

Research on the Reform of College Physical Education Courses under the Background of the Decline of College Students' Physical Health

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Abstract: Over the past two decades, Chinese college students have witnessed a continuous decline in physical health, with core fitness indicators such as cardiopulmonary endurance and muscle strength deteriorating significantly. The prevalence of health problems including overweight, obesity, and hypertension has been on the rise, and the phenomenon of “brittle-skinned college students” has attracted widespread public attention. In this context, the traditional physical education (PE) curriculum system focused on “skill transmission” can no longer meet the “health-first” educational philosophy and the practical needs of improving students' physical fitness. Using a literature review method, this paper systematically analyses relevant research findings from 2018 to 2025, focusing on four key aspects: the current status and causes of college students' declining physical health, existing challenges in university PE curricula, core reform approaches and practical explorations, as well as research controversies and future prospects. The study aims to clarify the reform logic, summarize practical experiences, and provide theoretical and practical support for establishing a new university PE curriculum system cantered on physical health promotion. The research indicates that current reforms need to address bottlenecks such as institutional fragmentation, unbalanced course content, single evaluation methods, and technological backwardness. By building a “testing-teaching-feedback” closed-loop system, optimizing course content, innovating teaching and evaluation models, and enhancing digital empowerment, PE curricula can shift from “exam-oriented compliance” to “lifelong health” education.

1. Introduction

The “Healthy China 2030” Plan Outline clearly specifies strengthening school sports and promoting students' physical and mental health as core tasks, while the “Opinions on Comprehensively Strengthening and Improving School Sports in the New Era” further identifies

students' physical health as a key shortcoming in quality education. However, 2025 research data from the School of Public Health at Peking University shows that from 2000 to 2019, physical fitness of over 240,000 college students across 30 Chinese provinces continued to deteriorate: median times for boys' 1000-meter and girls' 800-meter runs increased significantly, and overweight/obesity and high blood pressure rates rose from 3.7% and 2.2% to 14% and 5.2%, respectively, with particularly severe issues in Northeast China.

As the cornerstone of improving college students' physical health, university PE curriculum reform directly affects the implementation of the “health first” philosophy. Yet the traditional curriculum has obvious flaws: overemphasis on specialized skills over physical training, prioritizing summative evaluation over formative guidance, and focusing on classroom teaching while ignoring in-class-out-of-class coordination. This misalignment fails to curb declining physical fitness and even leads to negative phenomena such as “physical testing as an exam” and “campus proxy running”.

This paper searched CNKI, Wanfang and other databases for core journal articles, dissertations and policy documents from 2018 to 2025 using keywords such as “college students' physical health” and “university PE curriculum reform”, screening 326 high-quality documents. Combined with authoritative sources including the Ministry of Education's official website and People's Daily, it clarifies the characteristics and causes of college students' physical health decline, identifies curriculum challenges, summarizes reform paths and experiences, analyses research controversies and shortcomings, and proposes future reform directions, aiming to enrich the PE curriculum reform research system and provide references for optimizing curriculum design and improving students' physical fitness in universities.

2. Current Status and Causes of Declining Physical Fitness among College Students

2.1 Core Status: Declining Physical Fitness and Escalating Health Risks

The decline in college students' physical health manifests in three key dimensions. First, core physical fitness indicators have continued to deteriorate, with the most significant declines in cardiorespiratory endurance, muscle strength, and explosive power. National student fitness surveys show that endurance running performance has declined for five consecutive surveys, while the excellence rate for pull-ups and standing long jump is below 10%. Some universities even arrange medical personnel to ensure safety during long-distance running tests, and there are cases of students abandoning tests due to physical exhaustion. Second, health problems are becoming more prevalent among young people, with rising rates of overweight/obesity, hypertension, cervical spondylosis, and lumbar disc herniation. Detection rates of chronic disease risk factors such as hyperuricemia and fatty liver disease are increasing annually. A survey by Nanjing University of Aeronautics and Astronautics shows that 32% of male students are overweight/obese, while over 25% of female students are underweight. Third, physical activity participation is seriously insufficient. According to the Ministry of Education survey data, 62% of college students have sleep disorders, 78% exercise less than 3 hours a week, and 43% never complete a full physical activity session. Daily steps below 1,000 and sedentary time exceeding 8 hours are common, forming a vicious cycle of “academic pressure → sedentary behaviour → declining physical fitness”.

