

Experimental Study on the Establishment of Sports Fat Reduction Events for College Students under the Healthy Background

Haiying Zhang

Liaoning University of International Business and Economics, Dalian, Liaoning, China

Abstract: With the continuous increase in the obesity rate among college students, exploring effective strategies for weight loss has become particularly urgent. This article conducts a systematic theoretical analysis and experimental research on the obesity problem among college students in a national health context, deeply analyzing the current health status of college students and elaborating on the negative impacts of obesity on students. By summarizing and analyzing the characteristics of different types of weight loss events, the positive role of exercise in improving students' physical health is highlighted. This study designs and implements a series of exercise weight loss events, using scientific research methods, and systematically analyzes the data collected during the experimental process. The research results show that targeted exercise weight loss events can effectively promote student weight loss, as well as improve their health awareness and quality of life. This article has important theoretical and practical significance for college national health education and weight loss interventions, and plays a positive role in promoting student health.

Keywords: College Students; Sports-based Weight Loss Competitions; Obesity Problem; National Health Promotion; Experimental Research; Data Analysis

1. Introduction

In the current social context, the overall health issues of college students are becoming increasingly prominent, and the obesity rate is showing an upward trend. Exercise weight loss is of great significance in adjusting body shape and improving physical fitness[1-2]. Based on the living characteristics of college students and the common characteristics of student groups, setting up sports and weight loss competitions is expected to become an effective means to

promote the overall health of the body. Therefore, conducting experimental research on sports and weight loss competitions for college students can provide more opportunities for students to participate in sports, promote a healthy lifestyle for the whole nation, and objectively evaluate the overall health status and weight loss effects of students[3-5]. This can provide scientific basis for improving the physical fitness of college students and promoting health education for all.

2. National Health Background and Student Obesity Status

The analysis of the overall health status of contemporary college students shows that with the improvement of living standards, the obesity rate of college students is gradually increasing. According to statistical data, the obesity rate among college students in China has exceeded the national average, becoming one of the serious problems affecting the overall health of college students. At the same time, due to academic pressure and life stress, college students generally suffer from problems such as insufficient sleep and irregular diet, which exacerbate the deterioration of obesity[6].

In modern society, college students generally lack physical exercise, mainly due to long-term classroom learning and learning pressure, which leads to their lack of sufficient physical exercise. Especially long-term sitting habits and lack of aerobic exercise have led to many students experiencing varying degrees of muscle relaxation and visceral fat accumulation, exacerbating the severity of obesity. Long term lack of exercise may also lead to a decline in cardiovascular function, increasing the risk of cardiovascular disease[7-8]. This phenomenon is known as "hypokinesia" or "lack of exercise syndrome" in the medical field, which affects the overall health and long-term development of students. For example, a survey targeting college students showed that over 60% of students do not have enough physical exercise time per

week, which further confirms the severity of students lacking physical exercise. In addition, the American College of Cardiology recommends that healthy adults should engage in at least 150 minutes of moderate intensity aerobic exercise or 75 minutes of high-intensity aerobic exercise per week, which many college students are unable to meet. Therefore, the lack of exercise among college students has become a serious social problem that requires sufficient attention and attention.

Targeted national health interventions should be implemented to address the issue of obesity among college students. College students face a lot of academic and life pressures, coupled with heavy academic workload, many students lack exercise, leading to an increasingly serious obesity problem[9]. To change this situation, schools can provide diversified sports and weight loss competitions. By actively participating in physical exercise, students can improve their physical fitness and enhance their physical fitness. For example, schools can organize basketball, football, and badminton competitions and award rewards to outstanding athletes to encourage more students to participate in sports activities. Secondly, schools and society should strengthen the promotion and education of obesity knowledge, guide students to establish a correct concept of national health, and advocate for a healthy lifestyle and dietary habits for all. For example, schools can organize lectures on healthy eating for all, invite nutritionists to provide guidance on healthy eating for students, guide students to form scientific dietary concepts, reduce the intake of high calorie and high sugar foods, and promote the intake of more vegetables, fruits, and moderate protein. Finally, schools should also encourage students to participate in various sports activities such as family and community activities, promote national fitness, and create a healthy learning, working, and living atmosphere for all. For example, schools can organize students to participate in volunteer activities, carry out community environmental improvement, encourage students to practice the concept of a healthy life for all, and participate in physical exercise and social welfare activities.

