86 - ANTROPOMETRIC PROFILE OF PROFESSIONAL PLAYERS OF FUTSAL: A COMPARATIVE STUDY AMONG DIFFERENT COMPETITIVE LEVELS AND FOR TACTICAL POSITION OF GAME

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INTRODUCTION

The Soccer of Living room, today an organized sport modality called Futsal, was invented in the beginning of the century passed in Uruguay as an alternative to the Soccer of traditional field (MOREIRA, et, al, 2000).

Futsal is now the sport with larger number of apprentices so much in Brazil as us too much countries American South and also in Europe (TENÓRIO, 2002). The interest of the media, of the clubs and associations and of companies sponsors, it took Futsal to a great growth in the last two decades, reaching and staying in high level (not only considering aspects of the game, as well as organizational, competitive and professionals), (MACHADO and GOMES, 1999).

Especially in the south area of Brazil, where the cold is intense and it ends up transferring the players of the field inside of gyms, Futsal is extremely practiced and organized, there is not a city that doesn't have at least a tournament a year in this modality. Besides, teams of the south of Brazil have been arriving to most of the decisions of the Brazilian League of Futsal, demonstrating the technical might and organizational of this sport in this region.

In this sense it becomes justifiable the need to increase the scientific knowledge in this sport, and in general it is possible to verify the contribution of the Physiology Exercise, Biomechanics, Nutrition and Sport Training in the search of improvement of the technique or of the performers' physical condition to long for better results. However the players' technical and tactical capacity can be enhanced consistently when the athlete possesses good physical levels and a compatible corporal morphology with the activity that is being practiced. Like this, the Futsal athlete, as well as every sportsman, besides the athletic qualities should possess morphologic qualities to the service of a maxim mobility, to answer the specific demands of your sport.

Arruda et. al. (2000) observed that the corporal structure follows a homogeneity tendency in competitive athletes' specific groups, in relation to a profile that is believed as appropriate or suitable for a certain activity. Still, Ré et. al. conclude in your study with young Futsal players that the characteristics anthropometrics interferes in the best players' identification. In this sense the importance in being determined the sportsmen's physical profile resides in the fact of the existence of a relationship among corporal form and I carry out physical.

The kineanthrophometry allows, through your methods, to quantify the size, the form, the proportions, the biological maturation and the function-motive of the individuals. Like this, information regarding the characteristics anthropometrics of elite athletes would be particularly important to establish comparisons with the more youths. That is justified how it was said previously, that, in the Futsal and in other sports, the characteristics anthropometrics, as well as the technical and tactical ability and the individual physical acting, they are the most important factors for the success of the team.

In the literature, few descriptions are observed regarding the morphologic variables for athletes of the Futsal category. In this sense the objective of this work was to identify the professional athletes' of Futsal profile anthropometric and to characterize them for game position and competitive level.

METHODOLOGICAL PROCEDURES

The population was constituted by 40 professional players of futsal, chosen intentionally, belonging to three teams that disputed the championship of the state of the south of the brazil of organized Futsal Federation of the state of the south of Brazil, in the three available categories, series gold of the year 2001 (team of Ipiranga Futebol Clube), series silver year 2000 and series bronze year 1999 (teams of the Esporte Clube Itapagé).

The total body mass and stature were measured accurately of 100g and 0,1cm, respectively. The skin folds followed standardization of Jackson & Pollock (1978 apud MARINS and GIANNICHI, 1996), being used a compasses of folds of the mark CESCORF clinical model, accurately of 0,5mm.

For the tabulation of the data the program was used EXCEL version 2003 and the statistical package MINITAB it goes Windows v13.0 to the treatment of the data. They were obtained the averages of the variables by team and for tactical position of game (goalkeeper, fixed, line and pivot). Analyses of Variance were accomplished (ANOVA) among the teams and between the positions and the test " t " for independent samples in the case of data contained in only two teams. The size of the sample differed, depending on the number of appraised subjects for each variable.

The referring athletes to the championship of the years 2001 and 2000 were in the middle of the season and the referring athletes to the year of 1999 they were in the beginning of the season.

