

Research on the Course Design of Exercise Fat Reduction for Obese College Students

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Abstract: Obesity not only affects the physical and mental health of college students, but also affects their academic performance and the rate of reaching the standard in college physical fitness test. Based on the current situation that the obesity problem of college students is becoming more and more prominent and that more and more colleges and universities set up courses of fat loss through exercise for obese students, this paper uses research methods such as literature data method and logical analysis method to analyze the necessity of designing courses of fat loss through exercise for obese college students, starting from the aspects of course concept, course objective, course content and course evaluation. The course design of exercise fat reduction for obese college students was studied. It is concluded that the course of fat reduction through exercise for obese college students should establish the course concept of "life care"; Set the course goal of "fat reduction and slim down"; Determine the course content of "combining theory with practice"; Build a course evaluation system of "emphasizing the effect of exercise on fat reduction".

1. Introduction

Currently, the problem of obesity among college students in China is very prominent. In 2020, the Ministry of Education conducted a sampling review data on the physical fitness of more than 1.15 million students, showed that the obesity rate of Chinese college students reached 5.5% ^[1]. The "Eighth National Survey Results on physical Fitness and Health of Students" released by the Ministry of Education in 2021 showed that the obesity rate of Chinese college students was still on the rise ^[2]. Obesity not only affects the personal image, physical and mental health of college students, causing various diseases, but also affects their academic performance and the rate of reaching the standard of physical fitness test in colleges and universities. Based on this, in recent years, many colleges and universities such as Zhejiang University, Nanjing Agricultural University, Northwest University, Tianjin University and so on, have successively set up exclusive physical education courses for obese college students -- exercise fat reduction course. In this context, it is really urgent and necessary to discuss the course design of exercise fat reduction for obese college students.

2. Necessity of Course Design of Exercise and Fat Reduction for Obese Students in Colleges and Universities

As special physique students, obese college students enjoy the same rights as ordinary students to receive physical education and participate in physical exercise, which has been reflected in many policies and regulations in our country. Article 5 of the Regulations on School Physical Education Work (revised in 2017) stipulates that "School physical education work shall be oriented to all students"; According to Article 26 of the Sports Law of the People's Republic of China (revised in 2022), "Schools shall organize sick and disabled students with special physical constitution to participate in sports activities suitable for their characteristics during physical education teaching", and Article 36 stipulates that "schools shall organize and guide young people to participate in sports

activities to prevent and control poor health conditions such as myopia and obesity among young people"^[3]. According to Article 10 of the New National Physical Education Teaching Guidelines for Colleges and Universities issued by the Ministry of Education in 2002 (hereinafter referred to as the New Guidelines) : "Physical education courses focusing on rehabilitation and health care are set up for some students with physical abnormalities, illness, disability, weakness and individual aged students and other special groups"^[4], which provides legal guarantees for colleges and universities to offer sport fat reduction courses for obese college students.

At present, there are three forms of physical education for obese college students: attending with class, attending with health class or setting up a single course of exercise and fat reduction. From the long-term experience of personal teaching practice, the first two forms have certain limitations. Due to the large number of classes, physical education teachers lack the concept and strategy of stratified teaching. It is difficult to group students with different skill levels, different sports and different exercise loads according to their differences in body size and physical quality, and it is more difficult to conduct detailed observation and real guidance on the practice of each group, because they tend to use the same standard system to measure the overall physical health level of students. Although obese college students are eager to learn motor skills, participate in physical exercise and obtain pleasant emotional experience in the class, they are difficult to integrate into the normal students to participate in sports activities due to their special body shape, awkward movements, psychological inferiority and other limitations. They are more likely to ask for leave without reason, passive coping and other behaviors during class, and eventually become "bystanders" in the physical education class. Although following the health class can protect the sports rights and interests of obese college students to some extent, it also has obvious shortcomings. According to statistics, 75.66% of colleges and universities have implemented the spirit of the new Outline, offering sports and health courses to varying degrees. However, due to different levels of emphasis, many colleges and universities only set up syllabi to cope with the inspection of superiors, which is only superficial and mere formality. More regrettably, the teaching of physical health courses mainly focuses on students with disabilities and diseases. The teaching content, teaching methods and teaching evaluation are very simple, and the exercise load is small. A large number of healthy and rapidly growing obese college students are ignored, and their physical needs for fitness, weight loss and physical health improvement cannot be met. So that they can not fit their physical and mental characteristics of physical education. In addition, although more and more colleges and universities set up a separate course of fat loss through exercise for obese college students, the effect of the course cannot be guaranteed due to the lack of systematic and scientific design. Therefore, it is necessary to design exercise and fat reduction courses for obese college students, whether it is to safeguard the sports rights and interests of obese college students or to guarantee the effect of exercise and fat reduction courses for obese college students.

