

The Role of Cyber Sports Training Teams for Youth Physical Development and Health Management

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Abstract: With the rapid development of Internet technology, network sports training teams provide a new path for youth physical fitness development and health management through online courses and intelligent devices. This paper discusses how network sports training teams can enhance the physical fitness level and optimize the health management of adolescents, and analyzes their roles in enhancing physical fitness, preventing diseases, improving the psychological state and cultivating health awareness. The study finds that network sports training, with flexibility, individualization and interactivity as its core features, enhances youth strength, endurance and flexibility through scientific courses, and cultivates sports habits with the help of gamified design and low-cost advantages, while promoting the overall development of skills, psychology and socialization. In terms of health management, it fights obesity and myopia through regular exercise, utilizes team activities to alleviate psychological pressure, and enhances health awareness through data education. Through multi-dimensional analysis, this paper demonstrates the comprehensive value of network sports training teams in the healthy growth of young people, provides practical references for educational institutions and families, and highlights its potential in enhancing the health literacy of the whole population.

Keywords: Network Sports Training Team; Physical Development; Health Management; Healthy Growth

1. Introduction

The rapid development of Internet technology has profoundly changed the traditional mode of sports training. Whereas in the past, youth participation in sports usually required traveling to school playgrounds, gyms, or clubs, today,

online sports training has moved the training venue to the home through online videos, live streaming sessions, and smart devices. This shift was particularly noticeable during the 2020 New Crown epidemic, when a global embargo forced sports activities to move online, with teenage users becoming a significant part of this trend. At the same time, changes in modern lifestyles have brought new health challenges: according to the World Health Organization (WHO) 2022 report, the global obesity rate among adolescents has reached 18%, the myopia rate among Chinese adolescents is as high as 67%, and the risk of cardiovascular disease is on the rise. These data suggest that physical development and health management have become central issues in adolescent development. Cyber sports training, as an emerging tool that not only provides athletic opportunities, but also supports health monitoring and education through technological means, shows a unique potential for application. With the wide application of digital technology in school sports, it makes youth physical training more scientific and intelligent. Digital physical training has become the focus of youth sports training at home and abroad [1]. At present, the technical application of physical training is relatively mature, but the construction of related intelligent technology and facilities in the field of youth physical training is relatively weak. First, the utilization rate of information data is low. China's sports informatization started late and is subject to a "data island", all kinds of intelligent sports equipment service providers are isolated from each other, there is no data sharing mechanism [2]. Wearable devices for physical training have imperfect recognition functions and cannot recognize different sports scenes and forms, which will have a negative impact on the accuracy of data monitoring. For example, most wearable devices lack the slope recognition function, resulting in significant bias in the estimation of energy consumption [3]. Second,

there is a lack of algorithms for adolescents. On the one hand, many algorithms and models are mainly targeted at adults or specific groups of people, and lack in-depth research on the physiological development of adolescents and the law of exercise, making it difficult to accurately predict and guide their physical training. On the other hand, the model generalization ability is limited, i.e., the training model is often difficult to adapt to different environments, different training contents and different coaching styles of application scenarios, resulting in a lack of flexibility and transferability of the training program. At this stage, the ability of artificial intelligence in natural language processing is still relatively lacking, and it can't effectively accomplish deeper semantic recognition and emotional interaction, and focuses more on the feedback of numbers and symbols [4]. The evaluation system of information technology and intelligent technology in youth physical training is not yet perfect. The current evaluation index focuses on the quantitative analysis of exercise data, but fails to fully consider the physiological, psychological and social factors of adolescents. In addition, finally, although intelligent devices and mobile APPs can monitor youth's exercise data and physiological data in real time, they also bring potential privacy and security risks. A study found that a large number of mobile apps violate data protection regulations, such as unauthorized access, processing and disclosure of sensitive data to third parties, thus threatening user privacy and security [5].

