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Systematic Review on the Role of Basketball Training in Enhancing Physical Fitness Among Primary School Students

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Abstract

Background and Aim: Existing studies have predominantly focused on the general benefits of physical activity or the effects of sports participation in adolescents and adults. Few studies have examined how basketball training influences key components of physical fitness. So, the purpose of this research was to systematically review and analyze existing literature on the influence of basketball training on the physical fitness of primary school students.

Materials and Methods: This research employs a mixed-method systematic review approach to explore the impact of basketball training on the physical fitness of primary school students. From a systematic review of research from related research reports, through a rigorous review of studies published between 2015 and 2024, the research underscores the multifaceted benefits of basketball training, which extend beyond physical health to encompass psychological well-being and social skill development there were a total of 109 articles, from the Web of Science (WOS) database 20 reports, research reports from the Scopus database 28 reports, and research reports from the Google Scholar database 61 reports. After using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the PEDro scale to confirm the quality of the articles. Finally, 8 articles were included in the quantitative synthesis.

Results: Basketball training has a positive influence on the physical fitness of primary school students, improving balance and coordination through activities like dribbling, jumping, and shooting. It also enhances strength and endurance by boosting muscular strength and cardiovascular fitness. While dynamic flexibility improves, the effect on static flexibility is less clear. The impact on body composition varies, with short-term training showing minimal changes in BMI, but long-term involvement improving lean muscle mass and reducing fat ratios. Beyond physical fitness, basketball also offers psychological benefits by enhancing cognitive functions such as decision-making, spatial awareness, and attention. Additionally, it promotes social skills and teamwork, fostering communication, leadership, and collaboration.

Conclusion: Basketball training significantly enhances physical fitness parameters and has positive implications for mental health and social competencies in primary school students. This review highlights the importance of integrating basketball training into educational settings to foster holistic development and counteract the negative impacts of sedentary lifestyles on children's health and well-being.

Keywords: Basketball Training, Physical Fitness, Primary School Students

Introduction

The decrease in physical fitness among children has been linked to a variety of health risks, including cardiovascular diseases, obesity, reduced bone density, and even mental health issues. According to Strong et al. (2005), poor physical fitness during childhood increases the likelihood of developing chronic conditions later in life, such as type 2 diabetes, hypertension, and osteoporosis. In primary school-aged children, these issues are compounded by external factors such as increased screen time, urbanization, and declining participation in organized sports activities, which collectively limit opportunities for regular physical activity (Aubert et al., 2018). Countries around the world recognize the importance of combating these trends, and many have placed youth development at the center of their public health strategies. For primary school students, the inclusion of sports training in educational settings plays a vital role in promoting physical fitness.

In addition to its physical benefits, basketball fosters essential life skills. Participation in team sports promotes social interaction and teaches children the importance of teamwork, leadership, and resilience. These experiences are particularly valuable during the primary school years, as they contribute to the development of emotional intelligence and interpersonal skills. According to Eime et al. (2013), engaging in structured sports activities, such as basketball, has been shown to enhance self-confidence and reduce behavioral problems among children. This dual impact on physical and social development positions basketball as a holistic tool for addressing the multifaceted needs of primary school students.

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Basketball training programs offer a practical solution to this challenge. Their structured nature allows schools to deliver physical education in a time-efficient manner while ensuring that students receive the full spectrum of physical and social benefits associated with the sport. Additionally, basketball training can be tailored to suit the developmental needs of primary school students, focusing on skill acquisition, fitness improvement, and enjoyment. This adaptability makes basketball an ideal candidate for inclusion in school-based physical education programs.

In conclusion, physical fitness is an essential aspect of children's health and development, influencing their physical, mental, and social well-being. The global decline in physical fitness among children highlights the need for effective interventions to promote active lifestyles. Basketball, as a dynamic and engaging sport, offers a comprehensive approach to enhancing physical fitness and fostering social skills in primary school students.

Objectives

To systematically review existing literature on the influence of basketball training on the physical fitness of primary school students, summarizing the key findings and assessing the impact on fitness health.

Literature Review

1. Basketball Training is Good for Physical Fitness

Basketball, a sport that demands a combination of agility, strength, endurance, and finesse, serves as an exemplary avenue for enhancing various aspects of physical fitness. The dynamic nature of the game requires players to engage in a multitude of activities that collectively contribute to a well-rounded fitness regimen. This comprehensive engagement not only sharpens athletic abilities but also promotes overall health and well-being. The benefits of basketball training are manifold, impacting balance and coordination, muscular strength and endurance, flexibility, and body composition. Each of these components is integral to the physical fitness puzzle, and basketball provides a unique platform for their development.

Balance and coordination are the cornerstones of safe and effective physical activity, particularly in high-intensity sports like basketball. They are essential for maintaining stability and control during movement, which in turn enhances overall physical fitness. Muscular strength, a vital aspect of physical fitness, contributes significantly to an individual's health and well-being, maintaining functional independence and preventing injuries. Muscular endurance, the ability of muscles to perform repeated movements or sustain contractions over a long duration, is another critical component of physical fitness, playing a key role in athletic performance. Flexibility, the range of motion in the joints, is essential for preventing injuries and performing daily tasks effectively. Lastly, body composition, the proportion of fat and lean mass in the body, significantly impacts how the body functions and its risk for certain diseases.

