

The Construction of Physical Ability Oriented Physical Education Teaching Model

Chengjun Fu*, Dianying Zhang

College of Sports and Health Education, Mianyang Teachers' College, Mianyang 621000, China

*Corresponding author

Abstract: *The physical education curriculum in colleges and universities puts forward clear goals for the physical development of college students, which requires us to innovate in the teaching mode. This research aims to construct a physical fitness-oriented college physical education model through the analysis and induction of literature data. This teaching model refers to the in-depth integration of the existing physical training theory and the physical education curriculum theory, and the design of the physical education structure and procedures with the overall physical development of students as the leading goal. A relatively stable and typical physical education teaching model is constructed. The theory is supported by pedagogy, psychology, physiology, sports training and other disciplines. The teaching model framework includes five major parts: guiding ideology, teaching objectives, operating procedures, realization conditions, evaluation content and standards.*

Keywords: *physical fitness, college physical education, teaching mode*

1. Introduction

Since the 1980s, the social economy has developed rapidly, and the physical health of the majority of young people has continued to decline. Surveys have shown that the physical quality of college students is actually inferior to that of middle school students [2]. In order to thoroughly implement the spirit of the National Education Conference and the "China Education Modernization 2035", and deepen the reform of undergraduate education and teaching, the Ministry of Education issued the "Opinions on Deepening the Reform of Undergraduate Education and Teaching and Comprehensively Improve the Quality of Talent Training", which clearly stated that it is necessary to "strengthen the assessment of student physical education courses, those who fail to meet the qualification requirements of the "National Student Physical Health Standards" cannot graduate." The purpose of this requirement is to guide the establishment of the education concept of "health first", promote the development of college students' physical fitness, and give full play to the function of sports participation in educating people. In the "National College Physical Education Curriculum Teaching Guidelines" issued by the Ministry of Education, it is proposed that the basic goal of physical health in the university physical education curriculum proposes "to master the knowledge and methods to effectively improve physical fitness and comprehensive physical fitness", and the development goal proposes "comprehensive development". Physical fitness, improve one's own scientific exercise ability"[1]. This clearly puts forward that college physical education courses must require students to master certain physical fitness knowledge and training methods, and promote scientific exercise through physical fitness development. At the same time, this also requires physical training to be deeply integrated into college physical education classes, develop curriculum resources, promote curriculum construction, and then innovatively propose college physical education teaching model.

This research aims to combine modern physical training concepts with the development trend of college sports to carry out innovative explorations, integrate physical training, sports skill learning, and exercise promotion to build a physical training-oriented university physical education model, in order to make use of physical training to promote health. It plays an important role in improving sports performance and achieves the dual goals of improving classroom efficiency and promoting college students' physical fitness.

2. The definition of physical education curriculum teaching model oriented by physical ability

The definition of physical fitness has always been controversial in the academic world. The level of

physical fitness is mainly reflected in the morphological characteristics of the human body (texture basis) and functional characteristics (biological functional basis) [5], which can be divided into healthy physical fitness and sports fitness. Healthy physical fitness mainly refers to the ability to easily cope with daily work and life, while having spare energy to enjoy leisure activities, and the ability to adapt to emergencies [7], with the goal of promoting health and basic physical activity. Sports fitness mainly refers to the comprehensive physical performance required to improve sports performance. The main content includes strength, speed, endurance, flexibility, agility, coordination, balance and other abilities. To obtain better sports performance as the goal, physical fitness training is for our health. And exercise provides scientific ideas and methods. The basic goals and development goals of physical education courses in colleges and universities put forward the comprehensive development of students' physical fitness, and the improvement of physical knowledge, physical training methods and physical fitness is an important guarantee for students' health. From the perspective of physical fitness, physical fitness is also an important guarantee for the learning of sports skills and the improvement of sports ability. A higher physical fitness level can play a good role in sports injury prevention and sports performance improvement, and can also enhance sports confidence and challenges to the ability of the self. Better sports performance can promote more sports participation, and more sports participation can also bring more health benefits to students. Existing studies have confirmed that physical training courses can promote the physical and mental health of young people, and can also effectively control the exercise load of physical education classes. The reasonable combination of physical fitness and skills exercises is more helpful to promote the physical and mental health of young people than purely skill-led physical education courses [4]. Physical stamina orientation is to master physical stamina knowledge and methods to learn and practice to develop physical stamina development as the main goal of students participating in physical education courses, and physical stamina development as the main content of learning evaluation.