The aim of this paper is to provide insights into how web-based sports training teams can enhance fitness levels and optimize health management in youth through their flexibility, personalization and interactivity. The study will analyze its specific role in enhancing physical fitness, preventing diseases, improving mental status and developing health awareness. Ultimately, it is hoped that practical guidance will be provided to educational institutions, families and online platforms to promote the effective application of this model in the field of adolescent health.

2. Background and Characteristics of Cyber Sports Training

2.1 Definition of Cyber Sports Training

Cyber sports training refers to physical exercise

activities carried out through the Internet. With the help of cell phones, computers or tablets, teenagers can watch recorded video courses (e.g., yoga, strength training), participate in live instruction (e.g., running boot camps) or use interactive programs in APPs (e.g., Keep's "Teenagers' Physical Fitness Improvement Program"). Compared with traditional training, it does not require a fixed venue or expensive equipment, but only the Internet and simple props (e.g., yoga mats) to allow teenagers to exercise anytime, anywhere. This provides convenience for time-crunched students, but may also affect movement standardization due to the lack of face-to-face guidance.

2.2 Status of Development

The rapid development of online sports training is a product of technological progress and social demand. The trajectory of its rise can be traced back to the restriction of offline sports activities during the epidemic, a special period that prompted online platforms to quickly fill the gap and become a new vehicle for public participation in sports. According to Sensor Tower data, global downloads of fitness apps surged to 400 million in 2020, with the share of teenage users rising from 15% to 25%, demonstrating a strong interest in online training among younger groups. This means that more teenagers are able to participate in sports through their cell phones, making up for the venue limitations of traditional training. In China, the Keep platform has more than 40 million monthly active users, and its "student fitness camp" program allows teenagers to exercise scientifically at home. However, this model may be slow to catch on in rural areas due to insufficient networks and equipment.

Technological empowerment is the core driver of this sector. Smart wearable devices (e.g., Xiaomi bracelet, Apple Watch) form a closed loop with the training platform through real-time monitoring of heart rate, steps, sleep and other physiological indicators, so that the training process has the ability to be dynamically adjusted. The popularization of 5G network further eliminates the technical barriers of video transmission, so that high-definition live courses can realize zero-latency interaction, which significantly improves the immersion and professionalism of online training. This technology iteration not only promotes the popularization of mass fitness, but also gives

birth to a new paradigm of “no monitoring, no training” in the field of competitive sports.

Currently, digital monitoring has become a standard system for high-level athlete training, and the depth of its application covers the whole dimension of technical and tactical analysis, physical fitness management, and athletic state assessment [6]. Smart Sport Training (SST) uses wearable devices, sensors and Internet of Things (IoT) technology to collect data (e.g., heart rate, exercise status) and optimize the training effect through algorithmic analysis [7].

For the youth population, this technological evolution shows a unique adaptation value: the system can integrate individual characteristics such as height, weight, and sports history to dynamically generate a personalized training program, which can avoid the risk of overloaded exercise and enhance participation interest through gamified course design. The training program should be tailored according to individual test data (e.g., VO₂max, BMI), dynamically adjusting the load to match the demand, mitigating the risk of overload [8], and ensuring that the training is always in the “range of effective load” to truly realize the “thousands of people, thousands of people” scientific training. This technology-enabled training innovation signifies that physical education is stepping into a new era of precision and intelligence.

2.3 Main Features

The core advantages of network sports training are reshaping the youth sports participation mode through technology empowerment and scene innovation, and its core value is reflected in the following three dimensions:

(1) Flexibility

The digital platform breaks the time and space shackles of traditional sports training, forming a new training paradigm of “fragmentation + scenario”. Taking senior high school students as an example, they can release pressure between classes through the “15-minute high-efficiency stretching program” or use the “5-minute meditation training before bedtime” to regulate the body and mind, and this kind of flexible training unit can be freely embedded in the academic hiatus. At the level of technical realization, intelligent algorithms break down the complete training system into modular “micro-courses”, such as Keep’s “shoulder and neck relaxation during office breaks” special, so

that the exercise scene extends from the gym to the classroom, the family and other diversified spaces. More noteworthy is that some platforms have launched “dynamic schedule adaptation system”, which can automatically synchronize the user’s electronic calendar and push personalized training reminders during free time, thus truly realizing the seamless integration of training and life.