RESULTS AND DISCUSSION

The athletes' general characteristics as well as the referring results to the variables related anthropometrics for competitive level they are described in the table 1.

		gold series	silver series	bronze series
VARIABLES	STATISTICS	**n = 12**	**n = 13**	**n = 15**
Age	Average	24,250	21,923	21,533
(years)	SD	5,294	3,148	3,998
	ANOVA	ns	ns	ns
Weight	SAMPLE	**n = 7**	**n = 13**	**n = 14**
(kg)	Average	74,571	71,715	72,250
	SD	8,443	5,246	6,489
	ANOVA	ns	ns	ns
Fat	SAMPLE	**n = 12**	**n = 13**	**n = 13**
(%)	Average	14,183	10,473	12,677
	SD	3,688	4,511	3,567
	ANOVA	ns	ns	ns
CTE	SAMPLE	**n = 12**		**n = 13**
(cm)	Average	89,33		91,00
	SD	1,67		2,54
	t		t=0,067ns	

ns = not significant for the test t, being considered a minimum level of significant of 5% ($\rho \leq 0,05$).

The table 2 presents the results of the analyses of these data, independent of the competitive level, but, it separates them for tactical position of game.

Table 2 - Averages, standard deviations, test t of Student and variance analysis (ANOVA) of the results of the tests anthropometrics: I weigh (kg), fat (%), CTE (cm), for the athletes of different tactical positions.

		Goalkeeper	Fixed	Line	Pivot
Age	STATISTICS	**n = 8**	**n = 8**	**n = 13**	**n = 11**
(years)	Average	21,375	23,625	21,538	23,545
	SD	3,623	2,387	3,643	6,089
	ANOVA	ns	ns	ns	ns
Weight	SAMPLE	**n = 8**	**n = 6**	**n = 11**	**n = 9**
(kg)	Average	74,388	76,983	66,500	75,256
	SD	6,883	3,471	4,260	4,437
	ANOVA	ns	ns	**a**	ns
Fat	SAMPLE	**n = 8**	**n = 8**	**n = 11**	**n = 11**
(%)	Average	12,239	12,054	11,259	13,905
	SD	4,021	4,866	4,035	3,894
	ANOVA	ns	ns	ns	ns
LBC	SAMPLE	**n = 6**	**n = 4**	**n = 7**	**n = 8**
(cm)	Average	90,9	91,2	88,9	90,2
	SD	2,1	2,5	2,4	2,0
	ANOVA	ns	ns	ns	ns

a = Significant for ANOVA, at the level of 5% of trust ($\rho \leq 0,05$).
ns = Not significant for ANOVA, being considered a minimum level of significant of 5% (0,05).

It is noticed in the table 1 that, although the data didn't differ statistical, a tendency of the athletes of the series gold exists (maximum level of competitive demand of the state of the south of Brazil) to be older than your friends of the series silver and bronze (level respectively decreasing of competitive demand), however this group was what presented a smaller homogeneity. Usually as older, more experience (positive correlation of age x time of practice Pearson 0,794 p <0,002) the athletes will have accumulated in the sport activity.

The results demonstrate although the pivots were more heterogeneous with relationship to the age in relation to the other positions, very away the data have not differed statistical. This can occur of the fact that usually in a classic tactical formation, they were placed in this position the players most experienced and/or the most skilled, provoking this heterogeneity possibly.

With relationship to the weight and corporal fat among the athletes of the different categories, the table 1 display that the averages don't differ statistical. With the objective of complementing these information, it was also accomplished an ANOVA for the averages of the total summation of the collected skin folds, as form of removing the factor equation prediction, and just as the percentile of fat they didn't differ statistical among the teams.

In the study of Dantas et. al. (2000) that evaluated the champion team of the national league of Futsal of the year of 2000 (n=13), they were found averages of weight 76,99±11,55Kg and percentile of fat of 9,38±2,36%. Already Santos (1999) they found in players of professional soccer of different competitive levels (1st to 4th division, n=89) an average of weight of 72,7±1,9Kg and percentile of fat of 11,5±0,9%, all without verified statistical difference. It is noticed that our group of athletes was with average of similar weight to these studies, however with percentile of superior fat to the champions of the league of Futsal of the year of 2000.

The table 2 display the results of these varied among the tactical positions used in Futsal, that showed there to be an existent significant difference among the weight of the lines in relation to the other game positions. However, when it refers the body fat this difference it inexists. It can be speculated that this can be a morphologic characteristic of the lines players, that they are the players that more moved in a during the game, in other words, they are lighter players without they be necessarily thin. The illustrations 1a and 1b turn more visible this situation.

