159 - COMPARATIVE ANALYSIS OF THE AEROBIC RESISTANCE LEVEL OF ADOLESCENTS TRAINING SOCCER AND BEACH SOCCER

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Introduction

We have seen lately a great interest for recreational and competitive practice of specific sports activities. Among them are those ones which best develop the aerobic resistance and thus many training methods contribute to the development of this characteristic in adolescents, and we highlight here the ones used in beach soccer and soccer.

Historically, soccer has a more prominent representativeness in Brazil than beach soccer, although children and adolescents practice it a lot along Brazilian's shore. Both modalities contribute a lot for the motor and physical development through the metabolic demands according to Weineck (2003) improving lateral growth and harmonization of body segments up to adulthood, where the growth rates slow down.

Beach soccer combines principles of the traditional soccer game and marketing concepts and broadcasting, so as to turn the game to be more dynamic. Its way of being played in three 12-min periods, with unlimited substitutions, direct free kicks without barriers, no tied game and so on, makes it very commercially feasible for TV (Danilas, 2004).

Soccer is also considered a dynamic sports characterized by physical contact between athletes and by the Constant movement of the players. Sprints, change of directions, jumps, are some of the motor demands common to soccer players. Changes in velocity and direction demand an intense workout from all the metabolic and muscle system. In order to move themselves with all those demanding, it is necessary that the aerobic resistance capacity be trained. (PERES, 1996 *apud* CUNHA, 2004).

There is another point that may influence the development of aerobic resistance: regular exercise. Soccer game is a good way to improve aerobic resistance by itself. When games are practiced in smaller fields, with fewer players (3:3, 4:4) instead of 11:11 in a bigger field, the heart rate demanding is increased. It is estimated that beach soccer players, because of the dimensions of the field, have less time to rest during the game (WEINECK, 2000).

It is also estimated that the performance of adolescents with a good physical development or those with biological age above the real age in soccer and beach soccer is better than the one of those with a late growth. Performance.

Thus, this research intends to bring to question the specificities of the influence of these two modalities in the development of aerobic resistance of adolescents.

Objectives:

Compare the level of aerobic resistance of adolescents training soccer with adolescents training beach soccer.
Identify the mean value of the oxygen consumption maximum capacity in each group in a field running test.
Categorize both groups according to the results obtained in the Cooper 12-min test.

Methodology:

This is a comparative and descriptive research.

According to Andrade (1999), in this kind of research the facts are observed, registered, analysed, classified and interpreted without the interference of the researcher with the characteristic of a survey through a questionnaire or systematic observation.

This is a descriptive research because describes the level of aerobic resistance of each group showing its behavior without any interference. It is comparative because it compares both groups in order to find similarities, explain differences so that a conclusion can be made according to the objectives of the research. (ANDRADE, 1999)

Results:

Each group characteristic will be presented in tables 1 and 3 with the mean values and standard deviation showing no differences in age, body mass, height and BMI. Tables 2 and 4 present the concepts of each group defined from a value table for the verification of the aerobic resistance in Young men through the distance covered during the 12-min Cooper test. (Grosser, Brüggemann e Zintl, 1986 *apud* Weineck, 2000).

Table 1: Mean values and standard deviation of age, body mass, height and BMI for Group A (Beach soccer).

GROUP A (Beach soccer)				
	AGE	**BM**	**HEIGHT**	**BMI**
Mean value	15,22	59,35	1,69	20,68
Standard deviation	0,83	10,36	0,06	2,76

Table 2: Concepts of Group A (Beach soccer) for the 12-min Cooper test.

Age	11	12	**13**	**14**	**15**	16	17
Excellent	2800	2850	2900	2950	3000	3050	3100
Very good	2600	2650	2700	2750	2800	2850	2900
Good	2200	2250	**2300**	**2350**	**2400**	2450	2500
Satisfactory	1800	1850	1900	1950	2000	2050	2100
Unsatisfactory	1200	1250	1300	1350	1400	1450	1500
Insufficient	<1200	<1250	<1300	<1350	<1400	<1450	<1500

Table 3: Mean values and standard deviation of age, body mass, height and BMI for Group C (Soccer).

GROUP C (Soccer)				
	AGE	**BM**	**HEIGHT**	**BMI**
Mean value	14,89	66,68	1,73	22,56
Standard deviation	0,78	10,25	0,06	4,28

Table 4: Concepts of Group C (Soccer) for the 12-min Cooper test.

