulation. The measures were checked in the right hemisphere of the body of the appraised, through the clamping with the thumb and indicator, in a total of 3 measurements accomplished consecutively in space of 4 seconds, being registered the medium value.

The fat free mass was obtained through the equation proposed by BROOK (1998), determining the fat (MG) body mass = body (kg) mass x body (%) fat / 100 and the fat body (MIG) = body (kg) mass x fat (kg) body mass.

It was realized the sum of folds to observe the distribution of the general body fat and in different areas of the body. For the area of the trunk the folds were used SE, SI, AX and AB, and for the members the folds were considered TR, BC, CXM and PR.

The speed was evaluated by a single person with three year-old experience in the chronometer handling through the test of the 30 meters, with stopped exit and race in the sense retlineo, accomplished in game block with measures varying among 36 to 40 meters in length, with a slowing down area from 10 to 12 meters.

**Picture 2 - Variables studied by category and position of game**

<table>
<thead>
<tr>
<th>PJ</th>
<th>C</th>
<th>PC</th>
<th>E</th>
<th>%G</th>
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<tr>
<td>G</td>
<td>I</td>
<td>71.7±15.4</td>
<td>170.5±4.7</td>
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<td>50.1±7.4</td>
<td>96.8±35.2</td>
<td>71.7±21.2</td>
<td>168.5±52.0</td>
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<tr>
<td>J</td>
<td>I</td>
<td>184.0±1.8*</td>
<td>17.4±2.4*</td>
<td>63.6±2.4*</td>
<td>47.8±15.2*</td>
<td>39.6±7.7*</td>
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<tr>
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**SIGNIFICANCE OF THE RESULTS BY GAME POSITION**

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PJ - game position (G - goalkeeper; C - central; A - wings; P - center); C - categories (I - infantile; J - juvenile); p * (< 0.05); p > 0.05 (-).
Two consecutive attempts were accomplished with an interval of 3 minutes, being considered the best. The result was exposed in meters per seconds (m/s).

All tests were accomplished in the night period in the fitness training team center with dates and schedules established by the trainers. The total duration of the collection of data was two weeks approximately and it happened in parallel to Paraibano’s Championship in second shift.

**Statistical Treatment**

The analysis of the results was used the descriptive statistics (average, standard deviation); the Tukey test HSD for multiple comparisons among the game positions for category; and the test t for independent variables, seeking to observe the differences for game position.

**RESULTS AND DISCUSSIONS**

The illustration below illustrates the behavior of the cutaneous folds for categories, where a decline of proportion of the folds is observed as the category moves forward, with significant reductions in the located cutaneous folds in the area of the members, when we compared the juvenile players to the infantile ones.

In relation to sum of the cutaneous folds was observed that the infantile group presented top and significant results so much for .T as for .M, when compared to the juvenile. It verifies the body fat refuses with the evolution of the age, other verification was the increase of MIG, with difference of average of 8,6kg in relation to the infantile, according to the picture below.

Another positive factor in the juvenile was the development of the medium speed with difference of 0,6 in relation to the infantile, which makes possible the influence between the increase of MIG and the improvement in the explosion (GROSSER 1996), besides other factors as the age and the trainability (WEINECK 1999).

Picture 2 illustrates the relationship of the body composition with the speed, considering the game position among the categories. In relation to body composition it was observed so much in the juvenile as in the infantile that those presented smaller amount of fat mass were the ones that obtained a larger speed.

These alterations are justified for the growth process and maturation presents in this strip of age with phases likely to the increase of the testosterone and development of the body structure (WILMORE & COSTILL, 2001; FILIN & VOLKOV 1998).

The table 2 describes the considerable differences in the presented results, considering the game positions and comparing them among categories. In that way it is observed that the juvenile goalkeepers presented significant results in all the variables, except in the body weight when compared to the infantile ones.

The central and the juvenile pivots presented significant values for the body weight, MIG and stature in relation to the infantile ones, while juvenile presented significant reductions in the sum
folds of the members. In relation to speed, the juvenile category presented significant differences in all of the positions when compared to the infantile.

Analyzing the speed, it is verified that the infantile and juvenile line players presented a linear behavior of development, so central are the less fast players, the wings are the intermediate players of speed and the pivots, the fastest.

Another concern of this study was to verify, separately, for category if the characterized results by game position were significant in relation to the other positions. In agreement with the results it was verified only the goalkeepers presented significant results in the variables studied, except in the speed, when compared the other positions.

It is possible to affirm that the futsal players line didn’t present specific characteristics in the variables studied in relation to game position according to SILVA’S et al study. (1999).

CONCLUSION

According to the obtained results, we concluded the progress that category influences directly in the morphologic development and in the speed function of the morphofunctional alterations, the growth process, maturation and, also, of the training.

In relation to the game positions, the data pointed significance for the goalkeepers, mainly the juvenile ones when compared to the other positions. Finally it was verified futsal players from line presented a morphologic profile and similar speeds.

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