2.2 Exploration of obesity among college students

The issue of obesity among college students is a pressing national health problem that needs to be addressed in current society. According to

statistical data, the obesity rate of college students in China has been on the rise in recent years, with male and female obesity rates of 15.9% and 9.7% respectively, which has attracted high attention from people. Obesity not only affects the appearance of individuals, but also may cause a variety of chronic diseases, such as cardiovascular disease, diabetes, etc., posing a serious threat to the health of individuals and the whole nation.

In recent years, the issue of obesity among college students has received widespread attention from scholars. Research has shown that the formation of obesity among college students is mainly related to factors such as poor dietary habits, lack of exercise, and excessive academic pressure. On university campuses, students often face tight academic schedules, leading to a lack of opportunities and time for exercise[10]. Moreover, after class, high calorie and high sugar snacks are often chosen, and these bad habits gradually accumulate, leading to increasingly prominent obesity problems. Here, unhealthy dietary habits include consuming a large amount of high calorie and high sugar foods, while lack of exercise can easily lead to fat accumulation in the body, leading to the gradual exacerbation of obesity. In addition, excessive academic pressure can also lead to a lack of exercise among students, exacerbating the problem of obesity. Therefore, improving obesity among college students requires comprehensive consideration from multiple aspects such as dietary habits, exercise, and academic pressure[11].

Regarding the issue of obesity among college students, scholars generally believe that multiple approaches can be taken. For example, strengthening publicity and education on the issue of obesity, improving the awareness and understanding of obesity among college students, is expected to effectively reduce the problem of obesity among college students and improve the overall health level of students. For example, campus bulletin boards, national health education courses, and other channels can be used to convey the harm of obesity to the health of the whole population to students, inspiring them to develop good eating habits and lifestyles. This not only enhances students' awareness of obesity, but also guides them to actively pay attention to their overall health status, thereby playing a positive role in reducing obesity among college students.

3. Overview of Sports Weight Loss Competitions

3.1 Types and Characteristics of Sports Weight Loss Competitions

Sports and weight loss competitions are usually divided into two forms: team competitions and individual competitions. In team competitions, contestants will form small groups or represent the school to participate. They will compete in a team collaboration manner to enhance team cohesion and motivate each other in the competition to achieve a common goal of weight loss. Individual competitions place more emphasis on individual performance and competition results. In this form, players compete for victory through personal effort and skills, which can more effectively stimulate their personal passion for competition and self-management abilities[12].

The national health and weight loss competition for sports has unique characteristics. Participants need to have patience and perseverance to meet the periodicity of the competition and gradually change their lifestyle habits and weight loss goals. In addition, the diversity of competitions enriches the weight loss experience and fun of participants, including participating in different types of sports and various forms of activities and training camps. Through the public disclosure of competition forms and results, the openness of the competition can better stimulate the competitive desire and self-management ability of participants, thereby promoting them to better adhere to their weight loss goals[13].

Overall, sports weight loss competitions not only have the characteristics of teamwork, but also highlight the competitiveness of individual competitions. In addition, the periodicity, diversity, and openness of the competition also provide participants with a broader weight-loss stage and opportunities.

3.2 Positive Effects of Exercise Weight Loss on Students

Students participating in sports and weight loss competitions can benefit in multiple ways. Firstly, regular exercise can help reduce body fat content and improve overall health for all. Exercise can promote metabolism, consume excess fat, and improve the body's metabolic level. In other words, moderate exercise is beneficial for the overall health of the body, and

reducing fat content has a positive effect on preventing chronic diseases and improving cardiovascular function. In addition, students participating in competitions can relieve their mood, reduce stress, and improve the overall mental health level during sports. Exercise helps promote the secretion of neurotransmitters such as dopamine and serotonin in the brain, and helps alleviate negative emotions such as anxiety and stress[14]. The strict regulations and competition of the competition motivate students to develop good living habits and self-discipline. Participating in competitions requires training, regular lifestyle habits, and self-control. Winning the competition results means that one's efforts are recognized, which is beneficial for cultivating students' self-discipline and positive attitude. Through competition and communication with others, students' team awareness and cooperation ability have also been enhanced, which has a positive impact on their future development. The sports weight loss competition has played a positive role in promoting the comprehensive and healthy growth of students.