2.2 Multidimensional Causes: Synergistic Effects of Individuals, Schools, and Society

At the individual level, the core drivers of obesity are a “fat-inducing” lifestyle and lack of exercise awareness. In terms of diet, the popularity of food delivery has led college students to consume far more calories daily than the healthy standard, with high and persistent intake of fried

foods and carbonated beverages. Regarding sleep, staying up late to binge-watch shows, rush homework, or play games has become routine; at 2 a.m., takeout orders in dormitory areas far exceed the cafeteria's lunch peak, and sleep deprivation severely impairs physical recovery. Cognitively, most students regard physical exercise merely as a “means to meet fitness test standards”, lacking a lifelong sports awareness, and some even develop resistance due to insufficient sports skills.

At the institutional level, the marginalisations of physical education and flaws in the curriculum system have further worsened the decline in physical fitness. In course design, most universities only offer compulsory PE courses in the first two years and electives in the third and fourth years, leading to a sharp drop in physical activity among senior students. Moreover, curriculum content focuses mainly on traditional ball games and track and field, accounting for 65% of the curriculum, while components directly related to physical fitness improvement (e.g., cardiovascular function and core strength) makes up less than 20%. In terms of faculty and facilities, the student-to-PE-teacher ratio fails to meet standards, with shortages of sports equipment and low adoption of smart devices—only 12% of universities use technologies like heart rate monitoring and motion capture in PE classes. Additionally, over-reliance on student evaluations for teaching quality has discouraged teachers from increasing training intensity. Regarding the integration of physical fitness testing and teaching, only 19% of universities have established mechanisms linking test data to instructional improvements, and delayed feedback on test results makes it hard to adjust teaching strategies based on students' physical fitness deficiencies.

Societally, the “obesity-enabling environment” and related stressors provide external conditions for declining physical fitness. Urbanization has brought convenient transportation and sedentary lifestyles in education and work, while the prevalence of high-calorie foods exacerbates physical inactivity. With university enrolment expansions, intensified academic competition and employment anxiety have led students to spend excessive time on postgraduate entrance exams, certification tests, and internships, severely compressing exercise time. Meanwhile, some universities prioritize policy documentation over implementation in sports-related policies, with physical fitness assessment programs offering limited incentives. The contradiction between overly high award standards and overly low graduation criteria has reduced the quality of physical fitness assessments for graduating classes.

3. The Present Dilemma of Physical Education Courses in Colleges and Universities

3.1 Target Positioning Deviation: Health Promotion Yielding to Skill Transmission

While current university PE curricula advocate the goal of “balancing skill acquisition, physical fitness enhancement, and holistic development”, they remain trapped in a “competitive sports mindset” that prioritizes specialized skill refinement over core objectives such as cardiovascular fitness improvement and healthy behaviours cultivation. Even though some institutions offer “Physical Fitness Enhancement Specialized Courses”, limited faculty and inadequate facilities mean these courses only cover 38% of students, failing to meet their core needs for physical improvement. This “skill-over-health” approach has created a significant disconnect between PE and students' fitness aspirations, undermining the curriculum's primary role as a key platform for physical development.

3.2 Content System Imbalance: Supply-Demand Mismatch and Insufficient Practicality

The structural imbalance and oversimplification of course content remain critical constraints on physical fitness enhancement. Firstly, the modular design lacks integrated thinking, characterized

by “traditional event dominance and weakened physical fitness modules”, core physical fitness assessment items like endurance running account for less than 10% of instructional hours, in stark contrast to the 70% weight of traditional indicators in assessments. This reflects a systemic deficiency in building a comprehensive framework covering “basic physical fitness + specialized skills + health knowledge”. Secondly, the content supply fails to meet the needs of Generation Z college students, with excessive focus on traditional sports such as basketball, football, and track and field, while emerging disciplines (e.g., rock climbing, fencing, yoga) and ethnic traditional sports (e.g., dragon boat racing, martial arts) are inadequately covered. Additionally, PE theory classes are often superficial, with a severe lack of practical health knowledge—such as sports injury prevention, scientific fitness training, and nutritional planning—leaving students without scientific guidance for independent fitness management.

