

Research on the Combination Path of Interest Cultivation and Physical Fitness Development in Youth Football Training

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Abstract: Youth football training is a fundamental link in consolidating the construction of the football talent pool and fostering reserve forces. Currently, there are high rates of interest loss and uneven physical fitness development in youth football training in China. According to the National Student Physical Health Monitoring Report by the Ministry of Education, the average annual dropout rate of football trainees in junior high school in China exceeds 65%, while the excellent physical fitness test rate of football participants in junior high school is only 5.2%. This article integrates research results from multiple provinces and cities, based on the practice of domestic campus football pilot schools and authoritative physical fitness monitoring data, analyzes the inherent relationship between interest cultivation and physical fitness development, and proposes practical integration paths such as gamification, grading goal setting, and skill-physical fitness integration. Practice in multiple regions has proven that a scientific integrated training model can increase the active participation rate of youth football by 22%, and improve the core physical fitness indicators (endurance, speed, explosive power) by an average of 11%–14%. This provides a practical and feasible solution for optimizing the youth football training system in China.

Keywords: Youth Football, Interest Cultivation, Physical Fitness Development, Combined Path, Training Practice.

1. Introduction

Football has irreplaceable value in strengthening the physical fitness, shaping willpower, and cultivating teamwork awareness of young people. However, in the current field of youth football training in China, the imbalances of "emphasizing physical fitness over interest" or "emphasizing fun over physical fitness" are widespread and urgently need to be solved in both campus football and commercial youth training institutions, showing obvious stage differentiation characteristics. During the primary school stage, a large number of students are attracted to participate in fun activities, and the number of football participants is relatively large. However, after entering junior high school, due to multiple factors such as fixed and single training content, unreasonable distribution of physical load, and lack of targeted training design, there is a large-scale loss of trainees. In many areas, there is even a hidden danger of a gap in the youth training team, which directly restricts the continuous supply of football reserve talents. 38% of the retained students have difficulty meeting physical fitness standards, and this is often accompanied by a decline in training enthusiasm. On the other hand, the JFA youth training system in Japan has always adhered to the core training philosophy of "happy football first" [1]. Through scientific matching of gamified training and physical fitness improvement content, and designing training programs that are suitable for the physical and mental characteristics of young people, it takes into account both skill acquisition and physical and mental adaptation. The average annual dropout rate of football students aged 7-15 is strictly controlled within 10%, and the core physical fitness indicators continue to be better than the global average for adolescents. The significant difference in the effectiveness of domestic and foreign youth training clearly reveals that interest cultivation and physical fitness development are not in opposition, but rather an organic whole that empowers and

complements each other. Based on authoritative physical fitness monitoring data and practical experience of campus football pilot schools in multiple provinces and cities in China, this article focuses on the core logic, adaptation principles, and implementation path of the integration of the two, providing practical and feasible reference for solving the bottleneck of youth football training and optimizing the youth training mode.

2. Analysis of the Current Situation of Interest and Physical Fitness Development in Youth Football Training

In the current field of youth football training in China, the disconnect between interest cultivation and physical fitness development is particularly prominent, which directly restricts the quality of football reserve talent reserve and the continuity of team construction. From the perspective of interest, young people in primary school have a high enthusiasm for participating in football, but after entering junior high school, the dropout rate suddenly rises to over 65%. A survey of 12 pilot schools for campus football in provinces and cities in China shows that 70% of dropout students clearly express that "basic physical fitness training is overly tedious" and prefer competitive and gamified training forms. This dropout phenomenon directly causes a gap in the connection between youth training teams. From the perspective of physical fitness, data from the Ministry of Education's "National Student Physical Health Monitoring Report" shows that the excellent rate of physical fitness testing for football participants in middle school is only 5.2%, and the compliance rate of core physical fitness indicators such as 30-meter sprint and 12-minute run for football is less than 62%. Flexibility in lower grades and strength in higher grades have become the main shortcomings, which are

precisely the key factors affecting the performance of football specific skills.

The practical data from different regions also highlight the problem of imbalance: the physical fitness compliance rate of football students in multiple primary schools in Xiajin County, Shandong Province is 87.2%, but only 42% can proficiently master one football specific skill, and the continuity of interest is obviously insufficient. This situation of "physical fitness compliance but weak skills" makes it difficult for students to gain a sense of achievement in actual combat, further dampening their training enthusiasm; Some commercial youth training institutions overly focus on physical fitness training, using traditional methods such as running circles and weight-bearing frog jumps. This training model violates the laws of adolescent physical and mental development, not only leading to a 35% decrease in the active participation rate of students, but also increasing the risk of sports injuries [2]. The JFA youth training system in Japan clearly stipulates that the first 70% of the training time for the U12 age group is used for gamified football activities. Under this mode, 83% of middle school students insist on training because they "enjoy the process of playing football", and their physical fitness indicators have improved by 10 percentage points compared to traditional training modes, fully demonstrating the practical feasibility of the coordinated development of interest and physical fitness [3].

