

39 - PHYSICAL FITNESS OF SCHOOLCHILDREN PRACTICAL AND NON-PRACTICAL VOLLEYBALLGABRIEL MOURÃO DOS SANTOS^{1 2}IVAN DE JESUS FERREIRA^{1 2}

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INTRODUCTION

Physical fitness refers to the functional capacity to perform a given task. Physical fitness can also be understood as the ability to perform day-to-day activities without excessive fatigue, while maintaining energy reserves for an active physical, intellectual and social life (FOX, 1991; BARBANTI, 1990).

Physical fitness generally varies among populations due to influences such as age, sex, heredity, race, cultural and economic patterns and climatic conditions (FERREIRA, LEÃO, 2017).

In this context, physical fitness is classified into two aspects, one related to health and the other related to motor performance. The latter includes specific motor skills such as flexibility, muscular endurance strength, lower limb strength, upper limb strength, agility, speed and cardiorespiratory endurance (GUEDES, 1995, JALOWITZHI, et al., 2017).

According to LEÃO & FERREIRA (2017), each sports specialty has very specific requirements, so that components that contribute to a better sports performance should be treated as components of physical fitness related to motor performance.

It is important to carry out studies that outline the physical and motor characteristics of athletes involved in school teams, in order to enable an adequate and efficient follow-up during sports training (JALOWITZHI et al. 2017).

Based on these assumptions, the objective of this study was to compare anthropometric indicators and the level of physical fitness among non-volleyball practitioners at school level.

METHODOLOGY

It is a comparative quantitative study approved by the Ethics Committee of the Federal University of Amazonas. The sample consisted of 10 students who practiced male volleyball in the 15 to 18 years age group and 22 students in the same age group and gender who did not practice any sport, and who were regularly enrolled in the private school system.

The sample of schoolchildren practicing a training program would subtend a volleyball team from the city of Manaus with a recent history of achievements in school, municipal and state competitions within the modality.

It was considered inclusion criteria for school volleyball players to be a member of the school's volleyball team, 15 to 18 years of age, to participate in the training program for more than six months and with a minimum frequency of three times a week.

For the selection of schoolchildren not practicing sports activities, we considered the male subjects, aged 15 to 18 years and who indicated that they did not participate in any physical activity oriented and organized in addition to Physical Education in school.

In order to collect the data of the school-aged athletes, a previous appointment was initially made with the school's management and with the team coach to present the objectives, justifications and procedures of the study.

Data collection was performed in four days. In the first three days the evaluated were non-volleyball schoolchildren, with the presence of the school's physical education teacher. On the fourth day were evaluated the students practicing volleyball.

Anthropometric measures: weight, height and wingspan, and tests for Performance-Related Physical Aptitude (ApFRD): sit-and-reach, modified abdominal, horizontal jumping force, vertical jumping force, medicine ball 2kg pitch, 4x4 agility, speed race 30m and race and 12-minute walk.

Data collection was performed in October 2018 by academics of the undergraduate degree in Physical Education of the Federal University of Amazonas properly trained.

As a criterion of classification, the percentile values of Projeto Esporte Brasil, which contains data from schoolchildren from all over the country (GAYA & GAYA, 2016)

For data analysis, since the variables did not present parametric distribution, the minimum, maximum, median and interquartile differences were used to describe the variables. The non-parametric Mann-Whitney test was used to compare the variables among the group of school-aged athletes and non-volleyball schoolchildren. The level of significance was set at $p \leq 0.05$.

RESULTS Legend: N = Sample size; value t = value of the t-student test for independent samples; minimum = minimum sample value; maximum = maximum value of the sample. The TABLE 1 presents a description of the variables for weight, height and wingspan and the comparison between students who are practicing and not practicing volleyball. A significant difference ($p \leq 0.05$) was found for stature and size.

TABLE 1 - Anthropometric indicators of weight, height and wingspan including variables of mean, t value, standard deviation, minimum value and maximum value.

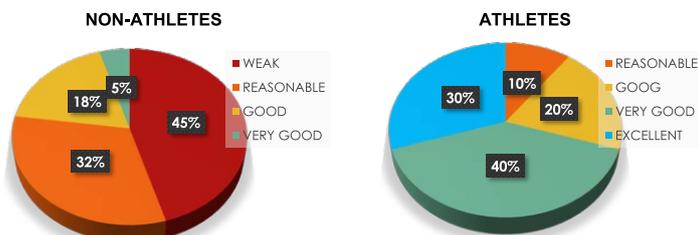
PLAYERS AND NON-PLAYERS	N	Mean	"T" Value	Standard deviation	Minimum	Maximum
WEIGHT	PLAYERS	10	70,130	0,960	12,265	51,750
	NON-PLAYERS	22	70,727		12,755	51,650
HEIGHT	PLAYERS	10	181,2	0,001*	10,3	166,6
	NON-PLAYERS	22	172,7		4,6	165,8
WINGSPAN	PLAYERS	10	187,7	0,003*	11,2	170,2
	NON-PLAYERS	22	177,0		5,2	167,6

Legend: N = Sample size; value t = value of the t-student test for independent samples; minimum = minimum sample value; maximum = maximum value of the sample.

