

A Discussion on Adding Personalized Strength Training to College Students' Physical Health in Physical Education Courses

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Abstract: This paper provides an in-depth discussion of the effects of incorporating standardised individualised strength training in the college physical education curriculum on the physiological health of college students. With the popularisation of higher education and the intensification of employment competition, the physical and mental health of college students has attracted much attention. As a key part of the physical education curriculum, its reform and innovation are particularly important. Standardised personalised strength training effectively improves the muscular strength and endurance of college students and strengthens their physical fitness through the development of targeted training plans and the full consideration of students' individual differences. This kind of training not only promotes the improvement of cardiorespiratory function of college students and reduces the risk of cardiovascular disease, but also regulates their psychological state and enhances their overall sense of well-being through exercise. In addition, personalised strength training also cultivated students' teamwork and self-challenge spirit, laying a solid foundation for their all-round development. Therefore, the incorporation of standardised personalised strength training in the college physical education curriculum has a positive impact on the physiological health of college students and is worthy of further promotion and application.

Keywords: College Physical Education Curriculum; Standardisation; Personalisation; Strength Training; Physiological Health.

1. Introduction

With the increasing popularity of higher education worldwide, more and more young people have the opportunity to receive higher education, which undoubtedly improves the overall knowledge level and cultural literacy of the society. However, at the same time, the intensified competition for employment has brought unprecedented pressure, posing a serious challenge to the physical and mental health of college students. In this context, the physical and mental health of college students has gradually come to the forefront and become the focus of attention of all walks of life. As an indispensable and important part of college education, physical education programme plays an important role in cultivating the physical and mental health of college students. It not only helps to improve students' physical quality and enhance their physical fitness, but also helps college students to release pressure and regulate their emotions through physical exercise, so as to maintain their mental health. Therefore, physical education programmes in colleges and universities play a crucial role in promoting the overall development of college students.

In recent years, in order to more effectively deal with the physical and mental health problems of college students, more and more colleges and universities have begun to innovate and reform their traditional physical education programmes. Among them, the incorporation of standardised personalised strength training into the physical education curriculum has become a highly respected initiative. This training method takes into full consideration the individual differences and personalised needs of college students, and provides each student with a tailor-made exercise programme through the formulation of a scientific and reasonable training plan. Standardised personalised strength training not only

enhances the muscle strength and endurance of college students and improves their physical fitness, but also develops their willpower and teamwork during the exercise process. More importantly, this kind of training can stimulate college students' love and interest in sports and make them participate in sports courses more actively, thus improving their physical and mental health. Therefore, the inclusion of standardised personalised strength training into the physical education curriculum is undoubtedly a major highlight and trend in the reform of physical education curriculum in colleges and universities.

2. Characteristics of Personalised Strength Training

Strong relevance: The core of personalised strength training lies in its high relevance. At the beginning of the design of the training programme, the individual differences of college students are fully taken into account, including physical condition, athletic ability, hobbies and other aspects. Through in-depth understanding of each student's specific situation, the trainer is able to tailor the training content that best meets their actual needs. This kind of customised training not only helps to improve the training effect of the students, but also stimulates their enthusiasm for sports, making them more committed and focused in the workout.

Highly scientific: The training programme of Personalised Strength Training is based on scientific training principles and assessment methods. Trainers will use advanced sports science theories and combine them with the actual situation of the students to develop a scientific and reasonable training programme. At the same time, they will also ensure that the training programme is always in the best condition through regular evaluation and adjustment, so as to achieve the best training effect. This scientific approach to training not only

helps to improve students' physical fitness, but also effectively avoids the occurrence of sports injuries.

High Flexibility: Personalised Strength Training has a high degree of flexibility in its training programmes. The trainer will adjust and optimise the training plan according to the student's actual situation and training progress. This flexibility is not only reflected in the diversity of training content, but also in the adjustability of training intensity and frequency. Through the flexible training programme, students can better adapt to their own physical condition and training needs, so as to achieve better results in exercise.

3. The Impact of Personalised Strength Training on the Physiological Health of College Students

3.1. Enhancement of Physical Fitness

In today's society, with the popularisation of higher education and the intensification of employment competition, college students are facing unprecedented physical and mental pressure. In this context, improving the physical fitness level of college students and enhancing their physical and mental health has become an important task that cannot be ignored in college education. Personalised strength training, as a kind of precise exercise mode for specific muscle groups of college students, is gradually becoming an important means to improve the physical fitness of college students. The core of personalised strength training lies in its well-designed training programme. Trainers will tailor-make a training programme that best suits each student's physical condition, athletic ability and personal preference. This personalised training ensures the relevance and effectiveness of the training content, enabling students to achieve the best results in the shortest possible time [1].