3. The Intrinsic Correlation Mechanism between Interest Cultivation and Physical Fitness Development

Interest cultivation is the core endogenous driving force for the steady improvement of young people's physical fitness, rather than a passive measure relying on external pressure. The physiological and psychological characteristics of adolescents determine that their attention span is limited, with adolescents aged 12-15 having an average single focus duration of merely 25-30 minutes. Fun training forms can effectively prolong effective training time, improve training focus, and alleviate adolescents' resistance to tedious physical training. The campus football practice of Shanghai Tianlin Third Primary School shows that after adopting gamified teaching mode, the participation rate of students in football has increased from 60% to 100%. They complete physical training content in a pleasant training atmosphere, and their endurance and speed indicators have improved by 15% compared to traditional training mode. When the training content meets the internal needs of teenagers, students can actively overcome physiological fatigue in physical training, gradually forming a virtuous cycle of "interest driven training participation, training promoting physical fitness improvement".

Physical fitness development is an important material guarantee for consolidating the interest of young people in football training, which directly affects their participation experience and self-efficacy in football [4]. The sense of achievement and satisfaction that teenagers gain from football is positively correlated with their physical ability level. Comparative data from domestic campus football pilot schools shows that students who meet physical fitness standards have a 40% higher success rate in completing technical movements in small field competitions, and their winning experience further strengthens their interest in

training; On the contrary, the deformation of technical movements and competition failures caused by insufficient physical fitness will make 38% of students feel frustrated, leading to the idea of withdrawing from training. Long-term tracking data from JFA in Japan shows that young football students who meet physical fitness standards have an average training duration of 5.2 years, far higher than the 2.1 years of physically weaker students [5]. This data fully confirms that a solid physical foundation can provide strong support for the continuation of training interests, and the two form an inherent relationship of mutual promotion and two-way empowerment.

4. Core principles of Combining Path Construction

4.1. Age Classification Adaptation Principle

There are significant differences in the physiological and psychological development levels of adolescents in different age groups, and the training path that integrates interest and physical fitness needs to closely match the physiological development laws and psychological needs of each age group. The 6-8-year-old age group focuses on gamified bodyweight training, establishing basic movement patterns and football perception abilities through fun forms such as bear climbing and football relay running, and synchronously cultivating sports interest; Light load training tools such as elastic bands and dumbbells can be introduced for the school-aged group of 9-12, with a focus on movement standardization and rhythm control, connecting basic physical fitness with specialized skills; During adolescence, those aged 13 and above are in the golden period of strength growth. Gradual load training can be gradually carried out while retaining 40% of the fun adversarial training content to avoid the monotony of training.

4.2. Principle of Fun Fusion

Following the core youth training philosophy of prioritizing fun over performance, we deeply embed physical training content into game scenes that meet the specific needs of football. 90% of the training time for the U6-U8 age group is spent on football games, while 70% of the training time for the U9-U12 age group is dominated by games [6]. Through interactive forms such as "circle grabbing difficulty upgrade" and "football skill challenge", physical fitness such as cardiovascular endurance and reaction speed are subtly improved through fun competitions. Several domestic campus football pilot schools have proven that the gamified integrated training mode can increase students' participation in physical training by 37%, and the training effect is significantly better than traditional running circle training.

4.3. Gradual Load Safety Principle

Youth physical training should strictly follow the "minimum progressive load principle", and load adjustment should fully consider individual physical differences. Priority should be given to increasing the number of repetitions of movements, then moderately increasing the training weight (with a single increase controlled at 5%-10%), and finally increasing the number of training groups to avoid sports injuries caused by blind weight increments [7]. The training intensity should be controlled within the subjective physical sensation (RPE) range of 5-7 points, which means the state of "being able to persist in completing 3-5 movements"; The

ratio of coaches to students in primary school should not be less than 1:8, and in junior high school it should not be less than 1:10, ensuring that the training process of each student is within a safe and controllable range.

5. The Specific Combination Path of Interest Cultivation and Physical Fitness Development

5.1. Gamified Physical Training Design

Embedding core physical fitness indicators such as endurance, speed, and explosiveness into specialized football games, practicing the concept of "combining play and practice". Endurance training relies on small-field 3v3/4v4 multi-ball system confrontation, using high-intensity interval running to improve cardiovascular function; Speed training adopts a weaving relay race to enhance sprint ability in competition; Explosive power training involves obstacle shooting to pass levels, combined with emergency stop turning to solidify lower limb strength. Data from Sichuan Campus Football Pilot School shows that under this mode, students' performance in the 50-meter $\times$ 8 shuttle run has improved by 12%, and 85% of students have high expectations for training [8].

5.2. Graded Target Incentive Mechanism

Participants are divided into three tiers based on physical fitness level and interest orientation: basic, improvement, and elite, and set differentiated goals. The basic group focuses on interest stimulation, the improvement group focuses on achieving both skill and physical fitness standards, and the elite group aims for tactical coordination ability. Qualified students can receive rewards such as skill medals and priority access to school leagues. After the implementation of Shanghai Tianlin Third Primary School, the physical fitness compliance rate of students has increased from 78% to 92%, and the active training time has increased by 40 minutes per week.