(2) Personalization

Personalized training has broken through the simple logic of age stratification and built a three-dimensional model of “physiological characteristics + exercise goals + dynamic feedback”. Take FitTime’s intelligent recommendation system as an example, it collects users’ basic data such as resting heart rate and muscle mass through wearable devices, and generates the initial program by combining with the exercise goals (fat loss/muscle building/rehabilitation). During the training process, AI visual recognition technology analyzes the standard degree of movement in real time, such as knee angle deviation during deep squatting, triggering instant movement correction tips. For advanced needs, the system can also customize the “explosive power enhancement plan” for basketball enthusiasts through biomechanical modeling to precisely strengthen the synergistic ability of the muscle groups required for their specific sport. This dynamic evolution mechanism makes each training program a living organism that is continuously optimized.

(3) Interactivity

Interactive innovation is building a new training ecology of “human-machine synergy + community resonance”, and Nike Training Club’s “Online Challenge” mode transforms the user’s training results into shareable 3D animations through sports data visualization technology, forming a closed-loop incentive in conjunction with the coach’s professional comments. In the virtual scene, young people can participate in the “virtual marathon” of global ranking competition, or join interest groups for “dance relay races”. It is worth noting that some platforms have introduced emotional computing technology to determine the user’s training status through facial expression recognition and push encouraging interactive content at the right time. This integration of social technologies not only improves training compliance, but also creates a

continuous cycle of motivation through peer influence.

Together, these core strengths build an evolutionary map of online sports training: from single content supply to ecological services, from standardized courses to precise solutions, and from one-way output to two-way interactive communities. This paradigm shift is driving youth physical education in a more scientific, humanistic and sustainable direction.

3. The Role of Network Sports Training Teams in the Development of Physical Fitness of Young People

Physical training is the work of shaping the human motor and functional system in the structural and functional capacity to adapt to high-intensity specialized sports, and the reshaping of the athlete's mental has been qualities [9]. The concept of physical training occupies an important place in the world of sports and has an irreplaceable role in the field of sports training. Physical training is based on the characteristics of the required specialties, through the imposition of a certain load to improve the athletic qualities of young people, to promote the comprehensive process of improving the athletic performance of young people, the improvement of athletic performance and the level of technical and tactical training is based on the development of excellent physical training for the development of the basis of physical fitness for having a large load and high-intensity training to provide a guaranteed basis for physical fitness, but also to enable young people to maintain a good psychological state in the sport, to Reduce some unnecessary injuries caused by sports, prevention of disease, more resistant to the external environment brought about by the intrusion, to extend the life of sports. Physical fitness is to improve the immune system, support the cardiopulmonary system can not youth physical training optimization strategy and practice exploration.

3.1 Improvement of Physical Fitness Level

Adolescence is the prime stage of physical fitness development, and the improvement of strength, endurance, flexibility and other indicators is crucial to their future health. The Network Sports Training Team significantly enhances physical fitness through scientific design and diversified programs:

(1) Strength and Endurance Enhancement.

The network training platform guides youths to complete deep squats or running correctly through videos, and coaches correct the movements online to ensure effectiveness. Intelligent equipment monitors the exercise status and adjusts the intensity, allowing strength and endurance to steadily improve. This helps teens build a healthy physique and lay the foundation for future sports.

(2) Flexibility and Coordination Improvement.

Movement training systems based on virtual reality (VR) and augmented reality (AR) technologies are revolutionizing the cognitive paradigm of coordination development. Through virtual games or instructional programs, youth practice avoiding obstacles or balancing movements, and their body control is enhanced. The platform also evaluates movement completion and gives suggestions for improvement, making training more efficient. This can be useful for improving motor flexibility.

