

SPECIAL TRAINING FOR ATHLETES TO IMPROVE THEIR PHYSICAL AND SPORTIVE CAPACITY



ORIGINAL ARTICLE
ARTIGO ORIGINAL
ARTÍCULO ORIGINAL

TREINAMENTO ESPECIAL PARA ATLETAS VISANDO APRIMORAR SUA CAPACIDADE FÍSICA E ESPORTIVA

ENTRENAMIENTO ESPECIAL PARA ATLETAS CON EL OBJETIVO DE MEJORAR SU CAPACIDAD FÍSICA Y DEPORTIVA

Jiejian Zhang¹ 
(Physical Education Professional)

1. Science and Technology College
Gannan Normal University,
Ganzhou, Jiangxi, China.

Correspondence:

Jiejian Zhang
Jiangxi, 341000, China. 341000.
zjj2021000@126.com

ABSTRACT

Introduction: Athletes' physical fitness is an important factor in achieving good results in the game. Exercise and physical skills training are important means of improving competitive sports. No matter the type of sporting event, there are strict regulations on players' physical fitness. **Objective:** Analyze the special methods of physical exercise to improve the physical quality of athletes. The results can provide a reference for coaches to formulate more scientifically specific training programs for athletes. **Methods:** Several athletes with certain sports skills are selected as subjects. The objective of this work is to detect the level of physical fitness of the athletes. And based on this, a statistical analysis of their motor function was performed. Finally, an empirical study is conducted using mathematics and statistics. **Results:** The difference between the athletes was statistically significant ($P < 0.05$). There were significant differences in athletic ability, physical attractiveness, and body mass among the special exercises for athletic ability ($P < 0.05$). **Conclusion:** The methods for improving physical quality in male and female athletes were successful in athletes of different disciplines. **Level of evidence II; Therapeutic studies - investigation of treatment outcomes.**

Keywords: Physical Exercise; Physical Education and Training; Physical Fitness; Physical Conditioning, Human.

RESUMO

Introdução: A aptidão física do atleta é um fator importante para alcançar bons resultados no jogo. O exercício físico e o treinamento das habilidades físicas são meios importantes para melhorar o nível dos esportes competitivos. Não importa o tipo de evento esportivo, existem regulamentos rigorosos sobre a aptidão física dos jogadores. **Objetivo:** Analisar os métodos especiais de exercício físico para melhorar a qualidade física dos atletas. Os resultados podem fornecer uma referência para que os treinadores formulem programas de treinamento mais científicos específicos para atletas. **Métodos:** São selecionados vários atletas com determinadas habilidades esportivas como disciplinas. Para detectar o nível de aptidão física dos atletas esportistas, foi realizada uma análise estatística de sua função motora. Um estudo empírico é realizado por meio de matemática e estatística. **Resultados:** A diferença entre os atletas foi estatisticamente significativa ($P < 0,05$). Houve diferenças significativas na capacidade atlética, atratividade física e massa corporal entre os exercícios especiais para capacidade atlética ($P < 0,05$). **Conclusão:** Os métodos para melhorar a qualidade física de atletas masculinos e femininos obtiveram êxito em atletas de distintas disciplinas. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

Descritores: Exercício Físico; Educação Física e Treinamento; Aptidão Física; Condicionamento Físico Humano.

RESUMEN

Introducción: El estado físico del deportista es un factor importante para conseguir buenos resultados en el juego. El ejercicio físico y el entrenamiento de las habilidades físicas son medios importantes para mejorar el nivel de los deportes de competición. Independientemente del tipo de evento deportivo, existen normas estrictas sobre la forma física de los jugadores. **Objetivo:** Analizar los métodos especiales de ejercicio físico para mejorar la calidad física de los deportistas. Los resultados pueden servir de referencia para que los entrenadores formulen programas de entrenamiento más específicos desde el punto de vista científico para los deportistas. **Métodos:** Se seleccionan como sujetos varios atletas con determinadas habilidades deportivas. El objetivo de este trabajo es detectar el nivel de aptitud física de los deportistas. Y en base a ello, se realizó un análisis estadístico de su función motora. Por último, se realiza un estudio empírico por medio de las matemáticas y la estadística. **Resultados:** La diferencia entre los atletas fue estadísticamente significativa ($P < 0,05$). Hubo diferencias significativas en la capacidad atlética, el atractivo físico y la masa corporal entre los ejercicios especiales para la capacidad atlética ($P < 0,05$). **Conclusión:** Los métodos para mejorar la calidad física en los atletas masculinos y femeninos tuvieron éxito en atletas de diferentes disciplinas. **Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.**

Descriptor: Ejercicio Físico; Educación y Entrenamiento Físico; Aptitud Física; Acondicionamiento Físico Humano.



