EFFECT OF CROSSFIT TRAINING ON BODY SHAPE AND BODY FAT OF OBESE FEMALE COLLEGE STUDENTS

EFEITO DO CROSS FIT TRAINING NA FORMA CORPORAL E GORDURA CORPORAL DE ESTUDANTES UNIVERSITÁRIOS OBESOS

EL EFECTO DEL ENTRENAMIENTO CROSS FIT EN EL TAMAÑO DEL CUERPO Y LA GRASA CORPORAL DE LAS ESTUDIANTES UNIVERSITARIAS OBESAS

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ABSTRACT

Introduction: Body shape directly influences the physical health of young students and its neglect can develop physiological and psychosocial instabilities, leading to long-term quality of life impairment. Objective: Explore the influences of CrossFit training on body composition in obese female college students. Methods: 200 obese female college students were randomly selected and divided into two groups. The experimental group received eight weeks of CrossFit training, while the control group practiced traditional aerobic training. Data were recorded before and after the experiment. Results: The fat of obese female college students in the experimental group changed from 26.25±6.66 kg to 22.55±5.67 kg, the body fat ratio was from 37.58±4.37% to 32.34±4.84%, the lean mass weight varied from 42.86±5.89 kg to 43.07±6.11 kg, lean trunk weight varied from 24, 12±3.32 kg to 23.25±3.17 kg, lean abdominal weight was from 10.06±1.29 kg to 9.60±1.64 kg, and lean upper limb weight from 4.12±0.84 kg to 4.10±0.84 kg, upper limb fat was from 2.57±0.86 kg to 2.23±0.66 kg. Conclusion: CrossFit training can effectively reduce the body fat of obese female college students and make their body composition more appropriate. ***Level of evidence II; Therapeutic studies - investigating treatment outcomes.***

Keywords: Students; Obesity; Body Composition; Training, Endurance.

RESUMO

Introdução: A forma corporal influencia diretamente a saúde física dos jovens estudantes e a sua negligencia pode desenvolver instabilidades fisiológicas e psicossociais, levando ao comprometimento da qualidade de vida à longo prazo. Objetivo: Explorar as influências do treino de CrossFit sobre a composição corporal de estudantes universitárias obesas. Métodos: 200 estudantes universitárias obesas foram selecionadas aleatoriamente e divididas em dois grupos. O grupo experimental recebeu 8 semanas de treinamento por CrossFit, enquanto o grupo controle praticou o treino aeróbico tradicional. Os dados foram registrados antes e depois do experimento. Resultados: A gordura das estudantes universitárias obesas no grupo experimental alterou-se de 26,25±6,66 kg para 22,55±5,67 kg, a taxa de gordura corporal foi de 37,58±4,37% para 32,34±4,84%, o peso de massa magra variou de 42,86±5,89 kg para 43,07±6,11 kg, o peso magro do tronco variou de 24, 12±3,32 kg para 23,25±3,17 kg, o peso abdominal magro foi de 10,06±1,29 kg para 9,60±1,64 kg, e o peso magro dos membros superiores de 4,12±0,84 kg para 4,10±0,84 kg, a gordura dos membros superiores foi de 2,57±0,86 kg para 2,23±0,66 kg. Conclusão: O treinamento de CrossFit pode efetivamente reduzir a gordura corporal de estudantes universitárias obesas e tornar a sua composição corporal mais adequada. ***Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.***

***Descritores*:** *Estudantes; Obesidade; Composição Corporal; Treino de Resistência Física.*

RESUMEN

Introducción: La forma corporal influye directamente en la salud física de los jóvenes estudiantes y su descuido puede desarrollar inestabilidades fisiológicas y psicosociales, lo que conduce a un deterioro de la calidad de vida a largo plazo. Objetivo: Explorar las influencias del entrenamiento de CrossFit sobre la composición corporal en estudiantes universitarias obesas. Métodos: Se seleccionaron aleatoriamente 200 estudiantes universitarias obesas y se dividieron en dos grupos. El grupo experimental recibió 8 semanas de entrenamiento de CrossFit, mientras que el grupo de control practicó entrenamiento aeróbico tradicional. Se registraron los datos antes y después del experimento. Resultados: La grasa de las estudiantes universitarias obesas del grupo experimental pasó de 26,25±6,66 kg a 22,55±5,67 kg, la proporción de grasa corporal fue de 37,58±4,37% a 32,34±4,84%, el peso de la masa corporal magra varió de 42,86±5,89 kg a 43,07±6,11 kg, el peso magro del tronco varió de 24, 12±3,32 kg a 23,25±3,17 kg, el peso magro abdominal fue de 10,06±1,29 kg a 9,60±1,64 kg, y el peso magro del miembro superior de 4,12±0,84 kg a 4,10±0,84 kg, la grasa del miembro superior fue de 2,57±0,86 kg a 2,23±0,66 kg. Conclusión: El entrenamiento CrossFit puede reducir eficazmente la grasa corporal en estudiantes universitarias obesas y hacer que su composición corporal sea más adecuada. ***Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.***

