

Research on the Innovation of Basketball Teaching Models and the Improvement of Students' Physical Fitness in Higher Vocational Colleges

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Abstract: Although the physical health level of Chinese students has generally improved significantly in recent years, affected by the dual impacts of academic pressure and insufficient exercise, indicators such as strength and endurance of higher vocational college students are still not optimistic. Higher vocational basketball teaching and training can significantly promote the improvement of students' physical fitness, while also cultivating their good basketball literacy and greatly enhancing their sports ability. To substantially improve the physical fitness level of higher vocational college students, the basketball teaching model in higher vocational colleges should effectively break through the constraints of traditional models and continuously innovate to meet the learning and exercise needs of contemporary higher vocational college students and conform to their physical development laws. This paper focuses on higher vocational basketball teaching, mainly discussing the innovative teaching models and diversified paths for improving students' physical fitness, hoping to provide a reference paradigm for the reform of higher vocational physical education and help achieve the teaching goal of making students love basketball and basketball classes more.

Keywords: Higher vocational colleges; Basketball teaching; Model innovation; Physical fitness improvement

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1. Introduction

The physical health level of adolescents and young people has increasingly become the focus of social attention. As an important place for cultivating and producing technical and skilled talents, higher vocational colleges should always implement the educational concept of "health first" throughout the entire process of talent training. However, relevant studies in recent years have shown that, affected by various factors such as academic studies, careers, and daily life, the overall physical health status of higher vocational college students is not satisfactory. As a popular sport integrating collectiveness, fun, competitiveness, and many other characteristics, basketball

is warmly welcomed by higher vocational college students. Thus, the overall teaching quality of basketball in higher vocational colleges is closely related to the improvement of students' physical health, and also directly affects the overall effectiveness of physical education in higher vocational colleges. Against this background, higher vocational colleges urgently need to innovate the basketball teaching model and optimize the basketball curriculum system to improve students' physical fitness, to comprehensively improve the quality of higher vocational basketball teaching and help higher vocational education achieve the educational goal of "integrating morality and skills, and comprehensive development of physical education, aesthetics and labor education".

2. The impact of basketball on the physical fitness of higher vocational college students

2.1. Impact of basketball on height, weight and BMI index

Basketball is highly popular among higher vocational college students, especially male students. As a typical comprehensive sport that requires full-body participation, basketball involves a series of high-intensity movements such as rapid movement, jumping, and throwing, which have a direct and long-term impact on the participants' height, weight and BMI index. Studies have shown that compared with students who rarely or never participate in basketball exercises, students who participate in basketball for a long time have better overall physical function development, especially in terms of cardiopulmonary function, bone and muscle development^[1-2]. Moreover, scientific and systematic basketball training is conducive to regulating body composition and balancing the BMI index. In daily teaching, teachers can help students quickly and continuously lose excess fat in the body through scientific guidance and reasonable training arrangements, make muscles stronger, and significantly improve body coordination and movement flexibility. Experimental research shows that after a period of basketball teaching intervention, students' weight and BMI have decreased significantly^[3]. This research result indicates that basketball has a particularly significant effect on weight control and body shaping, which can specifically solve the sub-healthy problems of some higher vocational college students.

2.2. Impact of basketball on students' endurance quality

Basketball is an intense, competitive sport that requires high endurance from participants. During the game, participants need to dynamically switch between high-intensity, medium-intensity and low-intensity, and at the same time maintain good endurance quality to achieve the best state in the game. Therefore, in daily teaching, teachers should pay attention to carrying out special endurance training for students. Special endurance training also requires mastering certain methods and skills. It is recommended to adopt methods with more repetitions, high training density, high load intensity, and short rest intervals, which can better improve students' vital capacity and make their cardiovascular function stronger^[4]. Relevant experimental results show that after one year of special basketball endurance training, students not only perform excellently in basketball but also have significantly improved results in events such as 1000-meter long-distance running. This reflects the positive promoting effect of basketball on students' endurance quality from the side.