3. Design Ideas of Exercise Fat Reduction Course for Obese Students in Colleges and Universities

Curriculum design refers to the systematic process of selecting specific teaching content according to specific curriculum concept, applying certain teaching environment and organizing teaching activities to achieve teaching objectives. Based on the above concepts of curriculum design, this study mainly discusses the curriculum concept, curriculum objectives, curriculum content and curriculum evaluation of the exercise fat reduction course for obese college students.

3.1. Course Concept -- Life Care

The so-called course concept is the basic idea and overall guiding ideology of course planning. Course concept is the ideological concept and spiritual pursuit guiding educational behavior, and is the key of course design. What kind of course concept, there will be consistent with the course planning and course provision. Due to the particularity of the service objects in physical characteristics, emotional characteristics, physical conditions, interest, attitude and needs, the course concept of fat reduction through exercise in ordinary colleges and universities is bound to be special. It is natural that the course should be connected with health, care, dignity, rights and interests,

highlighting the life care and value respect of obese college students. Let obese college students in the correct understanding of their own body on the basis of the ability to reach the best goal. Under the guidance of physical education teachers, through learning and exercise, we can build a strong body, return to normal weight, develop a healthy lifestyle, gain confidence and satisfaction, and finally gain health and happiness. The course concept of caring for life is integrated into the course of exercise and fat reduction of obese college students, which not only means the concern for the natural life of obese college students, but also means the guidance and improvement of the life value and attitude of obese college students. It is necessary to consider the special body type and needs of obese college students in their shoes, help them to strengthen their physique, reduce their weight, and restore their physical and mental health. To achieve integration with society.

3.2. Course Objective -- Lose Fat and Slim Down

Course objectives are the specific goals and intentions to be achieved by the course itself. It is guided by the course concept, based on the concept of education objectives, is the basis of determining the course content, teaching objectives and teaching methods. The accuracy of course target positioning depends on whether the interpretation of the course concept is profound, whether it is in place, and whether it presents the connotation of the course concept.

There are many course goals of fat reduction for obese college students, but the primary course goal must be fat reduction and slim down. The obese body shape of obese college students not only affects their appearance, but also increases the risk of hypertension, heart disease, diabetes, arteriosclerosis and other diseases. It also seriously affects their physical fitness test scores. According to the research results of Song Chongli, Zhou Quanfu and Geng Wenguang (2019), the physique of obese college students is obviously disadvantaged, and 50.61% of obese college students fail the physical fitness test. Their scores of body shape index (height, weight, BMI), cardiopulmonary function index (vital capacity) and physical fitness index (grip strength, skipping rope, male 1000m/female 800m) are significantly lower than those of students with normal weight, and their physical weakness is closely related to obesity^[5]. Therefore, weight loss and body shape improvement are the key points for the exercise and fat reduction course for obese college students guided by the concept of life care. The primary goal of this course is to help obese college students lose fat and slim down, improve their body shape, get rid of excess fat and try to restore normal weight, which is also the urgent needs of obese college students themselves. In addition to fat reduction and slimming down, the course objectives of fat reduction for obese college students can also include enhancing their physical health level, promoting their mental health development, and allowing them to develop good physical exercise habits and healthy lifestyles in sports.

3.3. Course Content -- Combining Theory with Practice

The course content is the core element of the course. It is the knowledge and experience system which is selected from various direct and indirect experiences according to the course objectives and processed. The course content is the means to achieve the course goal. If the course content can properly reflect the goal, the realization of the goal has a strong support. Since the primary goal of exercise and fat reduction course for obese college students is to reduce fat and slim down, the selection and organization of the content of exercise and fat reduction course for obese college students should be carried out closely around the goal of "fat reduction and slim down". In addition, the selection and organization of the course content of exercise and fat reduction for obese college students cannot be separated from their life, learning motivation and interest.