(3) Precise Training Supported by Data: The smart device records the exercise data and synchronizes it with the platform.

Smart devices record exercise data and synchronize it with the platform. app recommends the appropriate amount of exercise based on the data. For example, when the heart rate is too high, it will remind to slow down to avoid fatigue. This personalized guidance makes training safer and more effective. The personalized training plan developed through data analysis not only avoids the risk of over-training, but also realizes the personalized progression of "one person, one program". For example, the Xiaomi bracelet monitors the heart rate, and if it exceeds the safe range (usually 85% of the maximum heart rate), the app will prompt to reduce the intensity. This feedback mechanism ensures that the training effect is maximized while avoiding excessive fatigue.

This technology-enabled revolution in physical training is pushing the development of youth physical potential into a new era. Through the in-depth integration of digital technology and sports science, network training not only improves the dimension of physical fitness, but also reconstructs the evolutionary path of human athletic ability in the deeper dimensions of neural adaptation and movement economy.

3.2 Fostering Exercise Habits

The development of exercise habits is crucial to

the lifelong health of adolescents, and the convenience and fun of online sports training significantly increases participation and consistency.

(1) The push for regular participation

The online platform encourages adolescents to exercise every day through training programs and fun rewards. When users register, the system will set a daily schedule based on physical fitness and remind youth to remember to exercise after school. For example, one platform designs deep squats as a “Beat the Monster” game, with the screen displaying “energy +5” rewards after completing the task. This kind of gameplay makes exercise fun and attracts teenagers to keep participating. What's more, the platform can also share the training results to the class rankings, the top three consecutive days to get the “sportsman” badge. This design takes advantage of teenagers' love of competition and the pursuit of recognition, turning a workout into a long-term habit. However, if the competition is too fierce or the rewards are less attractive, some teenagers may lose motivation. For this reason, the platform can update the game content more often to keep it fresh.

(2) Low cost and high accessibility

Online training allows teenagers to exercise anytime, anywhere, without the restriction of venues. The “Furniture Fitness” course launched by an APP teaches users to do deep squats with a chair and practice arms with a water bottle, without the need for professional equipment. The platform can also analyze the action through video, for example, after uploading the video of jumping rope, you will receive suggestions to adjust the posture, the effect is close to the guidance of professional coaches (according to the platform data). This simple and intelligent way, so that students with limited financial resources can also enjoy high-quality training, and it is easier to start practicing at any time to develop a habit. However, participation is limited if there is poor internet at home or no smartphone. The platform can develop an offline mode to lower the threshold of use.

(3) Interest-oriented course design

The curriculum design explores subcultural preferences and combines sports with symbols familiar to young people. For example, the “Ghost Destroying Blade Physical Fitness Class” turns Bobi Jumping into “Water Breathing Exercise”, making exercise fun through game scenes. Platform data show that this design

increases participation interest by 40%, helping young people move from “wanting to move” to “always moving”. However, if the program is not updated, the interest may gradually diminish. This concrete technical practice, through the creative combination of behavioral psychology principles and digital tools, not only reduces the threshold of sports participation, but also reconstructs the acceptance mechanism of physical training for youth at the neurocognitive level, providing an innovative solution for the sustainable cultivation of sports habits.

3.3 Promoting Holistic Development

Physical development is not only about physical fitness but also involves overall growth in skills, mental and social skills. Network sports training teams excel in this regard:

(1) Integration of skill learning and physical fitness: While traditional physical training is often separated from technical learning, the digital platform realizes the simultaneous improvement of “strength growth” and “movement optimization”. With AI visual analytics systems accurately calculating movement parameters and providing instant corrective advice, trainers not only increase fitness, but also form muscle memory by repeatedly adjusting movements, thus improving motor skills and remodeling neural plasticity, reflecting the dual progress of skills and fitness. As stated by Van and Ettema [10], the optimization of motor skills relies on precise movement analysis and repetitive training to promote muscle control and motor coordination.

