

# *Assessment of the Impact of School Physical Education Programs on the Posture and Health of Adolescents*

Chenglong Yan<sup>1</sup>, Xiaofei Han<sup>2,\*</sup>

<sup>1</sup>*School of Physical Education, Wuhan Huaxia Institute of Technology, Wuhan, 430000, China*

<sup>2</sup>*Hubei Vocational College of Physical Education, Wuhan, 430223, China*

\*Corresponding author: 343027846@qq.com

**Keywords:** Adolescent posture, adolescent health, school physical education programs

**Abstract:** This article aims to assess the impact of school physical education programs on the posture and health of adolescents and proposes optimization strategies. We first explore the positive effects of school physical education programs on cardiovascular health, musculoskeletal health, weight management, and body fat. Next, we examine how physical education programs improve the posture of adolescents. We analyze the current status of school physical education programs and then propose a series of strategies, including providing diverse courses, professional guidance, sparking interest, and fair resource allocation, to optimize the impact of school physical education programs on the posture and health of adolescents.

## 1. Introduction

School physical education programs play a crucial role in the lives of adolescents, not only significantly impacting physical health but also positively influencing posture and overall development. Physical exercise not only contributes to maintaining a healthy weight and cardiovascular health but also helps improve musculoskeletal health and prevent issues like fractures. Furthermore, school physical education programs provide opportunities to enhance posture, shape correct posture, and achieve proper body proportions. However, the actual effectiveness and current status of school physical education programs vary across regions and schools, necessitating in-depth assessment and optimization.

## 2. The Impact of School Physical Education Programs on Physical Health

### 2.1. Promoting Cardiovascular Health

School physical education programs typically include aerobic exercises such as running, swimming, and basketball, which help improve heart health. Research has shown that aerobic exercise increases heart endurance and reduces the risk of heart disease. For instance, a long-term study found that adolescents participating in physical activities had a lower incidence of heart disease in adulthood. Furthermore, physical exercise helps lower the risk of high blood pressure, a major cardiovascular disease risk factor. Adolescents exercising in physical education classes can help

maintain healthy blood pressure levels. According to the American Heart Association, engaging in at least 150 minutes of moderate-intensity aerobic exercise per week or 75 minutes of high-intensity aerobic exercise significantly reduces the risk of heart disease and stroke. Physical education programs also contribute to improving the circulatory system of adolescents.[1] Aerobic exercise makes the heart pump blood more efficiently, improving blood flow and reducing the burden on the heart. Enhanced blood circulation ensures the effective delivery of oxygen and nutrients to various parts of the body while helping remove waste and toxins. Additionally, physical exercise helps lower levels of bad cholesterol in the blood, which is crucial for cardiovascular health. Research has found that aerobic exercise increases high-density lipoprotein cholesterol levels while lowering low-density lipoprotein cholesterol levels. [2]

## **2.2. Enhancing Musculoskeletal Health**

Physical exercise, especially resistance and weight-bearing training, helps increase muscle mass. These exercises encourage more involvement of muscles, thereby enhancing the quantity and quality of muscle fibers. Studies have shown that moderate resistance training significantly improves the muscle mass of adolescents. A study found that adolescents engaging in six months of resistance training showed significant improvements in muscle mass, indicating that exercise can effectively increase muscle. Increasing bone density is also crucial for physical exercise. Repeated impact and weight-bearing activities stimulate bone growth and increase bone density. This is especially important for adolescents as their bones are still developing. Multiple studies have found that adolescents participating in aerobic exercises, jumping activities, and resistance training have higher bone density, particularly during the period of bone growth, and this effect is particularly significant. By improving muscle mass and bone density, physical exercise significantly reduces the risk of fractures. Adolescents with strong muscles and sturdy bones are more resistant to fractures in case of injury. Research shows that adolescents participating in physical exercise have a lower probability of fractures, especially compared to their peers who do not exercise or engage in less physical activity.