Age	11	12	**13**	**14**	**15**	16	17
Excellent	2800	2850	2900	2950	3000	3050	3100
Very good	2600	2650	2700	2750	2800	2850	2900
Good	2200	2250	2300	2350	2400	2450	2500
Satisfactory	1800	1850	**1900**	**1950**	**2000**	2050	2100
Unsatisfactory	1200	1250	1300	1350	1400	1450	1500
Insufficient	<1200	<1250	<1300	<1350	<1400	<1450	<1500

The results found on the 12-min Cooper test determined the physical conditioning of the adolescents training Beach soccer in relation to those ones training soccer.

Group A was 37,7% better than group C in the test carried on on the field and 37,5% better in a 12-min running test on the sand.

Comparing the results of each group with the picture below, the mean value of the distances covered by Group A adolescents in the field test, 2710 meters, is included within the values referring to the age being studied. Group C, however, obtained an inferior result on the field for the ages 14 and 15.

Picture 1: Mean values for Cooper test for male adolescents, age between 9 and 15 involved in scholar sports (Grosser/Starischka, 1986)

Age	9/10	11/12	13/14	15
N	N=77	N=85	N=68	N=28
Mean distance	2155±357	2315±307	2414±426	2607±438

VO_{2Max} increases with the physiological development of any human being and stabilizes by the end of adolescence and it can be improved with aerobic training but, regardless this, values related to adolescents and adults are stable when compared. As shown by Silva (2003), when referring to children and adolescents, the study of the VO_{2Max} still demand some deepening to clarify the specificities involved in it. From this perspective, Léger (1996 *apud,* SILVA 2003), states that when compared to adults children and adolescents tend to have a smaller VO_{2Max} when it is expressed in its absolute value ($l.min^{-1}$). Nonetheless, when we consider it related to body mass ($ml.kg.min^{-1}$), this variable tend to be relatively stable for boys during growth.

We should be attentive not to misunderstand the effect of soccer training on the improvement of the aerobic power with the physiological development of the adolescents training it. In this study, we could observe an improvement in aerobic power in male subjects of 9 to 15 years of age. We conclude that alterations beginning at 12 and 13 years were regarding the practice of soccer. The improvement in aerobic power with soccer training occurred at 12 and 13 years and at puberty, which suggested an effect of training and maturation (VILLAR, 2000).

The result obtained in an aerobic test depends too much on which stage of the biological age of the adolescents, because those on at a higher age or with good genetic conditions is likely to have better results. However, the better performance of Group A (beach soccer) was due to the fact that they were already adapted and used to practice activities in an irregular land and this demands more intensity for moving and a higher level of motor coordination than it is demanded don the grass, that is, practice which demand more of the physical condition allows one to practice less intensity activities.

Conclusions:

When practiced on the sand, physical activity requires a higher contraction of muscles of the legs principally from the calf due to plantar flexion. Besides, it requires a higher motor control due to irregular land and to the stopping movements and pull-outs without too much adherence and this causes a greater energetic demand.

In practice the observations made confirm the information cited before where muscle pain was related to happen in calf after the testing on the sand only for adolescents of Group C (soccer)

We conclude that the Beach soccer group had a 37, 7 % better performance than the soccer group.

Adolescents from group A (beach soccer) were adapted to a high intensity activity which demands more coordination and so they could get a better result in less complex and low intensity activity as the test in the field.

Just to compare results, a 12-min running test was conducted on the sand and it was observed that the performance was the same for both groups. There was a difference of 37, 5% showing that the beach group was also better than the soccer group because they were used to exercising on the sand.

REFERENCES:

ANDRADE, Maria Margarida de. **Introdução a Metodologia do trabalho Científico**. 4º Ed São Paulo. Editora Atlas, 1999.

BARBOSA, Marcos Octávio Simões. **Beach Soccer**: da iniciação a competição. Rio de Janeiro: Sprint, 1998.

CAMPO, Wagner; BRUM, Vilma Pinheiro da Cruz. **Criança no esporte**. Curitiba, Paraná, Brasil: Universidade Federal do Paraná , 2004.

CONSELHO DICIPLINAR DA CONFEDERAÇÃO BRASILEIRA DE FUTEBOL DE AREIA, **Regras Oficiais de futebol de areia,** Porto Alegre, 2002. Disponível < <www.fgbs.cjb.net >. Acesso em : 26 set . 2004.

FERNANDES, José Luís. **Futebol**: da "escolinha" de futebol ao futebol profissional. São Paulo: Pedagógica e Universitária, 2004.

FILHO, José Fernandes. **A prática da avaliação física**: Testes, medidas e avaliação física em escolares, atletas e academias de ginástica. 2 ed, Shape, Rio de Janeiro, 2003.

LIMA, Artel Ferrari. **Treinamento precoce e intenso em crianças e adolescentes**, Belo Horizonte:Health, 2000.