***Descriptores*:** *Estudiantes; Obesidad; Composición Corporal; Entrenamiento de Resistencia.*

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INTRODUCTION

In today's society, people are paying more and more attention to education. The country has also mentioned and emphasized the importance of education in society in many ways.[1] It requires colleges and universities to train as many successors as possible for the future society that can develop in many ways, and to lay a solid foundation in the student era. Morality, intelligence, physique, beauty and labor can be used as a yardstick to measure the overall development of students.[2] Among them, take moral education as the first step and sports as the cornerstone. The goal of colleges and universities should not only be to train national talents in learning, but also to provide students with and master a variety of sports skills and methods, because only a healthy body is the cornerstone of long-term development. Cross Fit, if taken literally, is a kind of mixed fitness, also known as comprehensive physical fitness.[3] In recent years, it is the most popular professional sports method in the world, including physical fitness, body strength, body explosive power and body coordination.[4] After comparing the fitness model of Cross Fit with the original fitness model, it can be found that the fitness model of Cross Fit is a more natural fitness model, which is characterized by combining the common exercise model with the multi-mode aerobic fitness training in an effective time, and combining the diversified aerobic and anaerobic exercise, so as to achieve the activation of physical fitness quality.[5] It has a very positive impact on improving physical fitness. It can not only improve the relatively weak aspects of physical fitness, but also make the physique of healthy people stronger, so as to achieve the role of strong physique. Because the sport will not be constrained by the venue and sports equipment, it is also very suitable for students in colleges and universities to study and train.[6] This article is to study the role of Cross Fit in body shape and body fat of obese female college students in general colleges and universities by using its fitness training mode, and conduct in-depth analysis.

METHOD

Research object

In this paper, 200 obese female college students who are not majoring in physical education from freshman to senior in a university were selected as the research objects. 200 obese female college students were randomly divided into two groups, namely the experimental group and the control group. The study and all the participants were reviewed and approved by Ethics Committee of Hainan Medical University (NO. HNMUF005). The control group was given general aerobic training for 8 weeks, and the experimental group was given cross fit training for 8 weeks. The age of 200 obese female college students is between 19 and 22 years old. Besides being overweight, 200 obese female college students have no genetic history of physical health. During the experiment, 200 obese female college students maintain normal work, rest and diet.

Experimental method

First of all, according to the need of writing this article, I searched a large number of papers on Cross Fit training and weight loss on CNKI. Through reading a large number of relevant documents, it provides a solid foundation for the writing of this article. This article is based on a large number of documents, which is more scientific and reasonable.

The body data of 200 randomly selected obese female college students were recorded before the experiment, including the most basic weight measurement, waist to hip ratio, arm dimension, thigh circumference, etc. Next, under the guidance of professionals, for the development of 200 obese female college students into the experimental program, for the control group to develop an experimental program of general aerobic training, for the experimental group to develop a Cross Fit training program, and for different obese female college students to make different arrangements for the physical quality of different arrangements, arrange different training intensity and training methods, and record the sports performance of 200 obese female college students before and after training, Analyze and process the data after the experiment.

RESULTS

Effect of Cross Fit training on body shape of obese female college students

Table 1 shows the body shape changes of 100 obese female college students in the control group after aerobic exercise training.

After 8 weeks of general aerobic training, the two basic indicators of weight and waist to hip ratio of 100 obese female college students have changed, and their weight has decreased, but the decline is small, and the waist to hip ratio has also decreased. At the same time, the average dimensions of the left and right upper arms of 100 obese female college students were also reduced, P<0.05, and the thigh circumference was also reduced, which were in the range of physical dimension reduction caused by normal training level.

Table 2 shows the body shape changes of 100 obese female college students in the experimental group after Cross Fit training.