INTRODUCTION

Stunt training is a special ability training that combines skill and tactical training. In the exercise of physical ability, multiple balls, footwork, special strength, etc., can promote the physical reflection of athletes. Athletes' athletic ability is a key factor in athletes' technical and physical training.¹ When an athlete is doing professional strength training, the full effect of physical training can be transferred to specialized strength training. And special training, it is a person's special ability has been greatly improved.² This paper uses the specific exercise of physical ability as an independent variable. The correlation between athletic ability and the athletic level of athletes was studied.³

METHOD

Research materials

The survey object of this paper is 40 students of the 2020 sports department. Among these students, there are 20 men and 20 men each. The average age of the athletes is 20.6.

Experimental method

This paper takes the special exercise of physical skills as the implementation factor. Each training session for the players is 100 minutes. The course content includes preparation and leisure.⁴ Twice a week training. Exercise intensity remains moderate. This article determines the length and content of the exam, and two exams are administered. During the whole test process, it was ensured that there would be no changes to the test teachers, and the test equipment and test methods were strictly consistent.⁵ All aspects of physical fitness were tested on 50 students of the 2020 gymnastics department. At the end of 18, subjects were tested for physical fitness using the same scale.⁶ Quantitative and qualitative studies on the impact of the trials were conducted through quantitative and qualitative studies. In this way, the results obtained will be more accurate.⁷

Sports performance of motion recognition

Due to the relationship between acceleration, angular acceleration, and acceleration variance and the difference of units, Mahalanobis distance can be used for ranging in this paper. When there is one dimension, the Mahalanobis distance is: Assuming that there is an n dimensional vector $X = [x_1, x_2, x_3, \dots, x_n]$, $Y = [y_1, y_2, y_3, \dots, y_n]$, the Mahalanobis distance is:

$$d(X, Y) = \sqrt{(X - Y)^T \Sigma^{-1} (X - Y)} \quad (1)$$

Assuming a mean vector of population G , the Mahalanobis distance between n dimensional vector $X = [x_1, x_2, x_3, \dots, x_n]^T$ and population G is:

$$d(X, G) = \sqrt{(X - \mu)^T \Sigma^{-1} (X - \mu)} \quad (2)$$

Suppose there are n populations G_1, G_2, \dots, G_n . The mean vector for each population is $\mu_1, \mu_2, \dots, \mu_n$ and covariance $\Sigma_1, \Sigma_2, \dots, \Sigma_n$. This paper calculates the Mahalanobis distance from the sample to each population for a new sample X_i according to formula (2). $d_{ij}(X_i, G_j)$ is the Mahalanobis distance from the i sample to the j population.

$$W_{ij} = d^2(X_i, G_j) - d^2(X_i, G_i) \quad (3)$$

At this point, we get the criterion as follows:

$$\begin{cases} X \in G_i & \forall W_{ij} > 0 (i \neq j) \\ otherwise & \exists W_{ij} = 0 (i \neq j) \end{cases} \quad (4)$$

Test equipment

Sports Ability Scale: It is composed of the "Chinese Athlete Sports Ability Scale," which is composed of four elements: sports skills, physical condition, physical attractiveness, and physical quality.⁸ The course has a total of 30 subjects and five areas. This measurement method is already common. It has high reliability and validity.⁹

Data Analysis

According to the data obtained from the experiment, the subjects were trained and trained using the EXCEL2003 analysis tool. T-sampling was used to test whether the difference between the two groups was statistically significant.¹⁰

There is no need for a code of ethics for this type of study.

RESULTS

Gender differences

The results in Table 1 show no significant gender difference in the total score, athletic ability, physical condition, physical attraction, and physical quality of the subjects before and after the experiment ($P > 0.05$).