LIMA, Dartel Ferrari. **Dicionário de esporte.** Rio de Janeiro: Sprint, 2002.

MOLINKISS, Maria Augusta Peduti. **Esporte e exercícios**: Avaliação e Prescrição: Roca, 2004.

MONTEIRO, Rafael Mello. **Físico dos jogadores de futebol de campo da categoria juvenil relacionado com suas respectivas funções técnicas e táticas por eles exercidas em campo**.Trabalho de Conclusão de Curso (Graduação) Faculdade de Educação Fisica, Universidade Estácio de Sá, Rio de Janeiro, 2004.

PERES, Bergson de Almeida**. Estudo das variáveis antropométricas e de aptidão física de futebolistas japoneses e brasileiros**. São Paulo: USP, 1996.

SILVA, Santos. **Revista brasileira de cineantropometria e desempenho humano**. Universidade Federal de Santa Catarina. Centro de Desportos. V.5 .Florianópolis: Imprensa Universitária, 2003.

TOURINHO FILHO, Hugo; TOURINHO, Lílian Simone Pereira Ribeiro. **Crianças, adolescentes e atividade física**: aspectos maturacionais e funcionais. Disponível em: <www.efartigos.hpg.ig.com.br/fitness/artigo21> .Acesso em: 15 nov. 2004.

VILLAR, Rodrigo. **Efeitos do treinamento de futebol, idade cronológica e idade biológica sobre a composição corporal, limiar anaeróbico, potência aeróbia e capacidade anaeróbia em indivíduos de 9 a 15 anos do sexo masculino**. Ciência da motricidade (Mestrado), UNESP, Rio Claro, 2000.

WEINECK, Jürgen. **Futebol total**: o treinamento físico no futebol. Guarulhos: Phorte, 2000.

WEINECK, Jürgen. **Treimento Ideal**. São Paulo: Manole, 2003.

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COMPARATIVE ANALYSIS IN THE AEROBIC RESISTENCE OF TEENAGERS WITHIN A SOCCER TRAINING PROGRAM OF SOCCER FIELD AND BEACH SOCCER

Summary: Two groups with ages between 14 and 16 years old, Group A practices Beach Soccer and Group C practices Field Soccer. Both groups practice their sports modality for at least one year. From these subjects mentioned it intends to place in question the conflicts of playing Field Soccer and Beach Soccer in the development of the aerobic resistance in teenagers. **Methodology:** The characteristic of this present research is the comparative descriptive research of the field. **Objective:** identify using the Cooper track test 12 minutes of aerobic resistance on teenagers inserted in a Soccer Field Training Program within adolescents in a Beach Soccer training program clarifying the average of the maximum capacity of oxygen absorption of each group. **Results:** the Beach Soccer (Group A) got better results than the Field Soccer (Group C). The average distance for Group A was 2710 meters and for Group C was 2136 meters. **Conclusion:** From these results Group A was better than group C with 37, 7%. Just out of curiosity, a 12 minutes race test on the sand was given to see their performance .The average distance accomplished for Group A was 2105 meters and for group C was 1691, in another words, there was a difference of 37, 5% between them showing that the performance in percentile levels that they were very close in the track, as much as in the sand.

Key-Words: Aerobic resistance; Soccer; Sports Training.

ANALYSE COMPARATIVE DANS LE RESISTENCE AÉROBIE DES ADOLESCENTS DANS UN PROGRAMME DE FORMATION DU FOOTBALL DE CHAMP DU FOOTBALL ET DE FOOTBALL DE PLAGE

Sommaire

Deux groupes avec des âges entre 14 et 16 ans de , groupent le football de plage de pratiques en matière de A et groupent le football de champ de pratiques en matière de C. Les deux groupes pratiquent leur modalité de sports pendant au moins une année. De ces sujets mentionnés lui prévoit pour placer en question les conflits du football de champ de jeu et du football de plage dans le développement de la résistance aérobie dans les adolescents. **Méthodologie** : La caractéristique de cette recherche actuelle est la recherche descriptive comparative du champ. **Objectif** : identifiez en utilisant l'essai de voie de tonnelier 12 minutes de résistance aérobie sur des adolescents insérés dans un programme de formation pratique du football chez des adolescents dans un programme de formation du football de plage clarifiant la moyenne de la capacité maximum d'absorption de l'oxygène de chaque groupe **Résultats** : le football de plage (le groupe A) a obtenu de meilleurs résultats que le football de champ (groupe C). La distance moyenne pour le groupe A était de 2710 mètres et pour le groupe C était de 2136 mètres. **Conclusion** : De ces résultats groupez A était meilleur que groupent C avec 37, 7%. Juste hors de la curiosité, un essai de course de 12 minutes sur le sable a été donné pour voir que leur distance moyenne de The d'exécution accomplie pour le groupe A étaient 2105 mètres et pour le groupe C était 1691, dans des autres mots, il y avait une différence de 37, 5% entre eux prouvant que l'exécution dans des niveaux de percentile qu'ils étaient très étroits dans la voie, autant que dans le sable.