The teaching mode is based on a certain theoretical basis, and a relatively stable teaching structure and procedures constructed to achieve teaching goals [6] are mainly reflected in the strategies and methods used in the organization and implementation of the teaching process. The organization and implementation of physical education have distinct disciplinary characteristics, and the physical education model is a typical teaching model that is based on the existing scientific theories and practices and constructed a relatively stable teaching structure and procedures in physical education classrooms to achieve physical education goals. The discussion and research results of the physical education model are relatively rich, but the main emphasis is on the structure of the teaching process under the guidance of macro teaching. With the further deepening of teaching research, under the guidance of new theories, the physical education model gradually tends to diversify, which opens a new window for the reform of physical education. At present, relatively mature physical education teaching models at home and abroad include "competitive sports teaching mode", "sports skill teaching mode", "happy physical education teaching mode", "physical fitness teaching mode" and so on.

In summary, the "physical fitness-oriented teaching model of physical education curriculum" refers to the in-depth integration of existing physical fitness training theories with physical education curriculum theories in order to promote students' physical and mental health, enhance students' ability to participate in scientific exercise and social adaptation to sports the overall physical development is the main goal to design the teaching structure and procedures of physical education courses, which is a relatively stable and typical teaching mode of physical education courses. This teaching mode is different from the sports technology learning as the leading physical education teaching mode. In the implementation of teaching, the development of students' physical fitness is the main goal, and the improvement of physical fitness promotes students' sports skills, sports participation, physical and mental health and social adaptation.

3. The theoretical basis of the physical fitness-oriented teaching model

3.1 Physiological basis

The age of college students is concentrated in the age of 17-24, the physical development stage is in the late puberty, the physical development gradually stops, and the secondary sexual characteristics basically develop to adults and enter the adolescent stage. Body shape develops to full maturity at this stage, and various body system functions such as breathing, circulation, nerves, and endocrine tend to be stable, and the development of physical fitness indicators reaches its peak at this stage. However, due to factors such as the pressure of entering school, which have many adverse effects on the

development of physical fitness in primary and secondary schools, there are many problems such as low cardiopulmonary function, obesity, myopia, stagnant development of speed and strength, low endurance quality, low total muscle mass, etc. This series of problems were brought into the university stage at the same time, leading to problems such as poor performance in daily sports and exercise, poor learning ability of sports skills, frequent accidents of sports accidents, and lack of knowledge about scientific exercise. At the same time, it highlights the urgent need to solve the physical problems of college students at the university level, and it is particularly important to achieve comprehensive physical development [8]. According to the Youth Physical Development (YPD) Model, the late window period for multiple sports qualities in the age group of college students [9] is the last train in the rapid development stage of multiple physical abilities (speed, agility, flexibility, coordination, etc.), and it is also strength and explosiveness. The golden age of sports-specific skills development, modern physical fitness theory emphasizes the balance between normal posture and physical development. Problems are found through screening and evaluation, and specific solutions are formulated to solve problems. The formulation of training and exercise plans conforms to human science and exercise laws.

3.2 Psychological basis

Psychological development in adolescence matures, the world outlook, values, and ethics are formed, the social adaptability is enhanced, and independence is gradually realized, the personality is gradually stereotyped, and the level of thinking gradually reaches a mature level [11]. Pay more attention to self-growth, have self-evaluation ability, and at the same time pay more attention to the evaluation of others. Body shape, physical fitness and athletic ability have prominent psychological influence on self-efficacy. The awareness of health and exercise is becoming more and more comprehensive, and more and more attention is paid to the value of daily exercise participation [10]. Studies have shown that the proportion of students with serious psychological problems in college students has been on the rise, and the psychological problems of female college students are more serious than that of male college students [12]. The positive impact of physical exercise on mental health has been widely confirmed. In particular, many studies on the impact of sports participation on physiological indicators that can reflect the mental state provide more direct evidence, but how to promote exercise participation and exercise quality is the main issue before us. Questions, such as whether college students have formed a good psychological intervention effect in the process of participating in college physical education courses? In particular, does the classroom exercise of female college students have the value of psychological intervention? This is an important issue for us to reflect on the teaching of physical education courses in colleges and universities. Physical fitness-oriented teaching takes the development of physical fitness to promote physical and mental health and the learning of motor skills as the main goals, which has more practical significance for improving the psychological quality and health cognition of college students.