3.3 The Teaching Mode Is Fixed: Lack of Personalization and Interconnection

The rigid traditional teaching model has significantly reduced the relevance and effectiveness of PE courses. In terms of teaching methods, the dominant approach remains “teacher demonstration—student imitation”; less than 40% of universities implement tiered instruction and personalized guidance, and there is a lack of differentiated teaching for obese students and those with sports injuries, making precise individual interventions impossible. Regarding in-class-out-of-class coordination, classroom teaching and extracurricular exercise are severely disconnected, with the prominent issue of “no supervision after class”. Students lack professional guidance on exercise movement standardization and exercise load rationality, making it hard to ensure exercise effectiveness. In terms of technological empowerment, the application of smart sports platforms is still in its early stages; 85% of universities still manage exercise data through manual input and paper archiving, failing to achieve real-time monitoring, precise analysis, or personalized guidance.

3.4 Single Evaluation System: Insufficient Guidance and Practicality

Shortcomings in the evaluation system hinder students' development of sustained exercise habits. Structurally, it overemphasizes specialized skill assessments, with physical fitness scores accounting for only 20% of total evaluations, while process-oriented metrics such as attendance and extracurricular activities are undervalued. This “results-first, process-ignoring” approach leads students to focus solely on passing physical tests, neglecting daily exercise accumulation. The rigid “one-size-fits-all” criteria ignore individual differences in physical fitness, providing insufficient value-added assessments for students with weaker physical foundations and potentially dampening their motivation. In practice, evaluation results are mainly used for academic announcements and merit awards, failing to integrate with teaching improvement or student health support. As a result, the system cannot fulfil its core purpose of “enhancing teaching and learning through evaluation”.

4. The Core Path and Practical Exploration of College Physical Education Curriculum Reform

To address these challenges, scholars and universities have focused on the core objective of “physical fitness enhancement” and explored solutions through four dimensions: curriculum restructuring, teaching innovation, evaluation reform, and collaborative empowerment, forming a series of replicable practical models.

The core of curriculum restructuring is to establish a “health-oriented” philosophy and build a course system tailored for physical fitness enhancement. It breaks away from competitive sports

thinking, prioritizing “cardiovascular function strengthening, muscle strength development, and healthy behavior cultivation” as primary objectives, and constructs a three-dimensional goal system integrating “health knowledge + basic motor skills + specialized sports skills”. For example, Nankai University requires students to master at least two sports skills while emphasizing health education. In content design, physical training modules are increased to 25%-50% of the curriculum, focusing on core fitness indicators and incorporating scientific methods like interval training. Yunnan University, for instance, integrates physical fitness assessment exercises into every PE class. Additionally, emerging and ethnic traditional sports are introduced, and health knowledge (e.g., sports injury prevention) is integrated via online micro-lectures and offline practices. PE courses are also extended to all grades, with advanced courses offered to upperclassmen to fill the physical education gap for senior students.

The key to teaching innovation lies in developing a "personalized, scenario-based, and digitalized" educational model. In terms of differentiated instruction, universities implement a tiered system (basic class – advanced class – elite class) based on physical fitness test data and students' baseline health conditions. This approach provides customized programs for students with different fitness levels, including specialized health courses and rehabilitation training for specific groups. A university in Beijing used fitness test data for classification and achieved a 22% increase in students' fitness compliance rate within one year. For blended learning, smart sports platforms offer online resources such as fitness micro-lectures and demonstration videos, while offline classes focus on practical training and personalized guidance, realizing the model of "online theory learning and offline skill practice". Shaanxi University of Technology improved students' skill mastery through online evaluation systems using animations and videos. Regarding in-class and out-of-class coordination, a closed-loop system of "classroom teaching – extracurricular exercise – campus competitions" has been established. Extracurricular exercise is included in course assessments, with students' activity recorded via sports apps. Universities also develop branded sports events and grant competition credits. Xi'an International Studies University adopted a club-based "coach – competition – management – evaluation" five-in-one system, which effectively ensured the "one hour of daily exercise" requirement.

The reform of evaluation focuses on establishing a "process-oriented, value-added, and diversified" assessment system. To optimize the evaluation structure, a composite scoring system integrating "specialized performance + physical fitness test scores + extracurricular exercise + health knowledge" has been implemented, with the proportion of process-oriented performance increased to 60%–85% and physical fitness test scores raised to 30%–40%. A teacher-training institution adopted the "Physical Literacy Growth Portfolio" to record students' classroom performance and skill development. After the reform, students' participation rate in extracurricular exercise rose from 45% to 78%. Regarding value-added evaluation, the assessment focuses on students' improvement in physical fitness indicators over the semester, replacing single-achievement benchmarks. This approach fully recognizes the progress of students with weaker physical fitness and stimulates their motivation to exercise. For diversified evaluation, a multi-party framework combining "teacher evaluations + self-assessments + peer reviews" has been established. Physical fitness test scores are also linked to graduation requirements, postgraduate admission eligibility, and scholarship selection, providing key references for teaching improvement. Nankai University explicitly requires passing physical fitness tests as a basic graduation prerequisite and issues a "Student Physical Health Certificate" to qualified graduates.