2.3. Impact of basketball on muscle strength

After systematic basketball learning and training, students' muscle strength will be significantly enhanced compared with before, especially back strength, with a remarkable improvement effect. In addition, students' standing long jump and sit-up scores will also be improved to varying degrees. Relevant studies have shown

that basketball can not only help students shape their bodies and reduce fat accumulation but also promote the coordinated development of muscle strength in multiple parts of the body, enhance students' physical fitness, and make their bodies stronger and full of strength^[5].

2.4. Impact of basketball on cardiopulmonary function

Long-term and systematic basketball exercises have a significant impact on students' cardiovascular and respiratory systems. In addition to enhancing myocardial contractility and improving cardiac pumping efficiency, they can also make respiratory muscles stronger. From the perspective of exercise physiology, basketball contains a large number of aerobic metabolism components, which can improve the body's aerobic endurance level and enhance cardiopulmonary function^[6]. Compared with normal people, through basketball, athletes' respiratory rate and cardiac output may reach their personal critical points. To maintain the balance between intensity and endurance, athletes need to reasonably control the proportion of anaerobic metabolism. This further indicates that basketball can benefit athletes' cardiopulmonary function in the long term.

3. Diversified paths for the innovation of basketball teaching models and the improvement of students' physical fitness in higher vocational colleges

3.1. Reconstruct the curriculum content system: Lay the foundation for physical fitness improvement

Previous basketball teaching content may focus on the teaching of technical movements, adopt a "large-class" teaching model, and may ignore or not attach importance to students' physical exercise. However, basketball teaching in the new era should completely break away from the traditional teaching content, and promote the integration of physical fitness and skills by building a new curriculum content system, more importantly, to meet the learning and exercise needs of students at different levels.

First, teachers should build a modular curriculum system with the core of improving students' physical fitness and properly and reasonably integrate physical fitness elements into the "basic physical fitness module", "basketball skill module", "practical application module" and "health theory module". Taking the "basic physical fitness module" as an example, to specifically solve the problems of insufficient endurance and lack of strength commonly existing in current higher vocational college students, teachers can carefully design personalized special physical fitness training projects combined with the characteristics of basketball, such as basketball shuttle run, continuous jump and reach, and change-of-direction movement. These projects focus on exercising students' explosive power, endurance and speed, which are of great benefit to the improvement of their physical fitness, and at the same time, make physical fitness training tend to be regular and curriculum-based^[7].

Second, divide students into different levels according to their physical fitness level and skill foundation, and design differentiated teaching models according to the levels. This requires teachers to clearly understand and fully grasp the physical fitness situation of each student. At the beginning of enrollment, the school can conduct a comprehensive physical fitness test for students and evaluate their corresponding basketball foundation to provide a scientific basis for teachers to implement personalized teaching. On this basis, teachers can formulate targeted physical fitness training plans. For example, for students with weak physical fitness, focus on training their basic strength, mainly using interesting basketball games and low-intensity continuous exercise; for students with high physical fitness level, the proportion of basic training can be reduced, and some high-intensity and more practical confrontation exercises should be added, but safety should be the premise. In this way, students

at different levels can grow and progress in their “zone of proximal development”^[8,9]. Of course, teachers can also develop characteristic teaching content according to the future career needs of students in different majors to ensure the practicality of the content. For example, students in majors such as mechanical and electrical engineering and civil engineering may have high requirements for endurance and standing time in the industries they will engage in in the future. For such students, teachers can incorporate endurance exercises such as low-center-of-gravity defensive sliding and long-time passing and receiving cooperation to achieve the organic unity of “physical education and vocational education”.

3.2. Innovate teaching methods and organizational forms: Stimulate the motivation for active participation

Innovation of teaching methods is an important focus to stimulate students’ learning interest and maximize teaching effects. In the past, basketball teaching was often teacher-centered, but the innovative classroom should fully respect students’ subject status, ignite students’ enthusiasm and stimulate their internal motivation to participate in the classroom by introducing diversified teaching methods and optimizing classroom organizational forms.