After 8 weeks of Cross Fit training, the two basic indicators of weight and waist to hip ratio of 100 obese female college students have changed. The weight has decreased, and the decrease is greater than that of the control group who has aerobic training. The reduction of waist to hip ratio is also greater than that of the control group who has aerobic training for 8 weeks. At the same time, the average dimension reduction of the left and right upper arms of 100 obese female college students was also greater than that of the control group (P<0.05), and the thigh circumference was also reduced more than that of the control group.

Table 1. Effect of general aerobic training on body shape of obese female college students.

Control group	Before experiment	After experiment	P value
Basic indicators			
Body weight (kg)	70.268 ±12.471	69.672 ±12.530	P<0.01
Waist to hip ratio (%)	0.899 ±0.049	0.867 ±0.038	P<0.05
Limb circumference			
Left upper arm circumference (cm)	28.711 ±3.330	26.963 ±2.632	P<0.05
Right upper arm circumference (cm)	28.336 ±3.055	28.746 ±3.758	P<0.05
Left thigh circumference (cm)	56.996 ±3.326	56.916 ±3.659	P<0.05
Right thigh circumference (cm)	59.088 ±3.558	57.175 ±4.107	P<0.05

Table 2. The effect of Cross Fit training on the body shape of obese female college students.

Experience group	Before experiment	After experiment	P value
Basic indicators			
Body weight (kg)	70.973 ±10.543	66.799 ±10.057	P<0.01
Waist to hip ratio (%)	0.892 ±0.028	0.884 ±0.033	P<0.01
Limb circumference			
Left upper arm circumference (cm)	29.728 ±3.320	27.411 ±2.399	P<0.05
Right upper arm circumference (cm)	30.311 ±3.189	27.753 ±2.410	P<0.05
Left thigh circumference (cm)	59.384 ±4.668	57.945 ±4.485	P<0.01
Right thigh circumference (cm)	59.259 ±4.384	57.590 ±4.270	P<0.01

After 8 weeks of Cross Fit training, the weight, waist to hip ratio and other indicators of 100 obese female college students in the experimental group were lower than those in the control group, and the level of basic body indicators were higher than those in the control group. Cross Fit training can effectively regulate the basic body indicators of obese female college students. In terms of limb dimension, the arm dimension and thigh dimension of the experimental group are lower than those of the control group after the experiment. Cross Fit training is more effective than traditional aerobic training in limb dimension.

Effect of Cross Fit training on body fat of obese female college students

Table 3 shows the changes of body fat of 100 obese female college students in the control group after 8 weeks of aerobic exercise training.

After 8 weeks of general aerobic training, the three basic indicators of fat, body fat rate, and lean weight of 100 obese female college students have changed, and the fat content has decreased, but the decrease is small, the reduction of body fat is also small, and the lean weight has not decreased significantly. At the same time, the average weight of the trunk lean weight, trunk fat, abdominal lean weight, abdominal fat, etc. of 100 obese female college students also decreased, and the upper limb lean weight and upper limb fat, lower limb lean weight, lower limb fat also decreased, which are in the range of limb fat reduction caused by normal training level.

Table 4 shows the changes of body fat of 100 obese female college students in the experimental group after 8 weeks of Cross Fit training.

After eight weeks of Cross Fit training, 100 obese female college students' fat, body fat rate and other two basic indicators have changed. The content of fat has decreased, and the decreasing range is significantly greater than that of the control group. The shrinking range of body fat is also significantly greater than that of the control group, and the lean weight has increased. At the same time, the average weight reduction of 100 obese female college students' trunk lean weight, trunk fat, abdominal lean weight, abdominal fat, etc. was significantly stronger than that of the control group, and the change range of upper limb lean weight and upper limb fat, lower limb lean weight, lower limb fat was also better than that of the control group. It shows that Cross Fit training is more effective than traditional aerobic training, and can effectively reduce body fat of trunk and limbs.

Table 3. Effect of general aerobic training on body fat of obese female college students.

