

EFFECTS OF FUNCTIONAL TRAINING ON THE ATHLETIC QUALITY OF AEROBICS PRACTITIONERS

EFEITOS DO TREINAMENTO FUNCIONAL SOBRE A QUALIDADE ATLÉTICA DOS PRATICANTES DE AERÓBICA

EFFECTOS DEL ENTRENAMIENTO FUNCIONAL EN LA CALIDAD ATLÉTICA DE LOS PRACTICANTES DE AERÓBIC



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ABSTRACT

Introduction: Athletes' level of physical fitness has become the basis for achieving their sports ability. The lack of physical fitness can generate a great impasse in the quality of movements and the performance of the athletes. **Objective:** Study functional training research on aerobics athletes' athletic quality. **Methods:** The content of functional training applications in competitive aerobics and fitness was analyzed through a literature review. Research methods of mathematical statistics were used to analyze the collected data and contrast it with the current scientific literature. **Volunteers for the research** were athletes from the aerobics team at the Institute of Physical Education. They were randomly divided into two groups, the experimental group (n=9) and the control group (n=9). Functional training was added only to the experimental group; all performed the standard training. **Results:** In the mean total score of the FMS functional movement screening test, the athletes in the experimental group from 9.22 points before the experiment to 15.65 points after the experiment. The control group athletes improved from 9.83 points before the experiment to only 11.23 points after. **Conclusion:** It was evidenced a dominant improvement in the movement of the athletes who executed the suggested training, acquiring greater coordination gain through functional training.

Level of evidence II; Therapeutic studies - investigation of treatment outcomes.

Keywords: Physical Education and Training; Physical Fitness; Athletes.

RESUMO

Introdução: O nível de aptidão física dos atletas se converteu na base para atingir sua habilidade esportiva. A falta de aptidão física pode gerar um grande impasse na qualidade de movimentos e no desempenho dos atletas. **Objetivo:** Estudar a pesquisa do treinamento funcional sobre a qualidade atlética de atletas de aeróbica. **Métodos:** Analisou-se o conteúdo da aplicação do treinamento funcional na aeróbica competitiva e na aptidão física através da revisão da literatura. **Métodos de pesquisa de estatísticas matemáticas** foram utilizadas para analisar os dados coletados e contrastar com a literatura científica vigente. **Foram voluntários da pesquisa** os atletas da equipe de aeróbica do Instituto de Educação Física. **Divididos aleatoriamente em dois grupos**, grupo experimental (n=9) e o grupo controle (n=9). O treinamento funcional foi adicionado apenas ao grupo experimental, todos executaram o treinamento padrão. **Resultados:** Na pontuação média da pontuação total do teste FMS de triagem do movimento funcional, os atletas do grupo experimental, de 9,22 pontos antes do experimento para 15,65 pontos após o experimento. Os atletas do grupo controle melhoraram de 9,83 pontos antes do experimento para apenas 11,23 pontos após o experimento. **Conclusão:** Evidenciou-se uma melhoria dominante no movimento dos atletas que executaram o treinamento sugerido, adquirindo maior ganho de coordenação pelo treinamento funcional. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

Descritores: Educação Física e Treinamento; Aptidão Física; Atletas.