3.3 The basis of sports training

The physical fitness training theory emphasizes the positive pyramid structure of physical fitness. The bottom layer is normal body posture and physical function, and the middle is basic physical fitness. The "tower spire" is the special physical fitness. The training logic is to train a normal person to start with, and then to have superior physical fitness. People who have excellent athletic ability are the last ones. Our traditional training concept is to build physical fitness according to the needs of sports events, and most training arrangements focus on the inverted pyramid structure of specific physical fitness [13]. In contrast, modern physical training concepts are more in line with the law of athletic ability development, and can better promote health, prevent injuries, improve athletic performance and extend athletic life. Modern physical training theory pays more attention to functional development, strengthens the movement ability of daily life activities, and plays the purpose of improving the quality of life and improving sports performance [14]. The physical training theory is a more scientific improvement of the traditional training theory. It uses more comprehensive experimentally verified human sports science theories to guide the development of sports ability of different groups of people, and the high benefits of improving sports performance and health promotion of different groups of people also confirms the scientificity and practicability of the theory.

3.4 Educational basis

The impact and effect of education on the educated and the society is not only a positive promotion, but also a negative hindrance [15]. The positive function of education for individual development is to

promote its socialization and individuation, and at the same time to realize individual earning and enjoyment through knowledge and experience imparting. School physical education is of great significance to the positive function of individual development; the negative function of education to the individual. It is still common in our education links, such as the rigid thinking caused by standardized education, the heavy burden of schoolwork under test-oriented education, and the underestimation of sports [15]. Although sports have been included in the entrance examination scores, it still seems that it has not gotten rid of the examination of physical education. In school physical education, we pay attention to the evaluation of physical fitness by exercise ability, but many students have not really mastered how to promote physical and mental health through scientific exercise. This link must be strengthened, because exercise to promote health is the original intention of school physical education. Therefore, as physical education educators, we should reflect on whether the results of education meet the expected ideals, so as to gradually improve the content, methods, and models of our education.

The theoretical basis of the modern teaching model is constructivism. The constructivist curriculum view advocates guiding students to discover and solve problems, and the constructivist teaching view emphasizes the guiding and supporting nature of our educational methods [16]. The teaching mode can also be directly understood as a learning mode. The task of teaching is to help students obtain information, ideas, skills, values, ways of thinking and expression, and at the same time teach them how to learn, not just knowledge and skills [17]. The guiding ideology of physical education in my country has gone from "military sports" to "health first", and "competitive sports teaching mode", "happy sports teaching mode", "sports skill teaching mode" and so on have emerged. From the perspective of lifelong physical education, the above teaching models do not pay enough attention to the knowledge transfer of scientific exercise and sports to promote health. For example, the teaching model of pure technology transfer assumes that the improvement of sports technology will promote more sports participation, and happy sports is an assumption. Physical education courses can increase the total amount of physical activity of students through interest stimulation and achieve the purpose of promoting health. In addition to cultivating sports skills and sports interest, lifelong sports is more important than how to exercise scientifically and healthily.

4. Physical fitness-oriented teaching model framework of college physical education

4.1 Guiding ideology

The physical fitness-oriented teaching model is not to create a new set of teaching models, but to integrate and re-develop the existing teaching models. The guiding ideology of the physical fitness-oriented teaching model is to cultivate scientific athletic ability, promote each other's physical skills, and enhance conscious exercise level". The real meaning of scientific sports is that our sports need scientific methods and concepts to guide us. We are promoting exercise volume while further pursuing sports quality and efficiency. We teach sports techniques on the basis of overall physical development. Of course, this needs to improve our sports performance. Make a full understanding of the physical fitness level to be achieved to promote health, find out the physical fitness factors that restrict the improvement of sports performance, and then choose the type of exercise, load, intensity, time, etc. that promote the fitness level. The improvement of physical fitness is more effective for sports technology learning and the quality of life. The physical fitness concept emphasizes finding and solving problems more accurately, comprehensively and systematically, and identifying physical weaknesses through evaluation, screening, testing and other methods. It is also the main factor restricting sports technology learning and ability improvement. The improvement of sports technical ability can stimulate sports interest and increase sports participation, which also increases the possibility for the progress and development of physical fitness. Therefore, the physical fitness-oriented classroom must teach scientific exercise methods and improve the ability of self-directed scientific exercise. Physical fitness training and skill learning in the classroom must be reasonably matched and promote each other.

4.2 Teaching objectives

The teaching goal is the concretization of the teaching purpose, which is presented to teachers and students through a certain specific course content, which is the starting point and final destination of the teaching work [19]. In the teaching mode structure, the teaching goal is at the core, and the teaching mode serves the completion of the teaching goal. Compared with other physical education teaching

models, the physical fitness-oriented college physical education teaching model is more prominent in the individuality of physical development. The physical fitness-oriented college physical education teaching goals are proposed in conjunction with the related theories of human movement science and pedagogy, and are summarized as follows:

Sports Participation Goal: Establish awareness of conscious scientific exercise and improve athletic ability based on the comprehensive development of physical fitness, and be able to scientifically design exercise plans based on the results of physical fitness assessment, and comprehensively improve sports knowledge and sports culture appreciation.