4. Experimental Research Design and Implementation

4.1 Experimental Research Methodology

In order to achieve the research objectives, this study adopted a randomized controlled trial design. Firstly, among college students, research subjects that meet the national health background standards are selected through questionnaire surveys and physical measurements. Subsequently, eligible students were randomly assigned into an experimental group and a control group[15]. During the experiment, the students in the experimental group received training in weight loss competitions, while the control group did not receive any relevant interventions. Before and after the experiment, detailed measurements were taken on the weight, body fat percentage, exercise ability, and other indicators of the two groups of students.

To ensure the reliability and effectiveness of research results, it is necessary to scientifically design and monitor the training content and intensity of the experimental group during the research. For example, for weight loss training in sports events, the regular content includes aerobic exercise, strength training, and dietary

control, while the training intensity will be adjusted and monitored based on individual physical conditions and heart rate indicators. This means that researchers will flexibly develop and adjust training content and intensity based on individual conditions of participants, such as weight, body fat rate, changes in heart rate before and after exercise, and other factors. On the contrary, during the experiment, the control group did not receive relevant exercise training, while their lifestyle and dietary habits remained unchanged.

To ensure the accuracy of experimental data, it is necessary to use professional equipment and measurement techniques to collect and analyze experimental results. After the experiment, it is necessary to compare and analyze the weight, body fat percentage, and cardiopulmonary function indicators of the two groups of students to verify the impact of sports lipid-loss competitions on the lipid-loss effect of college students. This requires that the equipment and measurement techniques used in the experiment must have high precision and reliability to ensure the accuracy of the collected data. Comparing and analyzing indicators such as weight, body fat percentage, and cardiopulmonary function is to identify the specific impact of sports weight loss events on the weight loss effect of college students, and to verify the credibility of the experimental results.

4.2 Experimental Competition Execution and Data Collection

The school organized two activities: campus long-distance running competition and fitness challenge. The long-distance race covers multiple races including 3 kilometers, 5 kilometers, and 10 kilometers, and participants have the right to choose independently. The fitness challenge includes multiple activities such as push ups, sit ups, and squats, and participants are required to complete as many times as possible within the specified time. This arrangement helps to stimulate students' active participation and cultivate their exercise habits and physical fitness. In order to ensure the fairness of the competition, timers and professional referees are equipped on site, and all competition processes will be subject to fair supervision.

In the data collection stage, we utilized various techniques to record the physical data and sports performance of participating students. Firstly,

we applied a bioimpedance analyzer to measure the body fat percentage and weight of participating students, and recorded the corresponding data. Bioimpedance analyzer is an instrument that can measure human fat content through resistance. Secondly, we used timers and counters to record the running and fitness challenge scores of participating students in real time. A timer can accurately record time, while a counter is used to record the number of fitness movements. In addition, we also used heart rate monitoring instruments to record the heart rate data of participating students, in order to monitor the changes in heart rate during the competition process. Heart rate monitoring instruments detect heart rate in real-time through sensors and transmit data to recorders or other devices for storage and analysis.

After data collection, we organized and analyzed the data. At this stage, we first compared and statistically analyzed the physical data and sports performance of the students, which helps to objectively evaluate their performance and progress in the competition. Physical data includes indicators such as height and weight of students, while sports performance data includes items such as running speed and long jump performance. For example, through a comprehensive analysis of body data and running speed, we found that students with better physical indicators performed better in long-distance running events, which provides us with intuitive information. These data provide us with sufficient information to further study the training effectiveness and sports development direction of students.

5. Conclusion

Through experimental research on sports and weight loss competitions for college students, we have drawn the following conclusions:

Holding sports weight loss competitions can effectively stimulate students' enthusiasm for participating in sports, thereby enhancing their awareness of exercise and national health. Sports weight loss competitions, as a challenging physical activity, can stimulate students' interest and enthusiasm for participation, helping them better understand the relationship between national health and exercise. During the competition, students can not only enjoy the joy and sense of achievement brought by sports, but also deepen their attention to the overall health of the body, thus cultivating the habit of

continuous participation in sports and exercise. For example, after participating in a weight loss competition, students will feel the improvement of their physical fitness and sports skills during the competition. This positive experience will make them more willing to actively participate in future sports exercises. By participating in sports weight loss competitions, students can deeply appreciate the positive impact of exercise on the overall health of the body, such as enhancing cardiovascular function and reducing fat accumulation. These gains will motivate them to invest more in daily fitness activities.