RESUMEN

Introducción: El nivel de aptitud física de los atletas se ha convertido en la base para alcanzar su capacidad deportiva. La falta de aptitud física puede generar un gran impasse en la calidad de los movimientos y en el rendimiento de los deportistas. **Objetivo:** Estudiar la investigación del entrenamiento funcional sobre la calidad atlética de los atletas de aeróbic. **Métodos:** Se analizó el contenido de la aplicación del entrenamiento funcional en el aeróbic de competición y la aptitud física mediante la revisión de la literatura. Se utilizaron métodos de investigación de estadística matemática para analizar los datos recogidos y contrastarlos con la literatura científica actual. **Los voluntarios de la investigación** fueron los atletas del equipo de aeróbic del Instituto de Educación Física. **Se dividieron aleatoriamente en dos grupos**, el grupo experimental (n=9) y el grupo de control (n=9). El entrenamiento funcional se añadió sólo al grupo experimental, todos realizaron el entrenamiento estándar. **Resultados:** En la puntuación total media de la prueba de detección de movimientos funcionales FMS, los atletas del grupo experimental pasaron de 9,22 puntos antes del experimento a 15,65 puntos después del mismo. Los atletas del grupo de control mejoraron de 9,83 puntos antes del experimento a sólo 11,23 puntos después del mismo. **Conclusión:** Se evidenció una mejora dominante en el movimiento de los atletas que ejecutaron el entrenamiento sugerido, adquiriendo una mayor ganancia de coordinación por el entrenamiento funcional. **Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.**

Descriptorios: Educación y Entrenamiento Físico; Aptitud Física; Atletas.



INTRODUCTION

Athletes' physical fitness level has become the key to affect their competitive ability. The lack of physical fitness may lead to a great impact on the quality of the whole set of movements and the performance of athletes. Therefore, it is extremely important to study the physical fitness training methods of competitive aerobics.¹ With the development in recent years, the effectiveness and practicality of functional training has been confirmed by the world's high-level athletes, functional training can effectively improve the strength, balance, flexibility, etc. of competitive aerobics athletes, and it is an important method to improve the comprehensive competitive ability and training level of competitive aerobics athletes.²

Todorova V considered FT to be a series involving balance and proprioception, using the feet as support to improve balance and proprioception without the help of borrowed equipment.³ Chen K believes that functional training is a training method that uses anatomical knowledge to select training methods, and on the premise of ensuring that athletes are not injured, improve their athletic ability and to achieve a stable and efficient training mode.⁴ Dewangga M W pointed out that flexibility plays a very important role in the achievement of competitive aerobics, especially for teenagers, special flexibility should be practiced in the adolescent stage, and experiments have shown that, the combination of dynamic and static methods has a more effective influence on it, and can improve its special flexibility.⁵ Cao P explored the effect of fast-stretching compound training on the muscle strength of competitive aerobics athletes through experimental methods, the results show that fast-stretching compound training improves the explosive power and maximum strength of muscles, but has little effect on muscle endurance, it is recommended to focus on speed endurance training in competitive aerobics training.⁶

The influence of difficult movement skills of young competitive aerobics athletes is mainly through core strength, general strength, combined strength training, etc., which has an important impact on the improvement of motor skills.⁷ The pertinence of training methods is not well reflected, at the same time, the continuity of research is poor, and there is no long-term research on it, and there is no distinction between gender differences and differences in different training stages.

METHOD

Documentation method

By consulting library books and querying databases such as CNKI and Wanfang, and referring to a large number of journals and master's and doctoral dissertations on functional training and physical fitness, sort out and analyze the frontier knowledge and theories of predecessors in this field, and apply them to the author's writing, providing important guidance for the author's writing.⁸

Experimental grouping

The subjects were divided into two groups, an experimental group and a control group, based on the basic information of the pre-test.

Table 1 shows that the P value obtained after the independent sample T-test is all greater than 0.05, indicating that there is no significant

Table 1. Comparison of the basic situation of the experimental group and the control group (N=9).

Basic situation	Test group (x±s)	Control group (x±s)	T	P
Age	20.8 (±1.09)	20.6 (±1.24)	0.40	0.69
Training years	3.1 (±0.93)	3.1 (±0.93)	0.00	1.00
Height	170.1 (±6.00)	169.6 (±8.35)	0.16	0.87
Weight	60.1 (±9.6)	60.8 (±9.12)	-0.16	0.87

difference between the experimental and control groups in terms of age, height, weight, and training. years and other conditions (P>0.05).