## **2.3. Weight and Body Fat Management**

School physical education programs typically encompass various aerobic exercises that help adolescents burn calories and maintain a healthy weight. Additionally, aerobic exercise can increase the basal metabolic rate, making the body more efficient at energy expenditure. A study found that adolescents engaged in physical activities were more likely to maintain a healthy weight compared to their peers who did not participate in physical activities. This suggests that physical education programs play a positive role in helping adolescents manage their weight. Controlling body fat is equally important, and physical exercise contributes to body fat control. Through aerobic exercise and resistance training, adolescents can improve their body fat levels and reduce unhealthy fat accumulation.[3] This is crucial for preventing obesity and related health issues. Multiple studies have demonstrated that adolescents participating in physical exercise generally have lower body fat levels, making it easier for them to maintain healthy body fat levels compared to adolescents who do not exercise or engage in minimal physical activity. Physical activity also improves the mental health of adolescents, helping control weight and body fat. Exercise can reduce anxiety and depression, which helps avoid emotional eating and unhealthy dietary choices, aiding in weight and body fat control. School physical education programs have a positive impact on weight management and body fat control for adolescents. By providing case studies and empirical data, we can observe the actual evidence of these effects, emphasizing the crucial role of physical education programs in helping adolescents maintain a healthy weight and body fat level.[4]

### **3. Impact of School Physical Education Programs on Body Posture**

#### **3.1. Improving Posture**

Proper posture is crucial for both physical health and appearance. Poor posture not only affects one's external appearance but can also lead to a range of health issues. For example, rounded shoulders, hunching, and forward leaning can result in discomfort, muscle tension, and pain in the back and neck. Additionally, incorrect posture can impact respiratory efficiency and digestive system function. School physical education programs provide an ideal environment for students to learn and practice proper posture. Coaches and educators guide students on how to stand, walk, sit, and perform various sports activities with correct posture. This includes details like maintaining body balance, keeping the spine straight, and relaxing the shoulders. Proper posture can alleviate discomfort in the back and neck, reducing the risk of muscle tension and pain. It also aids in expanding the lungs, improving respiratory efficiency, and increasing oxygen supply. Good body posture can boost students' confidence. Their appearance becomes more attractive, contributing to enhanced self-esteem and self-confidence. Proper posture helps prevent posture-related health issues such as hunching and rounded shoulders. Improving posture not only benefits physical health but also enhances personal image and self-assurance. School physical education programs provide an ideal platform for adolescents to learn, practice, and reinforce correct posture habits, which is essential for their future health and quality of life.[5]

#### **3.2. Enhancing Body Proportions**

The diversity of activities in school physical education programs encompasses various types of exercises, including aerobic activities, strength training, and flexibility exercises, which contribute to shaping healthy body proportions. Aerobic exercises such as jogging, swimming, and jumping rope can effectively reduce unnecessary body fat. These exercises burn a significant number of calories, helping to sculpt a leaner body proportion. Aerobic exercises also improve cardiovascular fitness, enabling the heart to pump blood more efficiently and the lungs to deliver oxygen more effectively. This not only enhances body posture but also provides increased endurance. Strength training exercises such as weightlifting and gymnastics can significantly increase muscle mass. This aids in sculpting the body's lines and curves, improving muscle proportions. Muscles consume more calories than fat, so increasing muscle mass helps raise the basal metabolic rate. This means the body burns more energy even at rest. Flexibility exercises like yoga and stretching can increase joint flexibility, making the body more supple. This contributes to improving the fluidity and comfort of body posture. Combining these different exercise forms helps students shape healthier and more attractive body proportions. These exercises not only have a positive impact on appearance but also enhance overall physical functionality and health. Through school physical education programs, students have the opportunity to engage in these diverse exercise modalities, assisting them in shaping better body proportions and improving their overall physical fitness. This benefits not only their external image but also supports the maintenance of physical health and functionality.[6]

### **4. Analysis of the Current State of School Physical Education Programs**

#### **4.1. Educational Resources and Facilities**

The quality and effectiveness of school physical education programs are closely linked to the allocation of educational resources and the condition of sports facilities. In some regions, the quality of school physical education programs is affected by uneven resource distribution. Schools in affluent

areas may have more financial resources, enabling them to hire professional sports coaches, purchase advanced sports equipment, and offer a variety of sports courses. In contrast, schools with limited resources may not be able to provide the same level of physical education. The geographic location of schools also influences resource allocation. Urban areas typically have easier access to government and private sponsorship funds for improving sports facilities and educational resources, while rural schools may face resource shortages. Some schools have modern sports facilities, such as spacious playgrounds, well-equipped gyms, and swimming pools. These facilities provide favorable conditions for students to engage in diverse sports activities and exercises, contributing to the quality of physical education programs. However, not all schools can maintain and improve their sports facilities. Some schools may have outdated facilities due to financial constraints or poor management, and safety issues may even arise. This can limit students' opportunities to participate in physical education programs. Schools with excellent sports facilities and resources are usually able to offer a richer sports experience, allowing students to engage in various sports and exercises. This can inspire students' interests and improve their sports skills. The imbalance in educational resources and facilities can hinder the comprehensive development of school physical education programs. Some students may not have access to high-quality physical education, affecting their physical health and sports skill development.