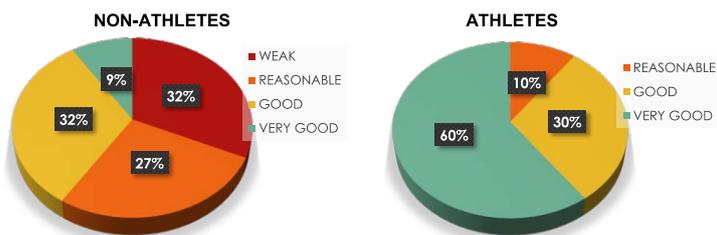
Graphic 1, 2, 3 and 4 show the classification of practitioners and non-volleyball players related to motor performance tests.

In the horizontal jump tests (graphic 1), throwing of medicine ball 2k (graphic 2) and velocity (graphic 4), the individuals athletes obtained a better result when compared with the non-athletes individuals.

In the 4x4 agility test (graphic 3), non-athletes scored better than athletes.



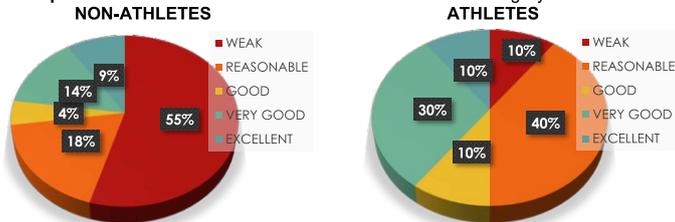
Graphic 1 - Classification of athletes and non-athletes in jump test.



Graphic 2 - Classification of athletes and non-athletes of throwing medicine ball 2kg test.



Graphic 3 - Classification of athletes and non-athletes of 4x4 agility test.



Graphic - Classification of athletes and non-athletes of velocity test.

DISCUSSION

The result of the present study indicated that there were differences in the stature and size of the individuals (table 1). The results found here differ from those found by Jalowitzhi (2017) and Da Silva (2003).

In highly competitive teams, in addition to the technical aspects, one of the criteria for selection of athletes should be height and breadth, facilitating the performance of the individual within the modality.

In a study by Dantas, et. al. (2013), with teams of the Brazilian volleyball team, shows that the high stature of volleyball athletes of all categories, especially in relation to the general population, is the main anthropometric variable in the selection of athletes for the high yield in the modality.

It should also be noted that among the variables of the ApFRD in the medicine ball throw, speed and horizontal jump tests the athletes had better results than the non-athletes.

In the case of the horizontal jump, it can be associated to the specificity of the modality that requires of its practitioners a great amount of jumps (in the execution of the blockade, attack and even in the withdrawals and withdrawals). Similar results were found by Jalowitzhi et. al. (2017).

Attack, pull, and lift movements require upper limb strength, which we can associate with good athlete performance in the medicine ball 2kg throw test.

Tozzetto et. al. (2012) compared volleyball, basketball and futsal athletes and found better performance in volleyball athletes in upper limb strength tests.

The literature indicates that individuals who have a good horizontal jumping force tend to have good speed. Such results are in agreement with Seabra, et. al. (2001) and Jalowitzhi (2017), emphasizing that the practice of sports activities improves the level of physical fitness.

According to the PROESP-SP classification, 50% of the athletes had "weak" or "reasonable" results, which should be analyzed. These results may have been obtained because of the lack of intimacy of the athletes with the test, since the individuals were performing the test battery for the first time. However, in the agility test the athletes had 42% of the results between "weak" and "reasonable" while the non-athletes had only 14% of the results between "weak" and "reasonable", doing better in this test.

As the modality is characterized by sudden changes of direction and abrupt stops in a shorter time with the minimum of possible physical exhaustion (MOROUÇO, et al., 2014), often contemplated with long points and displacements at high speed, it is necessary to special attention to motor ability agility. Different results of this study were found by Anza et al. (2013).

It is possible that non-volleyball schoolchildren may engage in other types of physical activity informally, which could also improve their performance in some of the tests.

It is important to emphasize that schoolchildren have a training routine of 3 to 4 times a week. Which could explain the best result in most of the tests.

But it is understood that a high performance collective sports team should be as homogeneous as possible regarding the level of physical conditioning of the athletes needing attention of the trainer in relation to the individuals who had lower performance in the tests.

CONCLUSION

Based on the objectives of this study and according to the results found, we concluded that the students who practiced volleyball obtained the best sports performance in the majority of physical fitness tests related to motor performance, when compared to non-practicing schoolchildren. It is also concluded that the anthropometric measures are predominant for the practice of the modality.

The practice of sports activities should be encouraged by physical education professionals in their classes, as a way to improve the level of physical fitness of students.