Mots-clés : Résistance aérobie ; Le football ; Formation De Sports

ANÁLISIS COMPARATIVO DEL NÍVEL DE RESISTENCIA DE AEROBICOS EN LOS ADOLESCENTES INSERIDOS EN UN PROGRAMA DE ENTRENAMIENTO DE FÚTBOL DE CANCHA E FÚTBOL PLAYA

Resumen: Dos grupos con edades entre 14 e 16 años, Grupo A practicantes de Fútbol Playa y Grupo C practicantes de fútbol de Cancha. Ambos grupos practican sus modalidades deportivas por lo menos hace un año. Siguiendo estos asuntos abordados se proponen en poner sobre cuestión las interferencias de la práctica del Fútbol de Cancha e Fútbol Playa en el desarrollo de la resistencia de los aeróbicos en los adolescentes. **Metodologia:** La actual pesquisa tiene como característica del tipo de busqueda descriptivo comparativo del campo. **Objetivo:** identificar a través de la prueba de Cooper Track de 12 minutos la resistencia de ejercicios aeróbicos en los adolescentes inseridos en un programa de entrenamiento de Fútbol de Cancha con adolescentes inseridos en un programa de entrenamiento de Fútbol Playa esclareciendo el promedio de la capacidad máxima de la captación de oxígeno de cada grupo. **Resultados:** el Fútbol playa (Grupo A) obtuvo el mejor resultado en relación al Fútbol de Cancha (Grupo C).Los promedios de las distancias obtenidas, fue de 2710 metros para el Grupo A y 2136 para el Grupo C. **Conclusión**: El grupo A con 37,7% fue mejor que el Grupo C. Por una simples curiosidad relacionada al desempeño de los dos grupos, fue realizado una prueba de carrera de 12 minutos en la arena en donde el promedio de las distancias obtenidas fueron de 2105 metros para el Grupo A y 1691 metros para el Grupo C, osea, hubo una diferencia de 37,5% entre ellos señalando que el desempeño en niveles porcentuales se mantuvieron muy próximos tanto en la cancha pista, como en la arena.

Palabras-Claves: Resistencia de Aeróbicos; Fútbol; Entrenamiento Deportivo.

ANÁLISE COMPARATIVA DO NÍVEL DE RESISTÊNCIA AERÓBICA DE ADOLESCENTES INSERIDOS EM UM PROGRAMA DE TREINAMENTO DE FUTEBOL DE CAMPO E FUTEBOL DE AREIA

Resumo: Dois grupos com idade entre 14 e 16 anos, Grupo A com 9 praticantes de Futebol de Areia e Grupo C com 9 praticantes de futebol de Campo. Ambos os grupos praticam suas modalidade esportiva há pelo menos um ano. A partir desses assuntos abordados pretende-se colocar em questão as interferências da prática de Futebol de Campo e Futebol de Areia no desenvolvimento da resistência aeróbica nos adolescentes. **Metodologia:** A presente pesquisa tem características do tipo pesquisa descritiva comparativa de campo. **Objetivo:** identificar através do teste de pista Cooper 12 minutos a resistência aeróbica de adolescentes inseridos em um programa de treinamento de Futebol de Campo com adolescentes inseridos em um programa de treinamento de Futebol de Areia esclarecendo a média da capacidade máxima de captação de oxigênio de cada grupo. **Resultados:** o Futebol de Areia (Grupo A) obteve resultado melhor em relação ao Futebol de Campo (Grupo C). As médias das distâncias obtidas, foram de 2710 metros para o Grupo A e 2136 para o Grupo C. **Conclusões**: A partir desses dados obtidos o grupo A foi, 37,7% melhor do que o Grupo C. Por curiosidade quanto ao desempenho dos dois grupos, realizou-se um teste de corrida de 12 minutos na areia onde as distâncias médias obtidas foram de 2105 metros para o Grupo A e 1691 metros para o Grupo C, ou seja, teve diferença de 37,5% entre eles mostrando que o desempenho em níveis percentuais se mantiveram muito próximos tanto na pista, como na areia.

Palavras-Chave: Resistência Aeróbica; Futebol; Treinamento Desportivo.