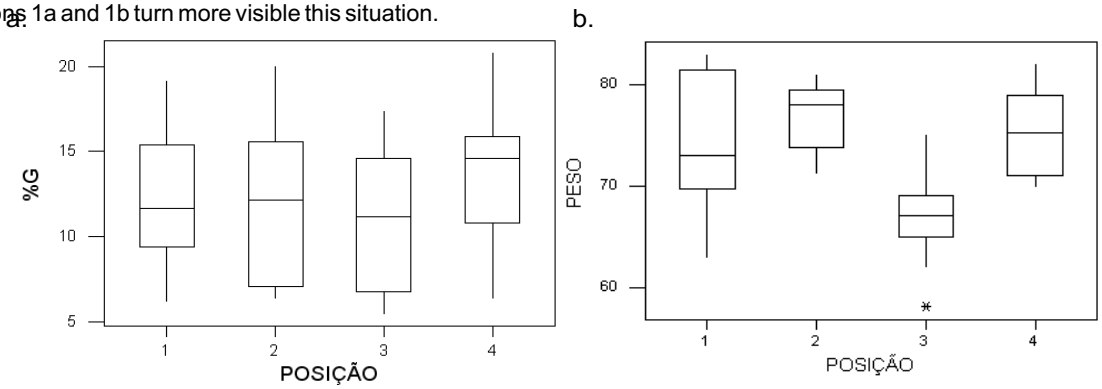


Figure 1a and 1b. Variability of the data with relationship to the weight (the) and percentile of corporal fat (b) for game position (goalkeeper, fixed, line and pivot respectively) in Futsal.

Arruda et. al. (2000) tell that found in defense players and attackers of field soccer an average of weight of 68,1±7,5Kg and a percentile one of equivalent fat to 9,7±1,72%. Already for players that act in the middle field the weight it was of 67,3±5,3Kg and percentile of fat of 10±0,8% and for the group of lateral and tips an average of weight of 66,5±5,6 and a percentile of the body fat of 9,9±1,0%, not finding significant differences for this group of data among any group of game position. Already Queiroga et. al. (2005), when analyzing the players' of Futsal of high technical level profile anthropometric, they only found differences among the goalkeepers in relationship the line athletes, being these heavier ones and with a percentile of higher fat than your line friends.

The length body-cranium (LBC) it is other characteristic that could be important to point out in the athletes' of Futsal morphology, in this sense an analysis of this characteristic anthropometric was accomplished. Significant difference was not verified among the athletes of the series gold, compared to the athletes of the series bronze (tables 1), as well as this difference didn't also happen when compared all the athletes by tactical position of game (table 2). a tendency of the lines can be observed they possess, on average, a smaller CTE when compared to the other positions of the game, a lot although this comparison has been committed in function of the low number of athletes by position.

CONCLUSIONS

In agreement with the presented results, it can be concluded that taking in consideration the positions (functions) tactics exercised in the game it is noticed, in our data, a differentiated characteristic of the lines in relation to the other positions in what refers to the total body mass, suggesting a possible morphologic differentiation of the players that act in this tactical function. On the other hand it is noticed that the athletes of different competitive levels don't differ in relation to the antropometric variables analyzed.

Some tendencies could also be observed taking to suspect in the possibility of, with a larger number of athletes for tactical position, to confirm statistical these tendencies. Like this, it is suggested to accomplish studies with a larger number of athletes, mainly in what it refers to the tactical positions of game, as well as, to relate the results with differentiated tactical patterns of game.

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ANTROPOMETRIC PROFILE OF PROFESSIONAL PLAYERS OF FUTSAL: A COMPARATIVE STUDY AMONG DIFFERENT COMPETITIVE LEVELS AND FOR TACTICAL POSITION OF GAME

Abstract

The present study intended to do a characterization anthropometric of professional players of Futsal and compare them starting from different competitive levels and for tactical position carried out in the game. The sample was composed by 40 professional players of Futsal, chosen intentionally, belonging to three teams that disputed the championship of the state of the south of Brazil of Futsal organized for the league of Futsal of the state of the south of Brazil, in the three available categories, series gold of the year 2001 (it equips of Ipiranga Futebol Clube), series silver year 2000 and series bronze year 1999 (teams of the Esporte Clube Itapagé). The total body mass, stature, percentile of body fat and length body-cranium they were analyzed through Analyses of Variance (ANOVA) among the teams and enter the game positions. The test " t " was used for data only contained in two groups. The data evidenced a similarity of the teams among the different technical levels for all the analyzed variables. However, they point a differentiated characteristic of the lines in relation to the other positions in what it refers to the total body mass, suggesting a possible morphologic differentiation of the players that they act in this tactical function.

Word-keys: Anthropometric, competitive levels, Futsal.