Mathematical Statistics

The author used EXCLE tables to preliminarily organize the measurement results of the two groups of subjects before the experiment and after the experiment, and then used SPSS25.0 statistical software, statistical comparative analysis was carried out on the experimental data, and the average value and standard deviation of each test index were obtained, finally, the analyzed values are compared and analyzed, and the experimental conclusions are drawn.

Ethical Compliance

Research experiments conducted in this article with animals or humans were approved by the Ethical Committee and responsible authorities of José Rizal University following all guidelines, regulations, legal, and ethical standards as required for humans or animals.

RESULTS

Comparison of motor test scores and specific motor indicators in two groups of pre-test subjects

As can be seen from Table 2 above, before the experiment, the two groups of subjects were very close to each other in terms of physical fitness, with a small margin of error. In the experimental group, fast high-five push-ups for 30 seconds, quick two-headed push-ups for 30 seconds, standing long jump, horizontal forks, vertical forks, shoulders, 10 consecutive hip lifts, right-angle support, the average score of 10 special physical fitness test indicators of 10 consecutive flexion and split jumps, 10 vertical turns and 360° ground splits.

After performing the T test on the data measured by SPSS statistics of the two experimental groups, the P values of the experimental and control groups are both greater than 0.05, indicating that there is no difference between these restrictions. Before the test, both groups of subjects tested a measure of physical strength.

Comparison of special physical fitness scores between the athletes in the experimental group and the athletes in the control group after the experiment

As shown in Figure 1, by using SPSS statistics to analyze the experimental results by T test, it is found that, in 30 seconds of fast high-five push-ups, 30 seconds of fast two-headed push-ups, standing long jumps, vertical forks, shoulders, 10 consecutive hip lifts, right-angle support, 10 vertical rotations 360° on the ground splits 8 test items, P value are less than 0.05, it shows that after 12 weeks of physical training, the special physical fitness of the athletes in the experimental group has been

Table 2. Comparative analysis of the test scores of the special physical fitness and physical fitness indicators of the two groups of subjects before the experiment (N=9).

Basic situation	Test group (x±s)	Control group (x±s)	T	P
30 Second quick high five pushups	38.3 (±2.65)	37.6 (±3.84)	0.50	0.62
Quick start in 30 seconds	34.2 (±2.82)	33.0 (±2.23)	1.09	0.32
Standing long jump	2.3 (±0.26)	2.3 (±0.36)	0.26	0.80
Cross fork	171.1 (±8.21)	168.1 (±6.59)	0.86	0.41
Vertical fork	183.9 (±4.86)	183.9 (±7.0)	0	1
Shoulder	70.6 (±29.90)	71.1 (±21.84)	-0.05	0.97
10 Hip lifts in a row	5.8 (±2.99)	5.3 (±4.21)	0.26	0.80
Right angle support	6.2 (±1.20)	5 (±1.66)	1.79	0.09
10 Consecutive curls and split jumps	8.0 (±2.00)	7.6 (±2.19)	0.45	0.66
10 Vertical turns 360° to the ground for splits	7.0 (±2.83)	7.4 (±0.72)	-0.46	0.65

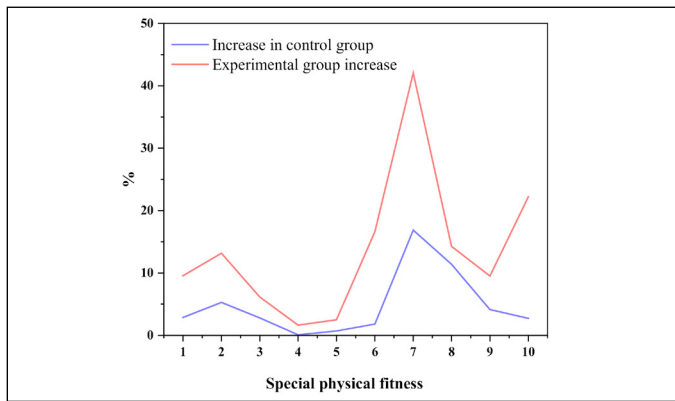


Figure 1. Comparative analysis of the test scores of the two groups of subjects in the special physical fitness index test after the experiment.