#### **4.2. Curriculum Content and Diversity**

There are noticeable differences in the content of physical education programs among different schools and regions. Some schools may offer a wide range of sports programs, including team sports (such as soccer, basketball, volleyball), individual sports (such as tennis, track and field, swimming), and sports skill training (such as gymnastics, martial arts, fencing). This diversity allows students to choose programs that match their interests and abilities. However, in other places, the content of physical education programs may be relatively narrow, focusing on one or two sports activities. This can limit student choices and lead to some students missing out on opportunities to explore different sports areas. Diverse physical education program content helps students maintain physical health. Different types of sports exercises work on different parts of the body, promoting overall health and fitness. Team sports encourage cooperation, coordination, and communication, important for teamwork and social skills development. Certain sports, such as leadership roles like team captains or leaders, can help students develop leadership and decision-making skills. Diverse physical education programs give students the opportunity to experience various sports and activities, aiding in the discovery and cultivation of potential interests and talents. Comprehensive physical education program content contributes to students' holistic development, focusing not only on physical health but also on mental well-being, social skills, and emotional intelligence.

#### **4.3. Time Allocation and Pressure**

Time allocation and excessive emphasis on competitive sports have had some negative impacts on school physical education programs. In some schools and regions, students may face immense academic pressure, requiring them to devote a significant amount of time to homework, exam preparation, and participation in additional academic activities. This may result in reduced time allocated to physical education programs, and students may not be able to fully engage in physical exercises. During important examination periods, students may need to allocate more time to exam preparation, thus reducing the time available for physical education. This can have adverse effects on their physical health. Some students may participate in extra-curricular activities such as music, arts, or science competitions. While these activities enrich their academic experiences, they may also consume the time that should be allocated for physical education. Excessive emphasis on competitive

sports can lead to an imbalance in school resources. Most resources and attention are concentrated on competitive sports programs, while support for non-competitive physical education courses is limited. An overemphasis on competitive sports may cause discomfort for students who are not skilled in competitive sports. These students may feel frustrated, anxious, or excluded because they believe they cannot reach high competitive levels. Some students may experience social pressure as they feel uncomfortable not participating in competitive sports, considering themselves as outsiders.

## **5. Optimization Strategies for Adolescent Body Posture and Health in School Physical Education Programs**

### **5.1. Offer Diverse Physical Education Programs**

Students have varying interests and abilities in sports. Providing diverse physical education programs can meet the needs of different students and allow them to choose activities that suit them best. Some students may prefer team sports like soccer or basketball, while others may prefer individual sports like tennis or swimming. When students can choose sports activities they are interested in, they are more likely to actively participate and invest time and effort. This benefits not only their physical health but also improves their sports skills. Diverse physical education programs contribute to the holistic development of students. Different types of sports exercise different body parts and skills, promoting overall development. For example, team sports can foster cooperation and communication skills, while individual sports can enhance self-management and discipline. Diverse physical education programs provide students with opportunities to explore and discover potential sports talents. Some students may excel in a particular sport, but they need the opportunity to discover this talent. Schools can offer a wide range of sports options, including team sports, individual sports, gymnastics, flexibility exercises, and more. These options should rotate throughout the school year to allow students to try different sports activities. Physical education programs should be adapted to different levels of student proficiency. This means including activities for beginners, intermediate, and advanced levels to ensure that every student can find appropriate challenges. Schools can encourage students to participate in multiple sports activities rather than focusing on just one. This helps enrich their sports experiences. Regularly organizing school sports festivals and competitions encourages students to showcase their skills in different sports. This fosters a spirit of competition while also reinforcing teamwork.

