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A Review of the Effects of Public Physical Education Courses on Student Health Promotion in Higher Education

Chen He

College of Sports, Sangmyung University, Seoul, 03016, South Korea

Chenhe01101163@.com

Abstract

This study aims to explore the comprehensive impact of public PE courses in higher education on student health promotion. By systematically reviewing related research both domestically and internationally, the study analyzes the effects of PE courses on enhancing students' physical health, mental health, and social adaptability. The findings indicate that public PE courses significantly contribute to improvements in physical fitness, prevention of chronic diseases, and the development of exercise habits. Specifically, PE courses effectively enhance students' endurance, strength, and flexibility, helping them prevent and manage common chronic conditions such as obesity, hypertension, and diabetes. Regarding mental health, the research suggests that public PE courses help alleviate psychological stress and anxiety among university students, while also enhancing their psychological resilience and self-confidence. Participation in team-based and competitive sports activities fosters students' social skills and sense of belonging, which in turn positively impacts their social adaptability. The study also examines key factors influencing the effectiveness of public PE courses, including curriculum design and teaching methods, student participation and interest, as well as the quality of teaching staff. The results suggest that scientifically designed curricula, innovative and diverse teaching methods, and high-quality teaching staff are crucial to maximizing the effectiveness of public PE courses. This research highlights the significant role of public PE courses in promoting the physical and mental health and social adaptability of university students and offers recommendations for optimizing curriculum design and improving teaching quality in the future. By further enhancing the scientific rigor and appeal of PE courses and increasing student engagement, public PE courses can better support the holistic development of university students, helping them maintain a healthy state in both their academic and personal lives.

Keywords

Colleges and universities; public sports; curriculum setting; health promotion; physical activity.

1. Introduction

Public PE courses are a crucial component of China’s higher education system, designed to enhance students’ physical fitness and overall health through systematic sports education and training[1]. As societal attention towards healthy living continues to grow, the physical and mental health issues among university students have garnered increasing concern. Public PE courses in universities serve not only as a vital means of improving students' physical condition but also as an essential tool for promoting their mental health and social adaptability[2]. Currently, these courses typically include both mandatory and elective options, covering a wide range of sports such as track and field, basketball, soccer, swimming, and aerobics. These courses aim to equip students with fundamental sports skills and foster healthy exercise habits

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through well-organized and structured physical activities. Additionally, they emphasize holistic student development by enhancing teamwork, competitiveness, and psychological resilience through physical training[3]. However, despite the widespread implementation of public PE courses in universities, certain challenges persist in practice, such as a lack of innovation in course design, monotonous content, and low student participation rates.

Research has shown that the university stage is a critical period for the physical and psychological development of individuals. Appropriate physical exercise not only promotes physical health but also effectively alleviates psychological stress and enhances mental well-being. Therefore, public PE courses in universities play a particularly important role in student health promotion. These courses, through regular physical activities, help students maintain good physical condition and prevent and mitigate common chronic diseases such as obesity, diabetes, and hypertension. Moreover, physical exercise has a positive impact on students' mental health, significantly reducing the incidence of psychological issues such as anxiety and depression. By participating in sports activities, students can relieve the pressures of academic and personal life, cultivate a positive attitude, and strengthen psychological resilience in the face of challenges.

In the current context, it is of great importance to explore the effectiveness of public PE courses in promoting student health. With changes in lifestyle and increasing academic pressure, health problems such as declining physical fitness, rising obesity rates, and growing mental health issues are becoming more prevalent among university students. Through a review and analysis of existing research, this study aims to provide scientific evidence for educational policymakers in higher education, helping them optimize the design and teaching methods of public PE courses. Policymakers can use the findings to adjust course content, introduce sports activities that interest students, and enhance student participation; alternatively, they can implement more personalized and diverse teaching approaches to meet the varied health needs of different students. This study also offers a reference for future research by identifying gaps in existing studies, such as methodological limitations and data insufficiencies, and proposing directions for further investigation. Ultimately, this research seeks to improve the quality of public PE instruction in universities, thereby promoting the comprehensive health development of students.

2. Current Research Status

2.1. Overview of Public Physical Education Courses in Domestic and International Universities

Public PE courses are a significant component of higher education both in China and abroad. These courses share commonalities in terms of curriculum design, teaching methods, and evaluation systems[4]; however, they also differ based on regional culture, educational systems, and student needs. In China, public PE courses are typically a combination of mandatory and elective classes aimed at improving students' physical fitness and cultivating an interest and habit in sports. The course content includes traditional group sports such as track and field, basketball, and soccer, as well as individual activities like aerobics, yoga, and swimming. In recent years, with the popularization of the national fitness concept, some universities have gradually introduced new forms of exercise, such as gym training and outdoor activities, to enrich the course content and enhance student participation.