College students participating in sports and weight loss competitions can receive systematic exercise training and guidance by receiving guidance from professional coaches and engaging in systematic aerobic and strength training. Such professional training helps to improve the physical fitness level of students and the overall health status of the population, effectively reducing the occurrence of obesity and related national health problems. Exercise training can effectively improve cardiopulmonary function and muscle strength, thus preventing diseases caused by overweight, such as diabetes and hypertension. For example, engaging in aerobic exercise can increase cardiovascular function, improve physical endurance and metabolic levels, while strength training can enhance muscle strength, increase basal metabolic rate, and help prevent obesity related health problems for the general public.

In addition, sports weight loss competitions also provide a platform for college students to communicate with each other, promoting communication and cooperation among students. This kind of communication is not limited to mutual motivation and assistance during the competition, but also extends to discussions and collaborative preparations before and after the competition. For example, during the preparation process for the competition, students can discuss and develop training plans together, share their fitness experiences with each other, and work together to solve problems during exercise. These exchanges and collaborations not only enhance individual connections, but also cultivate team awareness and collective cohesion.

College students can comprehensively understand the methods and knowledge of nationwide healthy weight loss through participating in sports weight loss competitions,

and cultivate good exercise and dietary habits. This helps to prevent and improve obesity among students, enhance their immunity, and reduce the risk of illness. In addition, competitions can promote students' sense of teamwork, cultivate resilience, and enhance confidence and self-esteem.

Acknowledgement

This article is one of the achievements of the Quality Engineering Gold Course Project of Liaoning University of International Business and Economics (Project No. 2022XJKGCYB21).

References

- [1] Wang Zhen, Li Xipeng, Huang Yan'e. Experimental Research on "Dynamic Hierarchical Grouping" Teaching to Promote the Physical and Mental Health of College Students in the Context of the COVID-19 [J]. Physical Education Teachers and Friends. 2022.
- [2] Z Lyu, Y Hou, Y Wang Research on the Current Situation of College Students' Physical Health under the Background of the Integration of Sports and Medicine [D] Journal of Healthcare Engineering. 2022.
- [3] Cui Xiaoxue, Zhang Yuxin. Experimental study on the effect of aerobic exercise on weight loss in female college students [J]. Dunk Dunk. 2020.
- [4] S Liu Practical Research on Constructing College Basketball Curriculum with the Concept of Health First [D] Journal of Higher Education Research. 2021.
- [5] Wang Yuanli, Qiao Zhi A study on the relationship between sports and the overall health of college students under the background of "overall public health". Dunk Dunk. 2019.
- [6] J He Study on the Path Construction of Legal Education for College Students Under the Background of the Rule of Law [D] Journal of Beijing College of Politics&Law. 2019.
- [7] Shao Jiaying A Study on the Relationship between Sports and the Health of College Students under the Background of "National Health". Sports World (Academic Edition). 2019.
- [8] Lu Baoxiang. Experimental study on the effect of family physical exercise on weight loss in middle school overweight students [J]. Boxing and Fighting, 2021.

- [9] Cheng Hanxiao Research on the Impact of the "Youth Table Tennis Skill Level Standards" on the Teaching Effectiveness of Table Tennis Optional Courses in Universities [J]. 2020.
- [10] Ren Hao. Research on the Development and Promotion of Electronic Sports in Higher Education Institutions in Xi'an [J]. 2019.
- [11] Hao Qingqing An experimental study on the effect of "skipping rope lesson practice" on the physical fitness and overall health level of students in level three [J]. 2020.
- [12] Zhu Siye. Research progress of acupuncture and moxibustion on obesity [J]. Medical Frontier. 2019.
- [13] Yang Kailun, Xu Dan, Liu Hao, et al. A practical study on the impact of after-school physical education services on the mental health of primary school students [J]. 2024.
- [14] Fan Xiang. Experimental study on the effect of specialized core strength training on the jumping serve of female volleyball players in universities [J]. 2020.
- [15] Cui Jingduo, Liu Zhiguo, Wen Jinfu, et al. Simulation and experimental study of multi capillary neutron focusing lens [J]. 2024.