### **5.2. Provide Professional Guidance and Education**

Professional sports coaches and educators possess specialized knowledge and experience that can ensure students use correct skills and postures during various sports activities. This helps prevent sports injuries and ensures that students achieve optimal results from their exercises. Professional guidance enhances the safety of sports activities. Coaches can oversee students' activities, ensuring they use appropriate equipment and take safety measures to reduce the risk of injuries. Professional sports coaches can provide personalized guidance based on each student's needs and skill levels. This means students can receive challenges tailored to their abilities and gradually improve their skills. Schools should hire qualified and experienced sports coaches and educators. These professionals should have strong educational backgrounds and training to ensure they can provide high-quality guidance. Schools can regularly assess the performance of sports coaches, ensuring they interact with students and continue to provide professional guidance. This can be achieved through student feedback, observations, and coach training. Professional educators should develop detailed training plans, including goals, methods, and schedules. This helps ensure that students have a clear developmental path. In addition to skill training, professional educators should focus on the holistic

development of students. They can teach aspects such as teamwork, leadership skills, and sportsmanship. Regular communication between coaches and students is crucial to ensuring effective guidance. Students should feel comfortable discussing issues and goals with their coaches. By providing professional guidance and education, schools can maximize the benefits students receive from physical education programs. This helps students develop healthy exercise habits, improve posture, enhance sports skills, and boost self-confidence. Professional guidance benefits not only students' sports performance but also their overall development.

### **5.3. Organize Activities to Spark Interest**

Schools can regularly organize intra-school sports competitions, such as inter-class, inter-college, or inter-grade competitions. These competitions can take place on school playgrounds, in gyms, or other venues. Through intra-school competition, students can develop a sense of belonging to their class or college and ignite their interest in sports. Organizing inter-school competitions allows students to compete with students from other schools, providing them with a higher level of competitive experience. These competitions can include various sports, such as soccer, basketball, track and field, and more. Schools can organize summer camps during the summer break, offering students opportunities to engage in various sports activities. These camps can include fun games, coach-led training, and team activities, allowing students to exercise in an enjoyable environment. To encourage active participation in sports activities during leisure time, schools can provide weekend exercise programs. These programs can include outdoor sports, fitness classes, hiking, and various activities, encouraging students to spend their weekends in a healthy and enjoyable way. Schools can host an annual sports festival that brings together various sports activities, providing a platform for showcasing and competing. This is an event eagerly anticipated by students and parents, increasing interest in sports. To enhance the appeal of the sports festival, schools can organize special sports festivals with specific themes, such as a healthy lifestyle sports festival or a cultural exchange sports festival. These activities can attract students with different interests and backgrounds. Through these activities, schools can ignite students' interest in sports, provide opportunities for showcasing and competing, and promote physical health and overall development. This helps students actively participate in physical education programs, cultivate healthy exercise habits, and enjoy the fun and benefits of sports.

## **6. Conclusion**

School physical education programs have a positive impact on the posture and health of adolescents. This article discussed their benefits for cardiovascular and musculoskeletal health, as well as their role in weight and body fat control. Additionally, physical education programs help improve posture and body proportions. However, we also recognize challenges such as resource disparities, facility issues, and curriculum diversity. Therefore, we proposed strategies such as offering diverse programs, providing professional guidance, sparking interest, and equitable resource allocation to optimize the impact of school physical education. School physical education programs not only contribute to physical health but also cultivate students' comprehensive skills and interests. By improving strategies for school physical education, we can lay a healthier and more positive foundation for the future of adolescents.

## **Acknowledgement**

General project of the university Scientific Research Fund: Research on the practice path of adolescent physical health under the perspective of "Healthy China", subject number: 22013.

## References

- [1] Li, J., & Zhou, J. (2022). *Research on the Dilemma and Path of School Physical Education Curriculum and Teaching Reform under the Background of "Double Reduction" Policy*. *Youth Sports*, 11, 95-97.
- [2] Tang, J., & Mu, S. (2022). *Exploration on the Construction of "Exercise Prescription Teaching Model" in School Physical Education Curriculum*. *Contemporary Sports Technology*, 12(20), 74-76.
- [3] Hu, B., Du, X., & Chen, H. (2022). *Research on the Path of Rural School Physical Education Curriculum Construction under the Background of Integrated Physical Education Curriculum*. *Contemporary Sports Technology*, 12(14), 62-66.
- [4] Wang, J. (2022). *Construction of School Physical Education Curriculum Content with a Focus on Lifelong Sports*. *Contemporary Sports Technology*, 12(09), 85-89.
- [5] Zhang, Q., & Zhang, B. (2021). *School Physical Education Curriculum Reform and Reflection*. *Athletics*, 10, 77-79.
- [6] Chen, D., & Li, D. (2021). *Research on School Physical Education Curriculum Reform in the New Era*. *Sports Trends*, 08, 209-210.