

Original Research Article

A review of observations in the Internet age on the influence of traditional martial arts routine training on the balance ability of adolescents

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Abstract: This review examines the impact of traditional martial arts routine training on the balance ability of adolescents in the Internet era. Through a systematic analysis of recent research, the study demonstrates that such training significantly enhances adolescents' physical fitness—including strength, speed, agility, and coordination—And promotes psychological qualities such as self-confidence, emotional regulation, and concentration. Specialized strength training methods and motor coordination strategies further contribute to improving bodily stability and balance control. However, current studies lack in-depth mechanistic insights into how martial arts routines specifically influence balance ability. The article also addresses practical challenges in implementing martial arts education within schools and proposes optimization paths such as teacher training, curriculum innovation, and resource integration. Future research should leverage advanced technologies like biomechanical analysis and virtual reality to explore personalized training plans and deepen the integration of traditional martial arts into modern physical education systems.

Keywords: traditional martial arts routines; adolescents; balance ability; physical fitness; psychological quality; special strength training; motor coordination; internet era

1. Introduction

As a treasure of the traditional culture of the Chinese nation, traditional martial arts routines have been passed down for thousands of years, not only containing profound philosophical thoughts, moral norms and aesthetic concepts, but also have unique fitness and educational functions. In the critical period of adolescent growth, their physical and mental development needs urgently need a scientific and diversified physical education model. In recent years, with the continuous rise of society's attention to the physical health and mental health of adolescents, the application value of traditional martial arts routine training in adolescents has gradually become a hot topic of research in the academic community. As an important foundation of human athletic ability, balance directly affects the stability of daily activities, the performance of motor skills and the healthy development of posture of adolescents. In-depth exploration of the influence mechanism of traditional martial arts routine training on the balance ability of adolescents is not only helpful to explore the unique advantages of traditional wushu in modern youth physical education, but also provides scientific and effective theoretical guidance and methodological support for youth sports training practice.

Through a systematic review of relevant research literature at home and abroad in recent years, it is found that martial arts routine training has achieved fruitful results in improving the flexibility, explosiveness, coordination, flexibility and core strength of adolescents. However, the existing research on the internal connection and mechanism between martial arts routine training and adolescent balance ability is not in-depth enough, especially in the context of the Internet era, how to use digital technology and network resources to promote the innovative application of traditional wushu routine training in the cultivation of adolescent balance ability, there is still a lot of research space. This paper aims to comprehensively and systematically analyze the impact of traditional martial arts routine training on the balance ability of adolescents by integrating existing research results, and provide new ideas and perspectives for the deep integration and innovative development of traditional martial arts in the field of youth physical education.

2. The effect of martial arts routine training on the physical fitness of adolescents

This section explores how martial arts routine training can improve the physical fitness of teenagers,

including strength, speed, agility, and coordination. Du Yanxin (2025)^[1] pointed out that martial arts routine training effectively improves the flexibility and explosiveness of practitioners by expanding the range of motion of joints and activating fast-twitch muscle fibers. In addition, Zhu Jianli's (2025)^[2] research further confirms that martial arts routine training can not only improve the strength and speed of adolescents, but also enhance their agility and coordination. To sum up, martial arts routine training has a significant effect on improving the physical fitness of adolescents.

3. The impact of martial arts routine training on the psychological quality of adolescents

This section examines the influence of martial arts routine training on the psychological well-being of adolescents, covering aspects such as self-confidence, focus, and emotional management. According to Zhu Jianli (2025)^[2], participation in martial arts routines helps boost self-esteem, increases physical strength, enhances emotional control, and further fosters traits like perseverance, a willingness to take on challenges, and self-discipline. Similarly, Ren Qian's (2025)^[3] study highlights the benefits of such training in developing motor coordination among young people, noting that structured practice not only improves physical fitness but also contributes to psychological growth. In summary, martial arts routine training plays a beneficial role in promoting adolescents' mental and emotional development.