First, organize teaching in the form of games or create realistic practice scenarios for students to enhance the interest and vividness of the classroom and make students immerse themselves in it. For example, teachers can design the traditional “shuttle run” as “flag capture offense and defense”, or place shooting practice in the scenario of a “buzzer-beater” at the last moment of a simulated game. Being in an interesting or challenging scenario, students will learn and practice more attentively, and more importantly, they will no longer regard practice as a burden or task. They can greatly improve training efficiency while pleasing their physical and mental states^[10].

Second, promote teaching and learning through competitions, and at the same time, focus on guiding students to complete pre-class, in-class, and after-class practice tasks in groups. More specifically, teachers should pay attention to the regular development of group confrontations, class leagues and skill challenge competitions, and use small-scale games such as “3-on-3” and “4-on-4” as the main classroom organizational forms, aiming to let students personally experience the intensity of the game, understand and master basketball skills in actual combat, and create a positive learning atmosphere.

Finally, accurately empower the entire teaching process with information or intelligent technology. Teachers can let students wear smart sports bracelets to facilitate real-time monitoring of heart rate, step frequency and other data during the entire exercise process, or use a heart rate monitoring platform to real-time monitor students’ heart rate changes before, during, and after exercise. Through comparative analysis, it can provide a scientific basis for subsequent scientific training and ensure that exercise enhancement is visualized^[11]. Teachers can also use basketball teaching APPs or video analysis software to help students accurately find their strengths and weaknesses for targeted adjustments and optimizations next.

3.3. Optimize the teaching evaluation mechanism: Establish a health-oriented benchmark

Evaluation is the baton of “teaching” and “learning”. The previous “one-size-fits-all” summative skill assessment model is no longer applicable to basketball teaching in the new era. Teachers should attach equal importance to process and results, focus on both physical fitness evaluation and skill mastery, and pay attention to both quantitative evaluation and qualitative complementarity, so as to successfully build a multi-evaluation system for higher vocational basketball courses^[12,13].

First, when determining evaluation indicators, teachers should include students' physical fitness indicators, such as vital capacity, BMI, and endurance running results, and affirm students' progress and growth by evaluating the progress range. Its proportion should be more than 40%. In addition, teachers should comprehensively assess students' mastery of basketball skills, classroom participation, team spirit, and understanding of health knowledge, aiming to fully understand students' learning situation.

Second, teachers should establish a "sports health file" for each student and record students' learning and sports data in real time. Teachers can use information technology to analyze changes in students' physical fitness tests and their game performance to ensure that the entire process is evaluable and controllable^[14]. Of course, teachers can also actively introduce the incremental evaluation method, focusing on the overall improvement of students' physical fitness and skills during a semester or an academic year, and strive to see the bright spots of each student.

Finally, enrich the evaluation subjects and establish a sound "tripartite evaluation" mechanism combining student self-evaluation, group mutual evaluation and teacher evaluation. Especially for cooperative learning or basketball games, teachers should encourage students to see the advantages of others through mutual evaluation and establish a collaborative learning community^[15]. To fully respect students' subject status, teachers should also actively invite students to participate in the formulation of evaluation standards, so that the standards can truly become a "scaffold" for learning.

4. Conclusion

Under the background of vigorously promoting quality education and actively promoting the teaching reform of physical education courses in higher vocational colleges, the reform of basketball course teaching is closely related to the overall quality of physical education. Based on the above research and analysis, the innovation of basketball teaching models in higher vocational colleges should not only aim at improving students' physical health level but also be based on their comprehensive growth and provide continuous motivation for their career development. Studies have shown that basketball plays a positive role in promoting the height, weight, BMI index, endurance quality, muscle strength, cardiopulmonary function, etc., of higher vocational college students. Against this background, this paper proposes innovative paths for basketball teaching models, including reconstructing the curriculum content system, innovating teaching methods and organizational forms, and optimizing the teaching evaluation mechanism. It is hoped that while fully mobilizing students' learning interest and making basketball classes vibrant, it can promote the comprehensive development of students, and ultimately contribute a modest force to effectively breaking through teaching difficulties and achieving the goal of improving students' physical fitness.

Disclosure statement

The author declares no conflict of interest.

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