(2) Teamwork and competitive awareness: network training breaks through the physical space limitations and builds a multi-level team interaction scenario. For example, the distributed task system built into the platform automatically generates a role allocation scheme based on the physical characteristics of members, with those who are physically strong assuming the role of “power output node” and those who have excellent coordination being responsible for the “rhythm control unit”. In team challenge tasks, the system adopts a dynamic point system: individual contribution not only depends on the absolute performance, but also deeply correlates with the implementation effect of the team's overall strategy. This design reinforces the sense of complementary roles and allows youth to naturally acquire social cognitive skills in virtual competition. At the same time, the cross-

regional online confrontation mechanism breaks through the physical social circle, stimulates self-efficacy through anonymous competition, and forms the double psychological reinforcement of “individual breakthrough - collective identity”.

(3) Self-confidence enhancement: In traditional physical training, young people's perception of their own ability often stays at the subjective experience level. The digital platform transforms sports performance into quantifiable biomechanical parameters, which empowers youth to gain a “meta-cognitive” perspective of their own athletic ability - when the system shows that the stability of their stride frequency has increased by 20%, the fuzzy physical sensations are visualized as verifiable proof of their ability, and the clarity of this cognition directly strengthens the sense of self-control. Psychological studies have shown that sustained small gains are more likely to strengthen self-efficacy than occasional large successes. By accumulating micro-breaks 3-5 times per week, the system gradually built up the core belief that “I can keep getting better”, and this psychological shift had a positive impact on his academic performance.

4. The Role of Network Sports Training Teams in Youth Health Management

As a new health management model in the digital era, the network sports training team builds a multi-dimensional support system for the physical and mental development of adolescents.

4.1 Physical Health Maintenance

Through scientific and reasonable programs, the network sports training team helps young people cope with the health problems caused by sedentary activities and lack of exercise. Regular training enhances cardiorespiratory function and muscle strength, for example, through running and strength exercises, which both burn fat and maintain body shape, and are particularly suitable for combating obesity. This keeps teens more energized and avoids out-of-control weight. For myopia prevention and control, the training team encourages outdoor exercise, using sunlight to relax the eyes, coupled with distance learning exercises to protect vision more effectively. This approach reduces the time spent staring at the screen and relieves eyestrain. Smart devices can also monitor heart rate in real

time, reminding young people not to over-exercise, while guiding the correct posture of movement, to ensure that the training is safe and healthy. However, outdoor activities require venue support, and the equipment is not affordable for every family.

4.2 Mental Health Promotion

Cybersports training teams help adolescents alleviate the psychological stress associated with learning through team activities and sports fun. The virtual groups created by the online platform allow adolescents to work with their peers through team challenges (e.g. relay races) and feel supported and recognized. This connection can alleviate the loneliness that comes with academic competition, especially during adolescence, when they find their worth by taking on group roles (e.g., program leaders). Exercise itself can also be relaxing and enjoyable, and the progressive challenges designed by the training team allow adolescents to see progress in endurance, a sense of accomplishment that boosts confidence and relieves anxiety. However, if the youth themselves are not interested or find the training too difficult, they may give up halfway through the program. For this reason, parents and platforms need to provide more encouragement and design more engaging programs.

4.3. Health Awareness Raising

The Cyber Training Team has innovated the way youth learn about health by combining exercise and education. The platform turns exercise data into visual charts (e.g. the relationship between sleep and strength) so that youth understand the importance of health. Nutritional tips are added in between training sessions to help them put what they learn into practice right away, making it easier to remember health concepts in this “learning by doing” approach. Smart devices can also record long-term changes, such as the discovery that sleep deprivation slows down running, so teens are more willing to adjust their habits. This understanding pushes them to be proactive about their health and develop a long-term lifestyle. By combining sports science and psychology, the training team has built a comprehensive health system for body, mind and behavior, which not only solves current problems, but also fosters exercise-centered habits, which has far-reaching significance for the health of the whole population. However,

young people are sometimes lazy or distracted and may find it difficult to persevere, and the platform needs to add incentives to motivate them.