Internationally, universities place greater emphasis on the individual needs of students in the design of public PE courses[5], offering a more diverse range of options that span from competitive sports to recreational activities. For example, in the United States, universities typically categorize PE courses into competitive and health-related classes, with the former focusing on enhancing students' competitive abilities and the latter on improving their physical

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health. In terms of teaching methods, foreign universities often prioritize interaction and practical experience, using group cooperation and personal guidance to stimulate student interest and foster teamwork and leadership skills.

Regarding evaluation systems, domestic universities primarily assess public PE courses based on attendance, class performance, and final exam scores. Some institutions have also started incorporating physical fitness tests and the development of exercise habits into their evaluation criteria. In contrast, evaluation systems in foreign universities are more diversified, encompassing not only traditional grading but also student participation, self-directed learning capabilities, and mastery of sports knowledge, aiming to comprehensively measure student performance in PE courses.

2.2. The Concept of Health Promotion

The concept of "health promotion" was first introduced by the World Health Organization (WHO), referring to the enhancement of individual and collective health through various social, environmental, and behavioral changes. For university students, health promotion involves not only the maintenance and improvement of physical health but also the protection and enhancement of mental health and the development of social adaptability[6]. Physical health primarily refers to improving cardiovascular function, muscle strength, flexibility, and endurance through scientific and reasonable physical exercise, thereby preventing and mitigating the onset of chronic diseases. In terms of mental health, exercise has been proven to effectively reduce stress, anxiety, and depressive symptoms while enhancing self-esteem and psychological resilience. Social adaptability involves strengthening students' teamwork, social skills, and leadership through sports activities, which are crucial for their future integration into society and career development.

Public PE courses in universities serve as an important vehicle for health promotion by providing students with diverse physical activities and scientifically sound teaching methods. In practice, these courses not only directly enhance students' physical fitness but also indirectly promote mental health and social adaptability through participation in group projects and the cultivation of competitive spirit. Thus, public PE courses play an irreplaceable role in the health promotion of university students.

2.3. Research Status on the Relationship Between Public Physical Education Courses and Health Promotion

Scholars both domestically and internationally have conducted extensive research on the relationship between public PE courses in universities and student health promotion, covering various aspects such as physical health, mental health, and social adaptability. First, studies on physical health are relatively abundant, with numerous papers indicating that regular participation in public PE courses can significantly improve cardiovascular function, increase muscle strength and flexibility, and reduce the risk of chronic diseases such as obesity and hypertension. Additionally, research has found that engaging in a variety of physical activities helps students develop lifelong exercise habits, laying the foundation for their future health.

In the realm of mental health, studies suggest that physical exercise has a positive impact on alleviating stress and anxiety among university students. Empirical research has shown that students who participate in physical activities exhibit significantly lower levels of depression and anxiety compared to non-participants. Furthermore, the elements of teamwork and competition inherent in PE courses can boost students' self-esteem and confidence, thereby enhancing their psychological resilience.

Although research on social adaptability is relatively limited, existing literature indicates that PE courses can cultivate students' social skills and teamwork spirit through group cooperation and collective activities[7], aiding their better integration into society. Overall, public PE

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courses in universities have a significant and comprehensive effect on promoting student health, but the specific mechanisms of this influence require further in-depth study. Future research should focus on the differential effects of various types of PE courses on health promotion and explore more scientifically effective curriculum designs and teaching methods.

3. The Impact of Public Physical Education Courses on Physical Health

3.1. Impact on Physical Fitness

Public PE courses in higher education play a crucial role in enhancing students' physical fitness, with numerous studies confirming their positive effects on endurance, strength, and flexibility. Endurance, an essential indicator of cardiovascular function and overall health, is significantly improved through systematic physical exercises like long-distance running and swimming. Research has shown that students who regularly participate in aerobic exercises have notably higher maximal oxygen uptake compared to their less active peers, providing a solid physiological foundation for their daily lives and academic activities.

Strength training, a vital component of public PE courses, contributes positively to muscle strength and bone density. Activities such as weightlifting, push-ups, and resistance training help students increase muscle mass during their developmental years, boost metabolic rates, and effectively prevent osteoporosis. Studies indicate that regular strength training not only enhances muscle strength but also improves posture, stability, and overall athletic performance.

Flexibility, another critical measure of physical fitness, directly affects both athletic performance and daily comfort. Flexibility training, such as stretching and yoga, included in university PE courses, effectively increases joint mobility, reduces the risk of injuries, and improves posture. Research shows that students engaged in flexibility training exhibit greater joint mobility and muscle stretchability than those who do not participate, which not only enhances their athletic ability but also positively influences their daily physical activities.