Control group	Before experiment	After experiment	P value
Basic indicators			
Fat (kg)	23.190 ±5.200	22.200 ±4.418	P>0.05
Body fat (%)	34.944 ±4.130	31.193 ±4.457	P<0.01
Lean weight (kg)	44.865 ±8.319	44.334 ±9.209	P>0.05
Trunk fat			
Lean Body Weight (kg)	20.431 ±3.921	20.763 ±4.051	P>0.05
Body fat (kg)	12.681 ±3.766	10.825 ±2.933	P<0.01
Abdominal lean weight (kg)	10.714 ±2.005	10.133 ±2.075	P>0.05
Abdominal fat (kg)	5.559 ±1.590	4.796 ±1.405	P<0.01
Limb fat			
Upper limb lean weight (kg)	4.198 ±0.953	4.160 ±0.958	P>0.05
Upper limb fat (kg)	2.494 ±0.489	2.214 ±0.476	P<0.05
Lower limb lean weight (kg)	17.499 ±3.403	17.823 ±4.001	P>0.05
Lower limb fat (kg)	7.870 ±1.323	7.252 ±1.317	P<0.01

Table 4. Effect of Cross Fit Training on Body Fat of Obese Female College Students.

Experience group	Before experiment	After experiment	P value
Basic indicators			
Fat (kg)	26.252 ±6.665	22.556 ±5.679	P<0.01
Body fat (%)	37.580 ±4.375	32.344 ±4.842	P<0.01
Lean weight (kg)	42.869 ±5.897	43.078 ±6.119	P<0.05
Trunk fat			
Lean Body Weight (kg)	24.124 ±3.322	23.251 ±3.176	P<0.05
Body fat (kg)	13.947 ±3.491	10.974 ±3.091	P<0.01
Abdominal lean weight (kg)	10.068 ±1.296	9.600 ±1.646	P<0.05
Abdominal fat (kg)	5.768 ±1.373	4.786 ±1.374	P<0.01
Limb fat			
Upper limb lean weight (kg)	4.128 ±0.844	4.100 ±0.840	P<0.05
Upper limb fat (kg)	2.575 ±0.868	2.234 ±0.668	P<0.01
Lower limb lean weight (kg)	17.020 ±2.380	16.894 ±2.174	P<0.05
Lower limb fat (kg)	8.903 ±2.400	7.536 ±1.965	P<0.01

DISCUSSION

The training mode of Cross Fit has been gradually popularized and well known in many countries. The primary goal of Cross Fit training is to restore the excessive control of health except for human beings. In the process of training, it can also control the body circumference, so as to improve people's posture and improve their physical quality. In addition, the training mode of Cross Fit has a variety of characteristics. The training environment can be adapted to local conditions, so that the training equipment can be fully used, and the training objects can also vary from person to person without limitations. This is also the reason why it quickly replaces the traditional training mode. Cross Fit training mode plays a very positive role in improving the physical function of obese female college students. Compared with other sports modes, Cross Fit training mode has many advantages. For example, Cross Fit training is unique compared with other sports training in enhancing the physical health of obese female college students, It can provide a good follow-up guarantee for students who actively participate in training and improve their physical quality. Compare with other aspects, such as training advantages. First of all, the training plan of Cross Fit training can be adjusted according to the needs of different groups based on the basic underlying training logic theory. Secondly, compared with other sports, Cross Fit training is more concerned with the final effect on the human body. According to the various physical qualities of the participants in the training, a planned and step-by-step improvement can be taken to enable the participants to obtain the ideal sports level and better physical quality. Finally, the cross fit training mode can adapt to local conditions, not rigidly adhere to the field, make the best use of the training equipment, and basically use local materials. However, participants must always pay attention to the change of heart rate during the cross fit training, and timely control the intensity of exercise.

The training modes often used in Cross Fit training include regular but not quantitative training mode and quantitative but not regular training mode. In these two types of training modes, the training can be adjusted according to the different objectives of training, or the physical condition of the trainer and the training load intensity. In general, the methods of Cross Fit training are diverse, not limited to a certain sports mode, but can be combined with different sports situations to add other sports related to it, so that participants will not feel bored because of sports, which can improve the enthusiasm of participants in training. During the whole training process, it is necessary to ensure that participants are fully engaged, This will arouse the excitement of the body, so that the energy and fat of the body can be consumed.

CONCLUSION

Through the eight-week experiment on 200 obese female college students, through the comparison of the experimental results, it can be found that although traditional aerobic training can also achieve the effect of weight loss and can change the body shape and body fat of obese female college students, Cross Fit training is more effective. Cross Fit training can effectively reduce the weight and body fat rate of obese female college students in a short time The fat content of limbs and body fat rate have obvious reduction effect. For obese female college students, Cross Fit training can be used for targeted training to improve body shape and body fat and have a healthier body shape.

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