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PHYSICAL FITNESS OF SCHOOLCHILDREN PRACTICAL AND NON-PRACTICAL VOLLEYBALL

ABSTRACT

The objective of this study was to compare anthropometric indicators and the level of physical fitness among non-volleyball practitioners and non-volleyball players. A sample of 32 male students aged 15 to 18 years with mean age of 16.05 ± 1.107, regularly enrolled in the private education network of the city of Manaus, were collected. For the evaluation of physical fitness related to sports performance, anthropometric measurements (weight, height and wingspan) and motor performance tests (sit-and-reach, modified abdominal, horizontal jumping force, vertical jumping force, medicine ball 2kg, agility 4x4, speed run 30m and run and walk for 12 minutes). Significant difference was found in sit-and-reach tests, modified abdominal, horizontal jumping force, vertical jumping force, medicine ball 2kg pitch, 30m speed run and 12-minute run and walk. It was concluded that volleyball schoolchildren obtained better sports performance in all tests, with the exception of the 4x4 agility test, when compared to non-practicing schoolchildren.

Key words: Physical Fitness; Motor Performance; Volleyball; Schoolchildren.

APTITUDE PHYSIQUE DES ÉCOLES DE VOLLEYBALL PRATIQUES ET NON PRATIQUES

RÉSUMÉ

Cette étude visait à comparer les indicateurs anthropométriques et le niveau de forme physique chez les pratiquants non-volley-ball et les joueurs non-volley-ball. Un échantillon de 32 étudiants âgés de 15 à 18 ans et d'âge moyen de 16,05 ± 1,107, régulièrement inscrits au réseau d'enseignement privé de la ville de Manaus, a été collecté. Pour évaluer la forme physique liée aux performances sportives, aux mesures anthropométriques (poids, taille et envergure) et aux tests de performance motrice (sit-and-atteindre, abdominale modifiée, force de saut horizontale, force de saut verticale, médecine ball

2kg, agilité 4x4, vitesse courir 30m et courir et marcher pendant 12 minutes). Une différence significative a été constatée dans les tests de positionnement et d'atteinte, modification de la force abdominale, force de saut horizontale, force de saut verticale, lancer du ballon de médecine, course de vitesse de 30 m et course et marche de 12 minutes. Il a été conclu que les écoliers de volleyball obtenaient de meilleures performances sportives dans tous les tests, à l'exception du test d'agilité 4x4, par rapport aux écoliers non pratiquants.

Recherche: Condition Physique; Performances Motrices; Volley-ball; Écoliers

APTITUD FÍSICA DE ESCOLARES PRACTICANTES Y NO PRACTICANTES DE VOLEIBOL

RESUMEN

Este estudio tuvo como objetivo comparar indicadores antropométricos y el nivel de aptitud física entre practicantes y no practicantes de voleibol a nivel escolar. Se recogieron muestras de 32 alumnos del sexo masculino en la franja entre 15 y 18 años con una media de edad de $16,05 \pm 1,107$, regularmente matriculados en la red de enseñanza privada de la ciudad de Manaus. Para la evaluación de la aptitud física relacionada con el rendimiento deportivo se realizaron medidas antropométricas (peso, estatura y envergadura) y pruebas de rendimiento motor (sentarse y alcanzar, abdominal modificado, fuerza de salto horizontal, fuerza de salto vertical, tiro de medicine ball 2kg, la agilidad 4x4, carrera de velocidad 30m y carrera y caminata de 12 minutos). Se encontró una diferencia significativa en las pruebas de sentarse y de alcanzar, abdominal modificado, fuerza de salto horizontal, fuerza de salto vertical, lanzamiento de medicina ball 2kg, carrera de velocidad 30m y carrera y caminata de 12 minutos. Se concluye que los escolares practicantes de voleibol obtuvieron mejor rendimiento deportivo en todas las pruebas, con excepción de la prueba de agilidad 4x4, cuando comparados con los escolares no practicantes.

Palabras clave: Aptitud física; Rendimiento motor; voleibol; Escuela.

APTIDÃO FÍSICA DE ESCOLARES PRATICANTES E NÃO PRATICANTES DE VOLEIBOL

RESUMO

Este estudo teve como objetivo comparar indicadores antropométricos e o nível de aptidão física entre praticantes e não praticantes de voleibol em nível escolar. Foram coletadas amostra de 32 alunos do sexo masculino na faixa-etária entre 15 e 18 anos com média de idade de $16,05 \pm 1,107$, regularmente matriculados na rede de ensino privado da cidade de Manaus. Para a avaliação da aptidão física relacionada ao rendimento esportivo foram realizadas medidas antropométricas (peso, estatura e envergadura) e testes de desempenho motor (sentar-e-alcançar, abdominal modificado, força de salto horizontal, força de salto vertical, arremesso de medicine ball 2kg, a agilidade 4x4, corrida de velocidade 30m e corrida e caminhada de 12 minutos). Foi encontrada diferença significativa nos testes sentar-e-alcançar, abdominal modificado, força de salto horizontal, força de salto vertical, arremesso de medicine ball 2kg, corrida de velocidade 30m e corrida e caminhada de 12 minutos. Conclui-se que os escolares praticantes de voleibol obtiveram melhor rendimento esportivo em todos os testes, com exceção do teste de agilidade 4x4, quando comparados com os escolares não praticantes.

Palavras-chave: Aptidão Física; Desempenho Motor; Voleibol; Escolares.