CARACTERISATION ANTHROPOMETRIQUE DES JOUEURS PROFESSIONNELS DE FUTSAL: COMPARER ETUDE A PARTIR DE DIFFERENTS NIVEAUX COMPETITIFS ET DE LA POSITION TACTIQUE DE CHACUN DANS LE JEU

Rèsumé

Cette étude a eu pour but faire une caractérisation anthropométrique des joueurs professionnels de Futsal et les comparer a partir de différents niveaux compétitifs et de la position tactique de chacun dans le jeu. L'échantillon a été composé de 40 joueurs professionnels de futsal choisis intentionnellement. Ils appartiennent à trois équipes qui ont disputé le championnat "gaúcho" de futsal organisé par la Fédération "Gaúcha" de Futsal du "Rio Grande do Sul", dans les trois catégories disponibles: série "or" de l'année 2001 (l'équipe "Ipiranga Futebol Clube"), série "argent" de l'année 2000 et série "bronze" de l'année 1999 (les équipes du "Esporte Clube Itapagé"). La masse corporelle, la stature, le pourcentage de la graisse corporelle et la longueur tronc-encéphalique ont été analysés selon les "Análises de Variância" (ANOVA) entre les équipes et les positions de jeu. Le teste "t" a été utilisé seulement dans deux groupes, pour des données contenues. Les données ont démontré une similitude des équipes entre les différents niveaux técniques, pour toutes les variables analysées. Cependant, elles ont montré une caractéristique différenciée des ailiers par rapport aux autres positions en ce qui concerne le poids corporel, ce qui suggère une probable différentiation morphologique des joueurs qui jouent dans cette fonction tactique.

Word-keys: anthropométrique, niveaux compétitifs, Futsal.

PERFIL ANTROPOMÉTRICO DE JUGADORES PROFESIONALES DE FUTSAL: UM ESTUDIO PARALELO ENTRE DIFERENTES NÍVEIS COMPETITIVOS Y PONER POSICIÓN TÁCTICA DE JUEGO

Resumen

O actual estudio pretended hacer una caracterización antropométrica de jugadores profesionales de Futsal y hacer una comparación aconta de diferentes níveos competitivos y por posición táctica desempeñada el juego. A muestra hace compuesta poner 40 jugadores profesionales de Futsal, selecto intencionalmente, perteneciente a tres equipos hace disputaran el campeonato "gaucho" de Futsal organizado Federación "Gaucha" de Futsal do Rió Grande do Sul, haces tres clases disponibles, serie oro del año 2001 (equipo Ipiranga Fútbol Club), serie plata año 2000 e serie bronce año 1999 (equipos del Esporte Clube Itapagé). El peso corporal, estatura, proporción de grasa corporal e extensión tronco-encefálico fuera analizado a través de Análisis de Variación (ANOVA) entre los equipos e entre las posiciones del juego. El teste "t" hace utilizado para dados contados solamente en dos grupos. El dados evidenciaran una igualdad das equipos entre los diferentes níveos técnicos para todas as variables analizadas. No en tanto, indican una característica diferenciada dos alas en relación las otras posiciones no que se hace peso corporal, sugerido una posible diferenciación morfológica dos jugadores que ejecutan a función táctica.

Palabras-llave: Antropometria, níveis competitivos, Futsal.

PERFIL ANTROPOMÉTRICO DE JOGADORES PROFISSIONAIS DE FUTSAL: UM ESTUDO COMPARATIVO ENTRE DIFERENTES NÍVEIS COMPETITIVOS E POR POSIÇÃO TÁTICA DE JOGO

Resumo

O presente estudo pretendeu fazer uma caracterização antropométrica de jogadores profissionais de Futsal e compara-los a partir de diferentes níveis competitivos e por posição tática desempenhada no jogo. A amostra foi composta por 40 jogadores profissionais de futsal, escolhidos intencionalmente, pertencentes a três equipes que disputaram o campeonato gaúcho de futsal organizado pela Federação Gaúcha de Futsal do Rio Grande do Sul, nas três categorias disponíveis, série ouro do ano 2001 (equipe do Ipiranga Futebol Clube), série prata ano 2000 e série bronze ano 1999 (equipes do Esporte Clube Itapagé). A massa corporal total, estatura, percentual de gordura corporal e comprimento tronco-encefálico foram analisados através de Análises de Variância (ANOVA) entre as equipes e entre as posições de jogo. O teste "t" foi utilizado para dados contidos somente em dois grupos. Os dados evidenciaram uma similaridade das equipes entre os diferentes níveis técnicos para todas as variáveis analisadas. No entanto, apontam uma característica diferenciada dos alas em relação às outras posições no que se refere a massa corporal total, sugerindo uma possível diferenciação morfológica dos jogadores que atuam nesta função tática.

Palavras-chaves: Antropometria, níveis competitivos, Futsal.