

Literature Review Study on the Influence of Sepak Takraw Games on the Physical Health of Adolescents

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ABSTRACT

Introduction: Sepak takraw is a traditional sport widely practiced in Indonesia and requires high physical demands, particularly in terms of agility, flexibility, lower-limb strength, and motor coordination. In Indonesia, sepak takraw has developed through school programs, extracurricular activities, and local sports clubs. However, scientific studies examining the impact of this sport on adolescent physical health remain limited. This study aims to evaluate the influence of sepak takraw participation on the physical health of adolescents.

Study Summary: The findings indicate that adolescents who participate in sepak takraw training experience improvements in cardiorespiratory capacity, lower-limb muscle strength, flexibility, agility, and motor coordination. Structured training has also been shown to positively affect explosive power, balance, and reaction time. Nevertheless, the risk of injuries particularly to the ankles, knees, and hips should be considered, especially due to the sport's high-impact jumping and landing movements.

Discussion: The dynamic characteristics of sepak takraw such as jumping, high kicking, and body rotation provide strong physiological stimulation for adolescent physical development. These movements also support the development of motor skills

and neuromuscular coordination. The availability of local clubs and school-based activities makes sepak takraw a promising sport for adolescent training programs, although its development is still limited by inadequate facilities and a shortage of certified coaches.

Conclusion: Sepak takraw has been shown to positively influence various aspects of adolescent physical health. With appropriate and structured training programs, this sport can serve as an effective means of improving adolescent fitness.

Keywords: Sepak Takraw, Physical Health, Adolescents

INTRODUCTION

Adolescent physical health is a crucial aspect of overall individual development, as this stage is characterized by rapid growth and significant biological, psychological, and social changes. Regular sports participation is one of the main supporting factors for improving adolescent physical well being. One sport that has gained increasing attention is sepak takraw, a traditional game that incorporates elements of agility, flexibility, coordination, and strength.

Sepak takraw is a traditional Southeast Asian sport with unique characteristics, combining high-level agility, muscular strength, flexibility, and motor coordination.

The study of this sport is important for several reasons. First, sepak takraw has substantial potential to improve adolescent physical health through its dynamic and intense movement patterns. Second, as part of the cultural heritage of Southeast Asia, the sport carries educational and social values relevant to early childhood education and athletic development. Third, despite its popularity in several countries, scientific research on the health impacts of sepak takraw remains limited compared to other sports, highlighting the need for systematic reviews to enrich the literature and guide practical sports development.

Globally, sepak takraw began gaining recognition in the 20th century when Southeast Asian countries introduced it through international competitions. Today, sepak takraw is contested in various world championships, including the ISTAF World Cup and the King's Cup World Sepaktakraw Championship. The sport has also expanded beyond ASEAN countries, reaching Japan, South Korea, Canada, the United States, and several European nations. ASEAN countries serve as the center of modern sepak takraw development. Malaysia, Thailand, and Myanmar are recognized as pioneering nations that consistently dominate international competitions. Thailand, in particular, has shown sustained global success due to its strong coaching system and highly competitive domestic environment. In Indonesia, sepak takraw has progressed under the All-Indonesia Sepak Takraw Association (PSTI). It is officially included in the National Sports Week (PON) and other national-level events. Youth involvement continues to grow through schools, clubs, and extracurricular programs. Indonesia possesses strong potential for the sport, supported by cultural affinity, favorable physical characteristics among youth, and high public interest. Nonetheless, challenges such as inadequate modern training facilities and a limited number of certified coaches require attention.

According to research by Anggarani, Sinawang, and Suadnyani (2025), education regarding the importance of sports for physical and mental health remains limited among adolescents. Adolescent physical health is a vital component of holistic development, as this period involves rapid bodily growth and multidimensional changes. Sepak takraw, as a traditional sport that combines agility, flexibility, coordination, and strength, demands high physical capacity particularly in the leg muscles and cardiovascular system. Adolescents who actively engage in sepak takraw may obtain significant health benefits, including improved stamina, enhanced muscular strength, and increased cardiovascular capacity. Therefore, it is essential to understand comprehensively how sepak takraw influences various aspects of adolescent physical health. The objective of this study is to provide a comprehensive analysis, through a literature-based approach, of the effects of sepak takraw participation on adolescent physical health.

LITERATURE REVIEW

The game of sepak takraw has its origins in traditional sporting activities that developed widely across Southeast Asia, including Thailand, Malaysia, Indonesia, and several other countries (Musa et al., 2020). In Indonesia, this sport receives high appreciation and is widely played in various regions such as Sumatra, Kalimantan, and Sulawesi (Daulima et al., 2023). Specifically in South Sulawesi, sepak takraw is known as *Raga* or *Maddaga*, terms derived from the Bugis language referring to a recreational activity meant to provide enjoyment or entertainment (Sudirman, 2013). Practically, sepak takraw is a competitive sport played using a synthetic fiber ball previously made from rattan and each team consists of three players (Hidayat et al., 2020).