5.3. Integrated Training of Skills and Physical Fitness

Break the traditional mode of separating physical fitness and skill training, and achieve a deep integration of specialized skills and physical fitness. Pass training incorporates a mobile component to simultaneously improve endurance and pass accuracy; Shooting training is combined with emergency stops and turns to strengthen core strength and coordination; Tactical exercises use multiple scene transitions to exercise agility and stress response. The data from the pilot school confirms that this model can increase the average skill score of students by 15% and synchronously improve physical fitness indicators by 10%–12%.

5.4. Creating a collaborative Atmosphere in Campus Communities

Extend the training scenario and build a campus community linkage system. Campuses integrate football into morning exercises and after-school services, and carry out fancy ball skill demonstrations; The community joint sports department holds a football carnival and sets up fun physical challenges; Invite retired players to conduct charitable training sessions and play a role as role models. The practice of JFA in Japan shows that 85% of students can persist in

training more than 3 times a week, and their physical fitness level steadily improves.

5.5. Coach Ability Upgrade Support

Strengthen the coach's dual abilities of "interest guidance+physical training" and standardize teaching through systematic training [9]. Require coaches to master age-based gamified training programs and be able to adjust the pace based on student feedback; Master the theory of adolescent physical training and avoid the risk of blindly increasing training load. After the special rotation training of the Beijing Football Association, the professional qualification rate of registered coaches has increased by 30%, providing talent support for the implementation of the integration path.

6. Verification of the Practical Effect of Combining Paths

The practical data of campus football pilot schools with different scales of education and regional characteristics in multiple domestic regions fully confirms the scientificity, effectiveness, and universality of the integration path of interest cultivation and physical fitness development. Ten pilot schools in Weicheng District, Weifang, Shandong Province cover the entire primary to junior high school stage, covering different types of education in urban and rural areas. After one academic year of systematic and gamified integrated training, the average annual dropout rate of football students has decreased from 65% to below 15%. The stability of the youth training team has been significantly enhanced, and the excellent rate of physical fitness testing has increased from 5.2% to 12%. The compliance rate of core physical fitness indicators such as 30-meter running and standing long jump in football has increased by 20 percentage points [10]. The speed of students' offensive and defensive transitions and the durability of their confrontations in actual combat have also improved synchronously. Xiguan Primary School in Xiajin County, Shandong Province, focuses on a graded target incentive and skill-physical fitness integration training model. It has not only achieved a quantitative breakthrough in students' physical fitness achievement rate from 86.3% to 89.5%, and football shooting accuracy from 65% to 78%, but also driven the participation rate of independent football activities after class from 35% to 68%. The participation rate of students in school-level leagues has increased by 40%, and the sense of teamwork has been significantly enhanced. The endogenous motivation for training interest continues to increase.

According to the long-term tracking data of Shanghai Tianlin Third Primary School for two years, after implementing the integrated training path, the participation rate of students in football has increased from 60% to 100%, and the average score of football special skills assessment has increased from 70 points to 85 points. At the same time, basic physical fitness indicators such as lung capacity and endurance are 15%–20% higher than non-participating students, and this advantage shows a stable upward trend during the tracking period [11]. A special control experiment was conducted to select 200 students of the same grade for group practice. The absenteeism rate of the experimental group was reduced by 28% compared to the control group, and the proportion of actively sharing training experience increased by 55%. The results showed that the experimental

group using the fusion path had significantly better training interest duration and physical fitness index improvement than the control group using the traditional separate training mode. The endurance index improvement was 12% higher and the speed index improvement was 10% higher, which effectively verified the practical value of the fusion path in improving the quality and efficiency of youth football training.

7. Conclusion

In the process of youth football training, interest cultivation is the core endogenous driving force for physical fitness development, and physical fitness development is an important material guarantee for interest continuation. The organic integration of the two is the key to breaking the current bottleneck of youth training. The existing problems in youth football training in our country, such as high dropout rate and uneven physical fitness development, stem from the disconnect between interest cultivation and physical fitness development in the training process. Following the three core principles of age grading adaptation, fun integration, and gradual load safety, the implementation of gamified physical training, graded target incentives, skill-physical fitness integration, campus community linkage, and coach ability upgrading can effectively promote the coordinated development of youth football interest and physical fitness development, and provide a replicable and scalable practical paradigm for grassroots youth training work.

The practical data from pilot schools covering different stages of urban and rural areas in multiple regions have confirmed that a scientific integrated training path can increase the active participation rate of youth football by more than 22%, improve the core physical fitness indicators by an average of 11%–14%, and control the annual training loss rate below 15%. This effect fully highlights the practical value and application potential of the integrated path. In the future, this integration path should be included in the guidance outline for youth football training, and efforts should be made to increase the professional training of youth coaches, promote the campus community linkage training mode, and enable young people to enjoy the fun of football while achieving comprehensive physical fitness development, laying a solid foundation for the construction of China's football talent pool. Subsequent research can further combine regional football cultural characteristics, introduce digital monitoring technology for sports load, explore personalized adaptation solutions under different school situations, continuously optimize the practicality and universality of the integration path, and help promote the high-quality development of youth

football.

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