4. Special strength training methods in martial arts routine training

This part explores the methods of special strength training in martial arts routine training and its impact on youth sports performance. Yuan Xunian (2025)^[4] proposed a variety of training methods such as bodyweight training, elastic resistance training, compound strength training, special simulation training, and dynamic balance training, emphasizing the importance of avoiding overtraining and fatigue, ensuring the standardization of training movements, and implementing personalized training plans according to individual differences. In addition, Qiao Xiaowen (2025)^[5]'s research also pointed out that core strength training can significantly improve the physical stability and special ability of martial arts routines. To sum up, scientific and reasonable special strength training methods play an important role in improving the sports performance of adolescents.

5. Strategies for improving the coordination ability of youth sports in martial arts routine training

This section explores how martial arts routine training can improve youth's motor coordination. Ren Qian (2025)^[3] pointed out that through systematic martial arts routine training, adolescents can not only exercise and enhance their physical fitness, but also improve their coherence and rhythm of movements while improving their motor coordination. In addition, Tong Na's (2025)^[6] research also emphasizes the importance of following the principles of step-by-step, aptitude, and all-round development, which can significantly improve the sports coordination ability of adolescents by strengthening basic physical training, strengthening martial arts routine technical training, optimizing martial arts routine basic skills training, and enhancing multi-sensory training. To sum up, martial arts routine training has a significant effect on improving the sports coordination ability of adolescents.

6. The implementation dilemma and optimization path of surgical routine training in adolescent education

This part discusses the implementation dilemma of martial arts routine training in adolescent education and its optimization path. Malhaolin (2025)^[7] found that the implementation of martial arts courses on primary school campuses still faces problems such as weak teachers, rigid curriculum systems, and insufficient resource guarantees, resulting in martial arts teaching falling into the dilemma of "emphasizing martial arts over paths". The study proposes that by building a "dual-teacher classroom" and a long-term training mechanism to strengthen the quality of teachers, relying on cultural infiltration and interdisciplinary linkage to innovate the teaching model, and integrating home-school-community resources to improve the curriculum guarantee system, the

formal dilemma of martial arts courses can be solved and its deep transformation from skill imparting to cultural education can be promoted. To sum up, optimizing the implementation path of martial arts routine training in youth education is of great significance to improve its educational effect.

7. Conclusion

Existing studies have fully shown that traditional martial arts routine training has a significant effect on improving the balance ability of adolescents. Through systematic martial arts routine training, adolescents have developed in an all-round way in terms of physical fitness such as strength, speed, agility and coordination, and the improvement of these physical qualities has laid a solid foundation for the enhancement of balance ability. Scientific and reasonable special strength training methods, especially core strength training, can effectively improve the physical stability of adolescents and further optimize their balance ability. In terms of psychological quality, martial arts routine training helps enhance adolescents' self-confidence and emotional regulation ability, making them more calm and confident when performing balance-related movements, and reducing mistakes caused by psychological factors.

However, current research still lacks the specific mechanism of martial arts routine training to improve the balance ability of adolescents. Future research can use advanced means such as exercise biomechanical analysis and neuroimaging technology to deeply explore the influence of various action elements on the physiological indicators related to balance ability in martial arts routine training, and reveal its internal neuromuscular control mechanism and biomechanical principles. In terms of training methods and strategies, further research is needed on how to formulate a more personalized and precise training plan based on the physical condition, sports foundation and interest characteristics of individual adolescents. At the same time, in the context of the Internet era, how to combine martial arts routine training with modern educational technologies such as virtual reality, motion capture, and online teaching, innovate training modes, and improve training effects is also an important direction for future research.

In addition, in order to better integrate martial arts training into the modern education system, it is necessary to pay attention to issues such as teacher team construction, curriculum system innovation and resource guarantee optimization. improve teachers' professionalism and teaching ability by strengthening teacher training; build a scientific, reasonable and innovative curriculum system that organically combines martial arts culture with skill teaching; Integrate resources from all parties to provide a better martial arts training environment for young people, so as to promote the healthy development of young people's body and mind, and promote the inheritance and promotion of excellent traditional Chinese martial arts culture.

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