The relationship between tennis-specific training and athletes' athletic ability

Table 2 shows that there was no statistically significant difference in exercise ability among researchers in terms of exercise ability total score,¹¹ exercise ability, physical condition, physical attraction, and body mass ($P > 0.05$).

DISCUSSION

The results showed that there was no significant difference in physical activity levels between male and female athletes before and after the different trials. Results: First, it was related to the composition of athletes in the class. In this class, women have better career backgrounds than men, and most women are optimistic. Women have better social skills.¹² The results showed that physical fitness levels after physical training were higher than before training. This is due to the special physical ability exercise can maximize the athlete's energy. This improves their strength, speed, endurance, flexibility, and agility. And this special project can also improve their physical ability. This view is also confirmed by an empirical analysis of the physical training of professional athletes in sports. There was no significant change in physique, perhaps because the physique of the teenage athlete was only mental, weight, and diet changes.¹³ Such changes are difficult to detect. As a result, they will feel that their state has not changed in any way. This study found that the athletic ability of sports expertise can significantly improve the overall self-value and overall life satisfaction. Many scholars believe that improving athletes'

Table 1. Gender comparison of subjects' athletic ability before and after training.

Gender	M	SD	T	P
Male	80.81	13.35	1.98	>0.05
Female	75.62	12.24		

Table 2. Differences in exercise volume between subjects before and during training.

Type	Athletic ability	Physical conditions	Physical attraction	Physical fitness	Total score
M before training	14.29	15.16	14.04	13.09	70.36
M after training	16.72	15.6	15.96	16.49	92.52
SD before training	2.62	3.72	3.24	2.79	10.77
SD after training	3.31	3.79	3.57	3.09	12.5
T	-2.937	-0.414	-1.999	-4.09	-3.694
P	<0.05	>0.05	<0.01	<0.05	<0.01

physique, strength and endurance is an important factor affecting their overall self-evaluation. In a specific area, the improvement of self-esteem will improve the overall self-esteem, while physical activity is a relatively low specific area. Physical activity is a small project that is very popular with the public. This is a full range of exercise and a great way to improve your physique. And it can also exercise tough fighting spirit and excellent willpower, which is why this sport is loved by many people. On this basis, students are also interested in the special development of sports skills. This ensures the normal conduct of the class.¹⁴

Stunt training is a special ability training that combines skill and tactical training. Exercise can promote the body's shape, structure, energy metabolism, the ability to regulate the nervous system, and promote the coordination of the body's physiological functions. When an athlete is doing professional strength training, the full effect of physical training can be transferred to specialized strength training. This is very effective for the improvement of special abilities. Strengthening the special ability of athletes is conducive to the improvement of the technical sports level of athletes. These increase focus and reduce the chance of sports injuries. Speed quality is the ability of an athlete to move quickly during competition. In sports training, multiple balls, footwork, and special movement exercises can promote the athlete's reflexes, complete movements, and foot speed. Athletes' athletic ability is a key factor in athletes' technical and physical training. Physical fitness is the performance of the body to maintain a certain exercise intensity or exercise quality to a certain extent. From the analysis of the structural characteristics of the sports behavior of athletes, this is a mixed movement consisting of two different forms of cycle and acyclic. During exercise, local muscle fatigue occurs slowly. But if it is long-term, the exhaustion of the body will not fully recover in a short period of time. As the training progresses, the accumulation of fatigue will also increase. This requires higher physical fitness. Agility is a comprehensive capability. Physical education is a comprehensive reflection of sports technology and various abilities in sports activities. Athletes with a high sensitivity level can show accurate orientation and timing when exercising. It shows that the technology is accurate, and the

changes are timely and fast. The so-called "flexibility" refers to the movement of various parts of the body, as well as the extension and elasticity of muscles and ligaments. The pros and cons of flexibility, in addition to structural changes, are also related to the control of skeletal muscles by nerves. High flexibility and flexibility can better organically link the athlete's movement and technical movements with the characteristics of the movement. This is a great help to their technique and tactics.