Based on the research results on fat reduction in recent years and the teaching experience of Zhejiang University, Nanjing Agricultural University, Northwest University, Tianjin University and so on., the content design of sports fat reduction course which is relatively scientific, effective and not easy to rebound should include two parts: basic theory and practical method. The basic theory includes body shape and health, the concept of obesity, the cause and harm of obesity, the relationship between exercise and weight management, nutrition and food identification, recipe design, the basic principle of fat reduction through exercise and so on. In order to help obese college students establish a civilized and healthy lifestyle, the content of the basic theory can also be extended to the daily diet

of obese college students. Obese college students are asked to design a "exercise fat reduction course log", which not only requires detailed recording of various food calorie reference data, but also requires careful filling in the daily "eating record" to record what they eat every day. Converted into calories to urge obese college students to control their diets. The basic theory part aims to improve the cognition of obesity and its harm to obese college students through education, and teach the basic principle of fat reduction through exercise, so as to positively change the attitude and behavior of obese college students in weight management. The practical part aims to teach scientific, effective and non-rebounding methods of fat loss and slimming. The content is generally set up with aerobic exercise and resistance exercise. At present, the aerobic exercises commonly used in the courses of fat reduction in colleges and universities include walking in the park, jogging on the treadmill, jogging on the greenway, cross-country running, climbing mountains, climbing steps, long-distance swimming, skipping rope, dancing, rhythmic gymnastics, ball sports such as basketball, football, tennis and so on. Aerobic exercise is characterized by low intensity, rhythm, and long duration, requiring at least 30 minutes of exercise per session at a moderate or above moderate intensity (60 to 80 percent of maximum heart rate). In addition to aerobic exercise, the practical part of the exercise and fat loss course for obese college students should also include resistance exercise. At present, the resistance exercises commonly used in colleges and universities include sit-ups, bent arm support, planks, squats, inclined lying weight lifting leg, bench press, belly roll, lying leg lifting leg, dumbbell fly, butterfly, two-handed dumbbell bending and so on [6]. The best intensity of each resistance exercise is generally kept between 8-12 RM (Repetition Maximum), as this intensity can maximize the muscle activation of obese college students. The reason why aerobic exercise is combined with resistance exercise is that aerobic exercise has a good fat reduction effect, which can make obese college students consume a lot of body fat in the short term, but it is easy to rebound after stopping exercise. Although the fat reduction effect of resistance exercise is not as good as that of aerobic exercise in the short term, it is muscle strengthening exercise, which can increase the muscle mass, strength and basic metabolism of obese college students, and has a good effect on preventing the rebound of body fat in the later period.

3.4. Course Evaluation -- Effect of Fat Reduction and Slimming

Course evaluation includes three aspects: students' learning, teachers' teaching and course construction. This study only discusses students' learning evaluation and studies it as a part of the teaching process. The new Outline issued by the Ministry of Education in 2002 fully embodies the concept of life care. The seventh part "Course evaluation" clearly states: "The evaluation of students' learning should be the evaluation of the learning effect and process, including physical and motor skills, cognition, learning attitude and behavior, communication and cooperation spirit, affection and so on. In the evaluation, the functions of screening and selection should be downplayed, while the functions of encouragement and development should be strengthened, and the progress of students should be included in the evaluation. This formulation of the new Outline truly reflects the deepest concern for the life development of every student, highlighting the importance of the all-round development of students and acknowledging the individual differences of students. It is based on the original starting point of the evaluation object, attaches importance to the existing differences and efforts of the evaluation object, and focuses more on the future development potential of the evaluation object. Hence, the learning evaluation of obese college students should be based on the spirit of the New Outline. The evaluation contents and indicators should not only include class attendance, class performance, the mastery of the basic methods and skills of fat reduction in sports, but also include the effect of fat reduction and slimming of obese students, and this index should account for a large proportion (at least 60%) in the whole physical education performance. In this way, the teaching effect of exercise fat reduction course for obese college students and the degree of realization of teaching objectives can be more tested, and the enthusiasm of obese college students in class can be more stimulated. The specific method to measure the effect of fat loss is to divide the kilograms lost by the students before and after the course by the kilograms lost by the students before the course. According to scientific estimates, students can get full marks if they lose 7% of their

original body weight or their body fat percentage decreases by 10% before and after the course.

4. Conclusion

As an important part of the higher education, the physical education acknowledges and takes various measures to protect the rights and interests of obese college students in physical education, and will be gradually realized in our regular college physical education. From the perspective of life care, the construction of the course concept, course objective, course content and course evaluation of exercise fat reduction course for obese college students reflects a kind of civilized social care, which is the inevitable choice in the development process of harmonious society. It creates an unprecedentedly good cultural ecological environment for the healthy development of obese college students, and also makes the fairness and care of education get a new reflection.

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