Through scientific planning, this training mode not only significantly enhances the muscular strength and endurance of college students, but also optimises the coordination and balance of core muscles and limb muscles at a deeper level. Specifically, personalised strength training can accurately target the core muscles of college students, such as abdominal muscles and back muscles, as well as the major muscle groups of the limbs, such as thigh muscles and calf muscles. Through targeted training, these muscle groups are effectively strengthened, and their contraction capacity and endurance are significantly improved [2]. This not only enables college students to show a more upright and elegant appearance in their physique and posture, but also provides them with more solid body support in daily life. More critically, the enhanced muscle strength and endurance provide strong support for college students to cope with various challenges. In intense sports competitions, they are able to cope with high-intensity exercise loads more comfortably and reduce the risk of sports injuries thanks to their excellent muscle performance. Under heavy academic and work pressure, they are also able to maintain long-lasting concentration and efficient working condition by virtue of their strong physique, so as to better complete their academic and work tasks. In addition, the enhanced muscle strength and endurance also help reduce physical discomfort caused by muscle fatigue and improve the quality of life of college students.

From the physiological level, personalised strength training enhances college students in all aspects. It not only enhances muscle strength and endurance, but also improves college students' posture and posture, reducing physical pain caused

by poor posture. At the same time, it also improves college students' physical coordination and balance, making them more flexible in daily life. These significant improvements at the physiological level undoubtedly bring higher quality of life to college students, enabling them to devote themselves to their studies and life with more energy and full mental state.

In summary, personalised strength training is gradually becoming an effective strategy to improve the physical fitness and quality of life of college students with its precise training programme, scientific planning and significant exercise effect. In the future, with the continuous development and improvement of personalised strength training technology, it is believed that it will play an even more important role in college physical education courses, and escort the physical and mental health of college students.

3.2. Enhancement of Cardiorespiratory Function

The essence of strength training is to stimulate the target muscle groups to produce adaptive changes through specific training movements and loads, so as to enhance muscle strength and endurance. However, this process is not isolated from the muscle tissue itself, but is closely related to multiple systems throughout the body, especially the cardiorespiratory system. When college students train for strength, the energy required for muscle activity increases as the intensity and duration of the training increases. To meet this energy demand, the cardiorespiratory system must work more efficiently, drawing in more oxygen and delivering it to the working muscles while accelerating the elimination of carbon dioxide to maintain the body's acid-base balance. This process increases the adaptive capacity of the cardiorespiratory system by significantly increasing both pumping capacity and pulmonary ventilation. Specifically, strength training enhances the pumping function of the heart by promoting hypertrophy of the heart muscle (myocardium) and an increase in capillary density. The hypertrophy of the cardiac muscle allows the heart to pump more blood per contraction, while the increase in capillary density improves the efficiency of oxygen and nutrient exchange between blood and muscle tissue. At the same time, ventilation of the lungs is improved, with increased lung capacity allowing more air to be inhaled and expelled with each breath. Together, these adaptive changes improve the overall efficiency of the cardiorespiratory system, allowing college students to maintain a more stable heart rate and respiratory rate and reduce fatigue during high-intensity or prolonged activities [3].

In addition to enhancing the adaptive capacity of the cardiorespiratory system, strength training also positively contributes to cardiovascular health. As one of the major diseases threatening human health worldwide, the risk of cardiovascular disease is associated with a variety of factors, including hypertension, hyperlipidaemia, obesity and diabetes. And strength training, as a whole-body workout, can protect cardiovascular health by reducing these risk factors through multiple mechanisms. Firstly, strength training helps to lower blood pressure. By enhancing the contractility of the heart muscle and the elasticity of blood vessels, strength training can improve blood circulation and reduce peripheral vascular resistance, thereby reducing the magnitude of blood pressure increases at rest and during exercise. Secondly, strength training has a positive effect on blood lipid levels. It can promote the oxidation and utilisation of fatty acids,

reduce the accumulation of fat in the body, and at the same time increase the level of high-density lipoprotein (HDL-C, i.e., 'good' cholesterol) and reduce the level of low-density lipoprotein (LDL-C, i.e., 'bad' cholesterol), thereby Maintaining lipid balance. In addition, strength training helps to control body weight and reduce the risk of obesity-related cardiovascular disease. By increasing muscle mass and basal metabolic rate, strength training can help university students manage their body weight more effectively and avoid the cardiovascular burden caused by excessive obesity.

In summary, the positive effects of strength training on cardiorespiratory fitness are not only reflected in the enhancement of the adaptive capacity of the cardiorespiratory system and the promotion of cardiovascular health, but also further extended to the enhancement of the overall health and quality of life of college students. By enhancing cardiorespiratory fitness and cardiovascular health, strength training improves the physical mobility and endurance of college students, enabling them to participate in a variety of physical activities and social interactions with greater confidence, and to enjoy the fun and sense of accomplishment brought about by exercise. Meanwhile, good cardiorespiratory fitness and cardiovascular health are also important foundations for maintaining mental health. They help reduce negative emotions such as anxiety and depression, and improve the sense of well-being and quality of life of university students. Therefore, for college students who are in the critical period of their lives, incorporating strength training into their daily exercise programme not only helps to build a strong body, but also promotes the overall development of physical and mental health at a deeper level. Physical educators in colleges and universities should fully understand the importance of strength training, and actively guide and encourage college students to participate in strength training activities, so as to lay a solid foundation for their healthy growth and future development.