Sport serves as a comprehensive process that enhances motor abilities, strengthens the body's muscular structure, and develops

physical endurance through its positive effects on various organs and body systems (Vakrilova et al., 2023). The primary goal of sports participation is to support balanced human development and improve physical capabilities. During adolescence, sports activities help strengthen the body, increase endurance, and promote the development of motor abilities and skills. Literature examining the effects of sepak takraw on adolescent physical health demonstrates that the sport significantly contributes to various aspects of physical fitness. Theoretical foundations supporting these findings include:

1. Exercise Load Theory and Physiological Adaptation, Based on the overload principle, the body adapts to higher training intensities. Movements in sepak takraw such as jumping, high kicking, and rapid directional changes provide strong stimuli that enhance lower-limb muscle strength and aerobic capacity (Irianto, 2018).
2. Motor Learning Theory, Schmidt (1982) states that motor skills develop through repeated practice. Sepak takraw, which requires complex coordination between the eyes, feet, and body, can improve both fine and gross motor abilities in adolescents. Furthermore, according to Salam, Hasbullah, and Latar (2022), motor ability is a general capability related to the performance of a wide range of movement tasks and skills.
3. Adolescent Physical Development Theory, Based on the training guidelines issued by the National Department of Education's Center for Physical Quality Development, adolescence is characterized by rapid musculoskeletal growth. Activities like sepak takraw support this process by providing mechanical stimulation that strengthens bones, increases muscle density, and improves flexibility.
4. Physical Activity and Cardiovascular Health Theory, according to the American College of Sports Medicine (ACSM), vigorous physical activity

performed at least three times per week enhances heart and lung function. Sepak takraw is classified as a moderate-to-high intensity activity, thereby contributing positively to cardiorespiratory capacity.

In addition to theoretical support, empirical research confirms that sepak takraw provides various physical benefits. Field studies report that adolescent players demonstrate better balance, greater agility, and faster reaction times than non-players. Several studies have also highlighted increased hip and thigh flexibility due to the sport's rotational movements and acrobatic kicking techniques.

However, the literature also notes that sepak takraw carries a risk of injury, particularly to the ankles, knees, and hips, as a result of frequent high jumps and forceful landings. Therefore, supporting training programs such as core strengthening exercises, dynamic stretching, and proper mastery of basic techniques are strongly recommended.

MATERIALS & METHODS

This study is a literature review that utilizes scientific sources in the form of national and international journals, research articles, and academic reports related to sepak takraw and adolescent physical health, particularly within the Indonesian context. The literature search was conducted using databases such as Google Scholar, PubMed, and various sports education journal portals.

The inclusion criteria were as follows: (1) studies published within the last ten years, (2) research focusing on adolescents aged 12–18 years, and (3) studies examining the influence of sepak takraw on physical health aspects. Meanwhile, the exclusion criteria included non-scientific articles, opinion pieces, or studies that were not relevant to the objectives of this review.

RESULT

Based on the analysis of various literature sources, several key findings were identified:

1. Improved Cardiorespiratory Capacity, Adolescents who participate regularly in sepak takraw training show increases in maximum heart rate performance, VO₂ max, and respiratory efficiency.
2. Increased Lower-Limb Strength and Power, Repetitive movements such as kicking, jumping, and rotational actions stimulate muscular adaptations, resulting in stronger and more enduring leg muscles.
3. Enhanced Agility and Flexibility, Training that requires rapid directional changes and controlled body movements contributes to improved agility and flexibility.
4. Better Motor Coordination, the combination of ball control, precise timing, and acrobatic techniques enhances adolescents' overall motor coordination.

Overall, the literature demonstrates that sepak takraw provides significant physical health benefits for adolescents.

DISCUSSION

The results of the literature review indicate that sepak takraw is an effective sport for improving the physical health of adolescents. Based on the theory of physiological adaptation, the adolescent body responds to the intensity of sepak takraw training by increasing muscle strength, aerobic capacity, and flexibility. These improvements result from the sport's demanding physical characteristics, which include explosive, acrobatic, and highly coordinated movements.

From a motor learning perspective, repeated performance of complex sepak takraw techniques reinforces movement patterns and enhances body control. This contributes to the development of coordination, reaction speed, and movement accuracy. Game situations that require rapid responses to the ball, dynamic changes in body position, and immediate tactical decisions further support the development of adolescents' cognitive-motor abilities.

Regarding cardiovascular health, moderate-to high-intensity rhythmic activity during matches or training sessions provides sufficient physiological stimulus to improve VO₂ max, lung capacity, and cardiac efficiency. These benefits are particularly important for adolescents, who are in a critical stage of physical growth and development.

Although the findings demonstrate extensive benefits, certain risks must also be considered. High-intensity loads on the lower limbs and joints can make young players susceptible to overuse injuries and jump-related trauma. Therefore, a balanced training approach and appropriate conditioning program are essential. Strength training, core stabilization, and proper landing techniques can help reduce the potential risk of injury.

Overall, sepak takraw can be considered a comprehensive sport because it not only enhances physical fitness but also develops motor skills and tactical understanding. In the context of sports education, sepak takraw represents an effective activity choice for improving physical fitness and fostering adolescents' interest in regular physical activity.

CONCLUSION

Based on the results of the literature review, it can be concluded that sepak takraw has a significant positive influence on the physical health of adolescents, particularly in improving muscle strength, agility, flexibility, and cardiorespiratory capacity. To maximize these benefits, a well-structured training program and proper technical execution are essential to minimize the risk of injury.

Declaration by Authors

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