fully improved, and there is a significant difference compared with the athletes in the control group. The P value was greater than 0.05 for both cross-width and 10 consecutive-jump tests, indicating that the difference was not significant, but the increase in the experimental group was greater than that of the control group. There was no significant difference in the 10 performance tests between the real group and the control group before the test, and after 12 weeks of physical training, the physical characteristics of the athletes in the experimental group improved and the overall improvement was greater.

After the experiment, the comparative analysis of the functional movement FMS test performance between the experimental group athletes and the control group athletes.

As can be seen from Figure 2 above, after the end of the experiment, in the 7 items of functional action screening FMS test indicators, it was found through experiments that, in the 7 items of functional movement screening FMS test indicators, whether it is the average score of each sub-test score or the average score of the total score, the test scores of the athletes in the experimental group were significantly higher than those of the athletes in the control group. Through the T-test analysis of the experimental results, it is found that the P value obtained in the squat test item, the hurdle step test item, and the straight lunge test item is greater than 0.05, other shoulder flexibility test items, active lifting test items, body control push-up test items, swivel stability test items and the total score obtained P value less than 0.05. After the t test, performance analysis of the FMS items revealed differences between the athletes in the experimental group and the control group.

DISCUSSION

Through the 12-week training experimental study, it was found that after 12 weeks of functional training, the athletes in the experimental

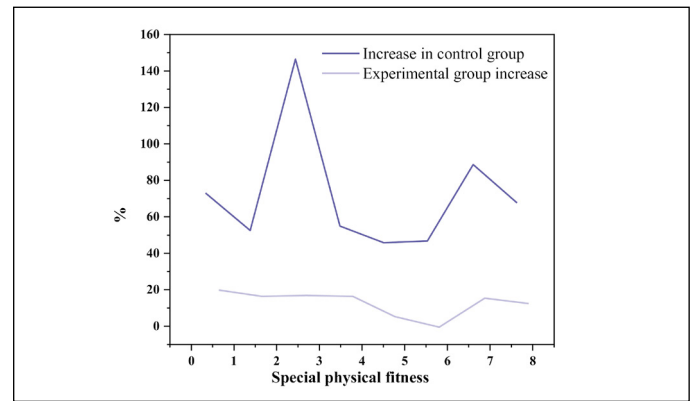


Figure 1. Comparative analysis of FMS index test scores of the two groups of subjects after the experiment.

group were significantly better than those in the control group, athletes performed very well in 8 test items: 30-second fast high-five push-ups, 30-second fast two-headed push-ups, standing long jump, vertical fork, shoulders, 10 consecutive hip lifts, right-angle support, 10 vertical turns and 360° vertical splits.^{9,10} significant improvement, it shows that the athletes in the experimental group have a greater improvement in specific physical qualities such as upper and lower body explosive power, core stability strength, balance, and jumping strength than those in the control group. After the test, the improvement of the physical strength of the experimental group of athletes was higher than that of the control group, indicating that the use of functional training in aerobic fitness competition exercise is more effective than traditional training. In addition, in the FMS test scores of the two groups of athletes, the experimental group far surpassed the control group athletes, indicating that functional training is more effective in preventing and reducing sports injuries, it is more effective to provide a certain foundation and guarantee for athletes in various competitions and daily training.

CONCLUSION

Functional training is an emerging and effective training method, but the role of traditional training methods cannot be denied. It can be said that traditional physical training is the foundation, and functional training is the key. As a new training method, functional training has a great effect on improving the physical fitness of competitive aerobics athletes. It can be said that functional training is undoubtedly a new concept and method that can effectively improve the special skills of competitive aerobics athletes.

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