3.2. Role in Chronic Disease Prevention

The role of public PE courses in preventing and managing chronic diseases is widely recognized. With changing lifestyles and increased academic pressure[8], the incidence of chronic diseases such as obesity, hypertension, and diabetes is on the rise among university students. Regular physical exercise has been shown to effectively prevent these conditions and, to some extent, improve the health status of students who already have them.

Obesity, a prevalent health issue among university students, is closely linked to insufficient physical activity and poor dietary habits. Public PE courses provide structured exercise interventions that help students burn excess energy and manage their weight. Numerous studies have demonstrated that physical activities significantly reduce body fat percentage and improve body mass index (BMI), playing a crucial role in preventing obesity. Additionally, PE courses can improve metabolic health and reduce the risk of insulin resistance, thereby preventing and managing type 2 diabetes.

Hypertension, another common chronic disease, is often found in university students with fast-paced lifestyles and high stress levels[9]. Research indicates that aerobic exercises, such as jogging and swimming, effectively lower resting blood pressure, improve vascular elasticity, and enhance cardiovascular function, thereby reducing the risk of hypertension. Similarly, strength training has also been shown to improve blood pressure by enhancing endothelial function and reducing vascular resistance.

3.3. Formation of Exercise Habits

Public PE courses not only have a positive impact on students' physical health in the short term but also play a significant role in the formation of long-term exercise habits and healthy

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lifestyles. The university stage is a critical period for habit formation, and systematic sports education during this time can instill a lifelong awareness and habit of exercise. Research shows that students who actively participate in sports activities during university are significantly more likely to maintain exercise habits after graduation than those who do not. This habit formation not only helps them maintain good physical condition in their work and personal lives but also reduces the risk of obesity, cardiovascular diseases, and other health issues in adulthood.

University PE courses also enhance students' health literacy by teaching and practicing scientific exercise methods and health knowledge. By learning various sports skills and understanding the importance of physical activity, students can adopt more positive and scientifically sound strategies when facing future health challenges. This enhancement in health literacy contributes not only to individual health management but also to the improvement of overall societal health standards.

In conclusion, public PE courses in universities play a crucial role in improving physical fitness, preventing chronic diseases, and fostering healthy exercise habits. Their effectiveness has been widely confirmed in numerous studies. Future research and practice should focus on further optimizing course design to enhance their impact on student health, helping university students maintain good health in both their academic and personal lives.

4. The Impact of Public Physical Education Courses on Mental Health

4.1. Alleviation of Psychological Stress and Anxiety

Public PE courses have a significant positive impact on alleviating students' psychological stress and anxiety symptoms[10]. University students generally face high levels of psychological stress and anxiety due to academic pressure, uncertainty about future employment, and the complexity of interpersonal relationships. Numerous studies have shown that physical exercise can effectively alleviate these adverse psychological states through both physiological and psychological pathways. Physiologically, physical activity promotes the secretion of endorphins, often referred to as "happy hormones," which help students experience pleasure during exercise, reducing feelings of anxiety and tension. Additionally, regular aerobic exercises, such as running and swimming, can lower cortisol levels, thereby reducing stress responses. Psychologically, PE courses provide students with an opportunity to temporarily escape academic pressures and relax. During physical activities, students can focus on the exercise itself, temporarily diverting their attention and alleviating anxiety caused by academic or life stress. Empirical studies further indicate that students who regularly participate in physical exercise exhibit significantly lower rates of anxiety symptoms compared to their non-exercising peers. Furthermore, team sports, such as basketball and soccer, help students release stress in a positive environment through teamwork and competition, thereby enhancing psychological well-being.

4.2. Enhancement of Psychological Resilience and Self-Confidence

Public PE courses not only help alleviate negative emotions but also play a crucial role in enhancing students' psychological resilience and self-confidence. Psychological resilience refers to an individual's ability to maintain psychological balance and respond positively when facing stress and challenges. By participating in PE courses, students can gradually develop the ability to overcome difficulties when faced with challenges in sports, which in turn helps them cope with various challenges in academics and life. Research has shown that participation in sports activities, particularly those requiring persistence and endurance, such as long-distance running and endurance training, can significantly enhance students' psychological resilience. By setting goals, overcoming setbacks, and making continuous progress in sports training,

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students gradually learn how to maintain a positive mindset and coping strategies under pressure and challenges. This ability can be transferred to other aspects of their studies and life. PE courses also help boost students' self-confidence through continuous improvement and a sense of achievement. In sports activities, students receive immediate positive feedback by completing tasks or achieving victories, enhancing their self-efficacy. Collaboration and success in team sports also allow students to perceive their own value, further boosting their self-confidence. This increased self-confidence not only helps students perform better in sports but can also translate into positive performance in academics and social interactions.