4. Key Elements of Implementing Personalised Strength Training

4.1. Develop a Scientific Training Plan

The successful implementation of personalised strength training cannot be separated from the careful planning and execution of a series of key elements, among which the formulation of a scientific training plan is particularly crucial. A scientific training plan is not only a guarantee of the training effect, but also a prerequisite to ensure the safety and efficiency of the training process. In developing a scientific training plan, the first task is to comprehensively assess the physical condition of college students [4]. This includes a meticulous examination and assessment of body shape, fitness level, muscle strength, flexibility, and potential risk of sports injury. Through this step, the trainer is able to accurately understand the physical characteristics of each college student, providing a scientific basis for the subsequent design of training content. At the same time, the training programme should also take into account the athletic ability of college students. Different individuals have differences in strength, speed, endurance, etc. Therefore, the training programme should be individually designed for different individuals' athletic abilities. For example, for college students with weak strength, the proportion of weight training can be increased; while for college students with insufficient endurance, the element of aerobic exercise can be increased

appropriately. In addition, hobbies and interests are also factors that should not be ignored when developing a training programme. Incorporating personal interests into the training content can not only inspire college students' enthusiasm for training and improve their motivation and participation in training, but also enjoy more fun and a sense of achievement in the training process. Therefore, when formulating the training plan, trainers should communicate fully with college students to understand their preferences and expectations, and ensure that the training content is both challenging and in line with their actual needs.

4.2. Providing Personalised Guidance and Feedback

In the process of implementing personalised strength training, teachers play a crucial role, they are not only the formulators of the training plan, but also the guides and supporters of college students in the training process. In order to ensure the scientific and effective training, teachers should provide personalised guidance and feedback to students [5]. The core of personalised guidance lies in the timely adjustment of the training plan according to the training progress of the students. Each student is unique in terms of physical condition, training base, and rate of progress. Therefore, teachers need to pay close attention to their training performance and capture subtle changes in the training process, such as strength improvement, movement improvement, and endurance enhancement, etc. Based on these observations, teachers can provide feedback to the students. Based on these observations, teachers can fine-tune the training programme by increasing the intensity of training, changing the frequency of training, or introducing new training movements to ensure that the training always matches the actual abilities of the students, and is neither too easy nor too hard. In addition, teachers need to provide proper movement demonstrations and correct incorrect training practices. Strength training requires a high degree of standardisation of movements, and incorrect training methods not only affect the training effect, but also bring the risk of sports injuries. Therefore, teachers should personally demonstrate each movement in the training process, explain the movement essentials and precautions, and at the same time, check the training movements of college students one by one, and correct them as soon as errors are found, so as to help them master the correct training techniques and ensure the safety and effectiveness of training. By providing personalised guidance and feedback, teachers are able to create a challenging yet safe and controlled training environment for university students, so that they can make continuous progress in the process of strength training and gradually improve their physical fitness level and motor skills.

4.3. Focus on Safety and Rehabilitation

In the implementation process of personalised strength training, safety is always a core element that cannot be ignored. It is not only the basis for the smooth progress of training, but also the key to protect the physical and mental health of college students. Therefore, teachers must carry the concept of safety through every aspect of training to ensure the safety and controllability of the training process. Firstly, teachers should pay close attention to the physical condition and training reaction of college students. Before the start of the training, the students should undergo a comprehensive physical examination to understand their health status, past

medical history and history of sports injuries and illnesses, so as to develop appropriate training intensity and content for each student. During the training process, teachers should always pay attention to the training status of the students, including heart rate, respiratory rate, muscle fatigue, etc. Once abnormalities are detected, the training should be stopped immediately, and necessary adjustments and interventions should be made to prevent potential safety hazards from being transformed into actual injuries [6]. In addition, for college students who are unfortunately injured during training, teachers should provide timely rehabilitation treatment and guidance. This includes wound management, pain relief, functional recovery, and many other aspects. Teachers should work closely with professional medical teams to ensure that injured college students have access to scientific and systematic rehabilitation treatment, and at the same time, adjust the training programme in a timely manner according to the progress of rehabilitation, so as to avoid over-training or inappropriate training that may have a negative impact on recovery. In conclusion, safety and rehabilitation are indispensable and important components of the implementation of personalised strength training. By paying close attention to the physical condition of college students, dealing with potential safety hazards in a timely manner, and providing effective rehabilitation treatment, teachers can create a safe and efficient training environment for college students, ensuring that they enjoy the fun and benefits of strength training while staying away from the risk of sports injuries.

5. Conclusion

In summary, the incorporation of standardised and personalised strength training in the college physical education curriculum has a multifaceted positive impact on

the physiological health of college students. By enhancing physical fitness, improving cardiorespiratory fitness, and promoting mental health, this type of training helps to improve the overall health and quality of life of college students. However, during the implementation process, we should also pay attention to the individual differences and safety needs of college students, and provide them with personalised guidance and feedback to ensure the scientific and effective training. In the future, with the continuous progress of science and technology and the innovation of training methods, we have reason to believe that personalised strength training will play a more important role in the sports curriculum of colleges and universities.

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