The cornerstone of collaborative empowerment lies in establishing an integrated support system involving schools, communities, and families. For internal school collaboration, a university-level "Sports and Health Promotion Committee" can be established to coordinate departments such as physical education, fitness assessment management, and student affairs, as well as to build

mechanisms for data sharing and joint decision-making. Fitness assessment results are incorporated into physical education evaluation indicators. For school-community collaboration, partnerships with enterprises can be strengthened by inviting professional coaches and fitness experts into classrooms. Cooperation with sports venues and fitness clubs can also provide students with off-campus facilities and guidance, thus expanding their access to sports activities. For home-school collaboration, parent groups and official campus accounts can be used to share students' physical health information and scientific fitness concepts, guiding parents to promote healthy lifestyles and forming a synergistic education mechanism between family and school.

5. Research Controversies and Future Prospects

5.1 Existing Research Controversies

Current research on university PE curriculum reform still canters on three core controversies. First, the debate over reform orientation: the academic community is divided between “test-driven teaching” and “teaching-led testing”. Some scholars advocate adjusting teaching content based on physical fitness assessment indicators, while others emphasize the essential role of physical fitness testing in serving educational purposes; a compromise view proposes a “two-way collaborative” mechanism. Second, the controversy over technological application: the debate on digital empowerment focuses on data privacy and applicable scope. Supporters argue that blockchain and artificial intelligence can enhance teaching precision, while opponents express concerns about data leakage and advocate limiting data sharing. Third, the dispute over curriculum content: there is a divergence between “fitness-oriented” and “skill-balanced” approaches regarding the proportion of physical fitness modules and specialized modules. Some scholars suggest physical fitness modules should account for no less than 50% of the curriculum, while others emphasize balancing skill instruction to avoid courses becoming mere “physical training sessions”.

5.2 Future Reform Outlook

Future university PE curriculum reforms should focus on four key directions to deepen systemic changes. First, accelerate digital transformation: leverage IoT, big data, and AI to build a “Sports Health Big Data Platform”, which integrates real-time physical test data, teaching records, and exercise metrics. Motion capture and virtual reality technologies can be used to create virtual simulation labs, with corresponding technical standards developed to ensure data security. Second, promote precise personalized teaching: use AI to generate customized exercise prescriptions and teaching plans based on students' physical fitness data, sports interests, and health status, realizing “one-person-one-schedule” customization, for special groups, form interdisciplinary teams of “PE teachers + health instructors” to provide professional support. Third, improve scientific evaluation systems: incorporate physical improvement rates, exercise habit formation, and health literacy enhancement into value-added assessments, and implement long-term tracking of students' physical health to extend evaluations from the “campus phase” to “lifelong health”. Fourth, strengthen collaborative mechanisms: deepen the integration of PE with competitive and mass sports, enhance cooperation with public health departments, and incorporate cardiovascular risk screening and chronic disease prevention into the curriculum to achieve in-depth integration of sports and health.

6. Conclusion

The persistent decline in college students' physical fitness results from the interplay of individual, institutional, and societal factors. The core challenges lie in misaligned objectives, imbalanced

content, rigid teaching methods, and oversimplified evaluation systems in university PE curricula, which hinder their role as the primary platform for fitness enhancement. Research and practice from 2018 to 2025 show that breaking free from traditional curricular constraints requires prioritizing health as the core principle—establishing a “testing-teaching-feedback” closed-loop mechanism, and driving PE transformation from skill transmission to health promotion, and from exam-oriented standards to lifelong physical activity through curriculum restructuring, teaching innovation, evaluation reform, and collaborative empowerment.

While current reforms have made some progress, they still face constraints including institutional barriers, technical bottlenecks, and faculty shortages, with ongoing debates over reform orientation, technology application, and curriculum content. Moving forward, university PE curriculum reform must further deepen digital transformation, promote personalized teaching, refine scientific evaluation systems, and establish an integrated “university-community-family” collaborative mechanism. This will truly align PE courses with the enhancement of college students' physical health, laying a solid foundation for cultivating well-rounded individuals with moral, intellectual, physical, aesthetic, and labor education.

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