Sports skills goals: Master and improve sports skills and fitness methods based on the overall development of physical fitness, comprehensively understand the relationship between physical fitness and sports skills, master the knowledge and methods of preventing injuries through physical fitness development, and master common sports injury treatment methods.

Physical health goals: develop physical fitness in an all-round way, correct bad posture, master basic methods of physical fitness assessment and testing, and develop physical fitness and promote health knowledge and methods; develop a healthy lifestyle through scientific exercise and dietary nutrition, and cultivate lifelong physical exercise awareness, physical fitness.

Mental health goals: reasonably set your own physical learning goals based on physical fitness evaluation and test results, adjust your mind through sports and exercise participation, and develop a positive and optimistic life attitude; experience challenges and success in sports, sharpen your will and quality, and improve your physical fitness gain more self-confidence during exercise; gain exercise pleasure during exercise and self-regulate emotions.

Social adaptation goals: Correctly handle the relationship between cooperation and competition, and establish good sports ethics and cooperative spirit.

4.3 Realization conditions

The implementation and promotion of physical fitness-oriented college physical education curriculum requires a variety of factors. College physical education teachers first need to identify and master the basic knowledge and methods of modern physical training, and be able to specifically assess and test, make training plans, explain, demonstrate, and correct errors; college students need to re-understand the goals and significance of college physical training. It is more necessary to fully understand the importance of developing physical fitness to promote health and sports performance, and the important value of physical training as a means to achieve university physical education curriculum goals. This is conducive to changing learning attitudes and increasing interest in learning, and is more conducive to the achievement of curriculum goals and science the formation of sports concepts; the teaching content is not only aimed at technical learning and activity content, but also increased specific physical fitness training targeted at healthy physical fitness, basic physical fitness and the learned project technology, as well as teaching physical fitness assessment and physical training design. Basic physical knowledge; teaching equipment and facilities need to increase physical training related equipment, based on cost and operability to focus on the development of self-weight training, small equipment training, etc.; teaching methods in addition to traditional classroom demonstrations and exercises, practice videos, teachers and students share pictures, text materials, and assist classroom teaching to make it easier for students to practice after class. For colleges and universities with conditions, physical training classroom venues can also be constructed according to the existing site planning; a single physical education course for university physical education courses is two class hours (90 minutes), in terms of content and time arrangement, a single-hour course "Physical Fitness + Skills" can be used, or the course can be divided into physical fitness courses and technical courses separately, for example, one hour of physical fitness and one hour of sports technology can be alternated. This is also conducive to solving the problem of tight classroom space.

4.4 Evaluation content and standards

The physical fitness-oriented teaching model is an important goal for the development of students' physical fitness, so the evaluation content physical fitness should be used as an important evaluation criterion. According to the "National Physical Fitness Measurement Standards", "National Physical Exercise Standards Work Instruction Manual" and "National Student Physical Fitness and Health Standards" in general colleges and universities, combined with the content and standards of college

students' physical education curriculum assessment, jointly develop a physical fitness-oriented college physical education teaching model curriculum study evaluation criteria. The main content of the evaluation criteria is shown in Table 1:

Table 1. Evaluation content and standards of physical ability-oriented college physical education model

category	Test content	Guideline
Body shape	BMI (height, weight)	"National Physical Fitness Measurement Standards", "National Physical Exercise Standard Work Instruction Manual", "National Student Physical Fitness and Health Standards" in ordinary colleges and universities
Physiological function	Vital capacity, step test	
Basic physical fitness	Standing long jump, sitting forward bending, pull-ups (male) and sit-ups (female), 1000 meters (male) and 800 meters (female), 50-meter running, selective reaction time, standing on one foot with closed eyes	Special skills and physical fitness assessment standards for physical education courses
Specific physical fitness	Specific sports ability development demand setting content	
Special skills	Physical education curriculum specific sports technical ability assessment content	

5. Conclusion

The physical fitness-oriented teaching model of physical education curriculum refers to the in-depth integration of the existing physical training theory and physical education curriculum theory in order to promote the physical and mental health of students, enhance the students' ability to participate in scientific exercise and sports social adaptation, and take the comprehensive physical development of students as the leading. The goal is to design the teaching structure and procedures of the physical education curriculum, and construct a relatively stable and typical physical education curriculum teaching mode.