Through the interdisciplinary integration of exercise science, educational psychology and information technology, the model has constructed a three-dimensional health promotion system covering physiology-psychology-behavior, the value of which lies not only in solving obvious health problems, but also in cultivating young people's meta-cognition of a healthy lifestyle centered on exercise, which is of fundamental importance to the enhancement of health literacy for the whole population. This has a fundamental role in improving the health literacy of the whole population.

5. Conclusion

This paper reveals the comprehensive value of network sports training team in the healthy growth of adolescents through multi-dimensional analysis. In terms of physical fitness, it improves physical quality through strength, endurance and flexibility training, cultivates sports habits and promotes the overall growth of skills and psychology; in terms of health management, it prevents obesity and diseases, improves psychological status and enhances health awareness. The rich course design, convenient participation and technical support together promote the realization of these effects, making it a health tool adapted to modern needs. In the future, online sports training will be smarter and more diverse. Technology can adjust the amount of exercise according to the state of the youth, and also make indoor workouts as fun as outdoor ones through virtual scenarios. This paper shows the unique value of this model in adolescent development by analyzing its holistic effect on physical fitness and health.

In order to fully realize its potential, concerted efforts from schools, families and platforms are needed. It is recommended that schools incorporate online training into the physical education curriculum by offering one lesson per week and providing tablet devices to ensure broad student participation; parents should accompany their children to complete exercise tasks once a week, supervise and encourage attempts to diversify the curriculum to make up for the lack of initiative; and platforms should optimize the content of AI instruction and health

education, and add elements popular with adolescents such as anime-themed courses to enhance attractiveness. Only through such cooperation can we maximize the contribution of network sports training teams to youth health development.

In the future, with technological progress, network sports training will be more intelligent and diverse. The technology can adjust the amount of exercise according to the state of the youth, and it can also make indoor workouts as interesting as outdoor ones through virtual scenarios. These developments will further enhance the effectiveness of training, inject new momentum into the healthy growth of youth, and promote the improvement of health literacy for all.

References

- [1] Wang X, Su X H, Zhou T, et al. Exploration of the development of physical training for youth in China. *Sports Culture Guide*, 2023(8):22-28, 36.
- [2] Xu W K, Lin Z H. Value Logic, Realistic Dilemma and Optimization Path of the Integration and Development of Artificial Intelligence and National Fitness. *Journal of Shanghai Institute of Physical Education*, 2022, 46(10):9-22.
- [3] Han X M, Qiao F J. The basic logic, realistic dilemma and breakthrough path of artificial intelligence-assisted national fitness participation. *Journal of Tianjin Institute of Physical Education and Sports*, 2022, 37(05):559-565.
- [4] Wang J H, Dong H. Research on the Path of Artificial Intelligence-Enabled Youth Sports Health Promotion for High-Quality Development. *Journal of Beijing Sport University*, 2024, 47(04):1-11.
- [5] Papageorgiou A, Strigkos M, Politou E, et al. Security and privacy analysis of mobile health applications: the alarming state of practice. *IEEE Access*, 2018, 6:9390-9403.
- [6] Cai Y. Research on the current situation and practice path of digital sports training monitoring in colleges and universities. *Contemporary Sports Science and Technology*, 2024, 14(03):171-174.
- [7] Rajšp A, Fister Jr I. A systematic literature review of intelligent data analysis methods for smart sport training. *Applied Sciences*, 2020, 10(9): 3013.
- [8] Wackerhage H, Schoenfeld B J.

- Personalized, evidence-informed training plans and exercise prescriptions for performance, fitness and health. *Sports Medicine*, 2021, 51(9): 1805-1813.
- [9] Wang B C. Correct understanding of the concept of physical training, scientific and effective training. *Athletics*, 2023, (02):3-5.
- [10] Van den Tillaar R, Ettema G. A three-dimensional analysis of overarm throwing in experienced handball players. *Journal of applied biomechanics*, 2007, 23(1): 12-19.