In the process of cultivating sports ability, it is of great help to athletes through special quality training. In teaching, this paper adopts bench press, fast horizontal push, pull rubber strip, do swing exercises, and use athletic ability racket and swing exercises to cultivate students' upper body muscles. This article exercises the muscles of the lower limbs through the full squat. Calf raises, half squat, half squat, stride, frog leap, and so on. Training methods: Crunches, lifts from both ends, prone to right angles, and bending the weight-bearing body backward are used to train students' waist and abdominal muscles. This paper mainly cultivates athletes' reflection ability from various running exercises such as observing footwork and listening to passwords. Various exercises are carried out in this article, such as multi-ball exercises, variable speedrunning, long-distance running, etc., to improve the physical fitness of the players. Exercise the athlete's flexibility and flexibility by changing the direction of running, pressing the leg, pressing the shoulder, etc. These tests can not only greatly improve the athlete's physique but also greatly enhance the athlete's sports level.

CONCLUSION

Physical skills in physical education are highly entertaining and innovative. Long-term participation in this sport can promote the comprehensive development of human flexibility, coordination, and physical fitness. This exercise provides great improvements in endurance, speed, sensitivity, coordination, upper and lower body strength, and reflexes. The ability to be physically active also greatly enhances the power of sports.

The author declare no potential conflict of interest related to this article

AUTHORS' CONTRIBUTIONS: The author made significant individual contributions to this manuscript. JZ: writing, data analysis, article review and intellectual concept of the article.

REFERENCES

1. Moccusov-Cuciuc E. Factors determining the level of high qualification and sports achievements in long-term training of female tennis players (diagnostic aspect). *Știința Culturii Fizice*. 2021;1(37):109-16.
2. Zirhli O, Demirci N. The Influence of functional training on biomotor skills in girl tennis players aged 10–12. *Baltic Journal of Health and Physical Activity*. 2020;12(4):33-45.
3. Chalakov M. Optimizing the control of technical performance of forehand stroke among 12-year old tennis players using martin's sigma method. *TJS*. 2020;18(1):682-8.
4. Yefremenko A, Pyatisotskaya S, Pavlenko V, Shutieieva T, Kraynik Y, Nasonkina O. Effectiveness of Physical Training of Tennis Players for Competitions Using Elements Of Athletics. *Slobozhanskyi Her Sci Sport*. 2021;9(4):5-17.
5. Dohme LC, Bloom GA, Piggott D, Backhouse S. Development, implementation, and evaluation of an athlete-informed mental skills training program for elite youth tennis players. *J Appl Sport Psychol*. 2020;32(5):429-49.
6. Colibașanu FB. Study on tactical training of junior tennis players. *Știința Culturii Fizice*. 2020;1(35):63-70.
7. Çoban O. An Analysis of The Impact of an 8-Week Tennis Training on The Improvement of Hit Percentage in Tennis Players. *IntJSCS*. 2020;9(1):17-24.
8. Fett J, Ulbricht A, Ferrauti A. Impact of physical performance and anthropometric characteristics on serve velocity in elite junior tennis players. *J Strength Cond Res*. 2020;34(1):192-202.
9. Basiri F, Farsi A, Abdoli B, Kavyani M. The effect of visual and tennis training on perceptual-motor skill and learning of forehand drive in table tennis players. *J Mod Rehabil*. 2020;14(1):21-32.
10. Gül M, Çelik D. The Effect of Eight-Weeks Coordination Training on Tennis and Motor Skills Performance on 8-10 Years Children. *Pak J Med Health Sci*. 2021;15(6):1578-82.
11. Yevtyfiieva II, Korobeinik VA, Kolisnychenko AO. The influence of training loads of technical and tactical training on the cardiovascular system of tennis players 10-12 years. *HSR*. 2020;5(4):23-32.
12. Ilahi BR, Hadiwinarto H, Oktaria SD. Evaluation of the physical training program of the badminton achievement club in Bengkulu City. *J Ilm Pendidik Jasm*. 2020;4(2):150-7.
13. Sheng WY, Ginanjar A, Wei GT. The Effects of Teaching Badminton Practice on Improving Badminton Capabilities of Sports Department Students. *EJMCM*. 2020;7(1):3853-66.
14. Josue F, Abdullah MF, Zulkapri I, Soeed K, Tariq I. Movement pattern in term of court coverage among top international male and female badminton players during BWF World Championships 2013. *JSSPJ* 2020;9(1):9-14.