Multi-disciplinary theories such as pedagogy, physiology, psychology, sports training, etc. provide support for physical fitness-oriented college physical education curriculum teaching models, and lay the foundation for the design and application of teaching models.

The guiding ideology of the physical fitness-oriented college physical education curriculum is "cultivating scientific athletic ability, promoting each other's physical skills, and improving the level of conscious exercise"; the teaching objectives of the physical fitness-oriented college physical education curriculum teaching model are divided into sports participation goals and sports skills goals, physical health goals, mental health goals, and social adaptation goals; the needs of physical fitness-oriented college physical education teaching models are structured from two aspects: semester course operating procedures and classroom operating procedures; the evaluation content and standards of physical fitness-oriented college physical education curriculum teaching models can be it is formulated in accordance with the "National Physical Fitness Measurement Standards", "National Physical Exercise Standards Work Instruction Manual" and "National Student Physical Fitness and Health Standards" for general colleges and universities. It is mainly divided into five categories: body shape, physiological function, basic physical fitness, special physical fitness and special skills section. The focus of the realization conditions is on the improvement of the theoretical practice of teachers' physical training, the updating of teaching methods and equipment, as well as the creation of online and offline courses.

Acknowledgements

This work was supported by Teaching Quality Engineering Project of Mianyang Teachers' College (Mnu-JY18246).

References

- [1] Yu H Y. The evolution process and stage characteristics of the physical fitness test of Chinese students [J]. *Journal of Beijing Sport University*, 2014, 37(10): 113-118.
- [2] Ministry of Education. "China Youth Sports Development Report (2016)" blue book released [J].

Educational Development Research, 2016(24):18.

- [3] Wang X Q. *Research on the Physical Fitness of Chinese College Students [D]*. Jilin University, 2018.
- [4] Chen F L. *The effect of combined exercises of motor skills and physical fitness in physical education class on the physical and mental health of children and adolescents [D]*. East China Normal University, 2018.
- [5] Tian M J, Liu D Q. *Sports training [M]*. People's Sports Press: Beijing 2012:118.
- [6] Zhong Zhixian. *University Teaching Model Innovation: A Perspective of Teaching Design [M]*. Educational Science Press: Beijing, 2008: 162-167.
- [7] Yang S Y. *Physical training [M]*. Higher Education Press: Beijing 2013: 2-3.
- [8] Zhang X. *Research on the Construction of Physical Fitness Module Curriculum in General High Schools [D]*. Southwest University, 2017.
- [9] Loyd R S, Oliver J L. *The Youth Physical Development Model [J]*. *Strength & Conditioning Journal*, 2012, 34(3):61-72.
- [10] Zhang L W. *Research progress of sports psychology [M]*. Higher Education Press, 2000.
- [11] Ji L, Zhang L W, Yao J X. *Introduction to Sports Psychology [M]*. Beijing Sport University Press, 2007.
- [12] Liu X L. *A survey on the mental health of college students from 2015 to 2018 [J]*. *Journal of Jining University*, 2019, 40(02): 84-89.
- [13] Yan Q. *Construction and empirical research on the functional physical training method system of outstanding female hockey players [D]*. Hebei Normal University, 2013.
- [14] Mike Boyle. *Functional Training for Sports [M]*. Human Kinetics Profe, 2003.
- [15] Jointly compiled by twelve key normal universities across the country. *Fundamentals of Education (Second Edition) [M]*. Educational Science Press, 2008.
- [16] Gao W. *On Teaching Mode [M]*. Shanghai Education Press, 2002.
- [17] Bruce J, Marsha W, Emily C. *Models of Teaching 9th edition [M]*. Pearson Education Profe, 2014.
- [18] Zhang Z Y. *Physical Education Theory [M]*. Science Press, 2005.
- [19] Li B D, Li D R. *Teaching Theory (TB)[M]*. People's Education Press, 2006.
- [20] Song J X. *China College Sports Yearbook [M]*, Kyushu Publishing House, 2009-2010, 44-47.
- [21] National Sports Committee Group Department. *"National Physical Exercise Standard Work Instruction Manual" [M]*. People's Sports Publishing House, 2020.
- [22] Ministry of Education. *Notice of the Ministry of Education on Printing and Distributing the "Basic Standards for Physical Education in Colleges and Universities" [EB/OL]*. (2014-6-12)[2020-8-13].http://www.moe.gov.cn/srcsite/A17/moe_938/s3273/201406/t20140612_171180.html