4.3. Enhancement of Social Skills and Sense of Belonging

Public PE courses also play a unique role in promoting students' social skills and sense of belonging[11]. The university stage is a critical period for the development of social skills, and sports activities, especially team sports, provide students with ample opportunities for social interaction. In these activities, students gradually improve their social skills, such as communication, conflict resolution, and teamwork, through cooperation, communication, and competition with others. Students who participate in team sports exhibit significantly better social skills compared to their non-participating peers. These students build mutual trust and cooperative relationships through collective efforts and achieving goals within a team, which not only helps them succeed in sports activities but also boosts their social confidence in daily life. Additionally, PE courses enhance students' sense of belonging through group activities. During sports participation, students often feel the strength and warmth of the group, which helps them better integrate into campus life and form a positive social identity.

The social opportunities and sense of belonging provided by PE courses not only enhance students' mental health but also reduce psychological problems caused by feelings of loneliness and social anxiety. The role of PE courses in promoting students' mental health has been widely recognized, and their contributions to alleviating psychological stress, enhancing psychological resilience and self-confidence, and improving social skills and sense of belonging are important pathways to achieving comprehensive student development.

5. Factors Influencing the Effectiveness of Public Physical Education Courses

5.1. Course Design and Teaching Methods

The effectiveness of public PE courses largely depends on the scientific and rational design of the courses and teaching methods[12]. Different course designs directly impact students' enthusiasm for participation and exercise outcomes. For instance, the diversity and flexibility of course content can meet the needs of different students, making it more likely for them to find suitable sports activities, thereby increasing course participation and health promotion effects. Additionally, innovative teaching methods, such as tiered instruction, modular course design, and interactive teaching, can effectively enhance students' interest in learning and participation, thereby improving exercise outcomes. Some studies have shown that adopting diverse and flexible teaching methods can significantly increase students' participation in sports and achieve better results in physical fitness and mental health.

5.2. Student Participation and Interest

Student participation and interest are critical factors influencing the effectiveness of public PE courses. Highly engaged students typically gain more benefits in terms of physical fitness and mental health. Research has found that students' interest in PE courses directly affects their enthusiasm for participation, which in turn influences the actual outcomes of the courses. When students develop a strong interest in a particular sport, they tend to participate more actively in the course and achieve significant health promotion benefits through sustained exercise.

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Conversely, if the course content is monotonous or does not align with students' interests, it may lead to decreased participation, thereby affecting the implementation and effectiveness of the course. Therefore, increasing students' interest and participation in PE courses, particularly by understanding their preferences and needs through surveys and designing more engaging course content, is key to enhancing course effectiveness.

5.3. Faculty Strength and Teaching Quality

Faculty strength and teaching quality are essential guarantees for the effectiveness of public PE courses. The professional competence, teaching experience, and attitude of instructors directly influence the quality of the course and the learning outcomes of students. High-quality PE teachers not only effectively impart sports skills but also provide encouragement and guidance to help students overcome challenges in physical activities, thereby boosting their self-confidence and enhancing their motivation to participate. Furthermore, the overall quality of teaching significantly impacts students' course experiences and the effectiveness of health promotion. Studies have shown that the scientific rigor of the teaching content, the innovation of teaching methods, and the objectivity and fairness of teaching evaluations are all critical factors in determining course outcomes. Therefore, improving faculty strength and optimizing teaching quality are crucial for enhancing the health promotion effects of public PE courses.

The effectiveness of public PE courses is influenced by multiple factors, including course design, teaching methods, student participation and interest, and faculty strength and teaching quality. Optimizing and improving these factors can significantly enhance the course's role in promoting student health.

6. Conclusion

This paper reviews the research on the impact of public PE courses in higher education on promoting students' physical health, mental health, and social adaptability, revealing the significant role that public PE courses play in student health promotion. Through systematic exercise programs, public PE courses have been shown to significantly improve students' physical fitness, including endurance, strength, and flexibility. Regular participation in physical activities not only enhances students' physical condition but also effectively prevents chronic diseases such as obesity, hypertension, and diabetes, helping students develop healthy exercise habits that lay the foundation for lifelong health.

PE courses also play a crucial role in alleviating students' psychological stress and anxiety. Through physical exercise, students can relieve the pressures of academic and personal life and improve their mental health. In team-based projects, students, through cooperation and competition, not only enhance their psychological resilience and self-confidence but also strengthen their social skills and sense of belonging, which are of profound importance for their future social adaptability and career development.

The factors influencing the effectiveness of public PE courses are diverse. The scientific and rational design of the curriculum and teaching methods directly impacts student participation and the effectiveness of health promotion. Diverse course content and innovative teaching methods can better meet the individual needs of students and increase their engagement. At the same time, student participation and interest are also key determinants of course effectiveness. High-quality faculty strength and teaching quality are the foundations for ensuring the effectiveness of the courses. Skilled PE teachers can, through scientific instruction and positive encouragement, better engage students in physical activities, leading to comprehensive health improvements.

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