Balance and Coordination: Balance and coordination are fundamental to physical fitness, particularly in performing physical activities safely and effectively. These attributes are especially important in sports and aging populations, as they help maintain stability and control during movement, thereby enhancing overall physical fitness (Shumway-Cook & Woollacott, 2016). In basketball, players constantly engage in various dynamic movements such as dribbling, passing, shooting, and defending, all of which require precise coordination and balance. The need to dribble the ball while moving at high speeds, quickly change directions, and maintain control of the body while performing athletic maneuvers sharpens the player's hand-eye coordination.

Muscular Strength: Muscular strength is a vital aspect of physical fitness, contributing significantly to an individual's overall health and well-being. It plays a fundamental role in maintaining functional independence, supporting the performance of everyday activities, and preventing injuries, particularly as individuals age. By enhancing overall musculoskeletal health, muscular strength serves as a cornerstone of physical fitness (Mitchell et al., 2012). Basketball, as a high-intensity sport, inherently promotes the development of muscular strength and power. It requires a combination of lower body, upper body, and core strength to perform dynamic movements effectively.

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Muscular Endurance: Muscular endurance is another critical component of physical fitness, playing a key role in athletic performance and enabling individuals to sustain physical activity over extended periods. Muscular endurance refers to the ability of muscles to perform repeated movements or sustain a contraction over a long duration without fatigue (Zatsiorsky & Kraemer, 2006). In basketball, this is particularly important as players must maintain high levels of energy and strength throughout a game, which typically lasts anywhere from 40 to 48 minutes at the professional level, with only brief breaks in between.

Flexibility: Flexibility is a critical component of physical fitness, essential for maintaining a full range of motion in the joints and preventing injuries. It enables the body to perform daily tasks and athletic activities effectively, contributing to overall physical health and the resilience required for an active lifestyle (Behm et al., 2016). Enhanced flexibility allows for a broader range of motion in the joints, reducing the chances of strains and sprains, while strong balance and coordination are essential in preventing falls, especially among older adults (Shumway-Cook & Woollacott, 2016).

Body Composition: Playing basketball is good for body composition. Body composition refers to the proportion of fat and lean mass (such as muscle, bone, and organs) in the body. A healthy body composition significantly impacts how the body functions and its risk for certain diseases, making it a key indicator of fitness and health (Heymsfield et al., 2015). Maintaining a healthy balance between fat and muscle mass is essential for overall fitness, as it influences factors such as metabolism, energy levels, and cardiovascular health.

2. A Systematic Review

A systematic review is a comprehensive, rigorous, and structured method for synthesizing existing research evidence on a well-defined topic or research question. It is widely recognized for its role in evidence-based disciplines, offering high-quality, actionable insights that inform clinical guidelines, policy decisions, and future research priorities. By employing standardized and transparent methods, systematic reviews aim to minimize bias, enhance reliability, and produce reproducible summaries of the best available evidence (Higgins et al., 2022).

Explicit Criteria for Inclusion and Exclusion: First and foremost, systematic reviews are guided by explicit criteria for inclusion and exclusion. Before the review process even commences, a set of predefined eligibility criteria is meticulously developed. These criteria are critical in determining which studies will be considered for inclusion in the review. By establishing these criteria upfront, systematic reviews maintain a systematic and unbiased approach to study selection, ensuring that the studies included are directly pertinent to the research question at hand. This methodical approach to study selection is a hallmark of systematic reviews and is essential for maintaining the integrity of the synthesized evidence.

Comprehensive Search Strategies: Secondly, comprehensive search strategies are a defining feature of systematic reviews. These reviews are not content with merely identifying studies published in mainstream academic journals. Instead, they strive to capture all relevant studies, including those that may be unpublished or found in grey literature. By casting a wide net and searching a broad range of sources, systematic reviews minimize the risk of publication bias, which can skew results towards more positive findings.

Rigorous Appraisal: Rigorous appraisal is another key feature that sets systematic reviews apart. Once studies are selected based on the predefined criteria, they undergo a critical appraisal for methodological quality and risk of bias. This appraisal is not a cursory examination but a thorough evaluation using standardized tools and checklists. Instruments such as the Cochrane Risk of Bias Tool or the Newcastle-Ottawa Scale are commonly employed to assess the internal validity of the studies.

Structured Synthesis: The synthesis of results in systematic reviews is structured and methodical. Unlike narrative reviews, which may provide a more qualitative and less systematic summary of the literature, systematic reviews employ either qualitative or quantitative methods to synthesize their findings. Qualitative methods, such as thematic analysis, can be used to identify patterns and common themes across studies, providing a rich and nuanced understanding of the research question.

In conclusion, systematic reviews are characterized by their explicit criteria for inclusion and exclusion, comprehensive search strategies, rigorous appraisal of included studies, and structured

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synthesis of results. These features collectively contribute to the strength and reliability of the evidence they produce. Systematic reviews are not just a tool for summarizing existing research; they are a meticulous process that ensures the highest standards of evidence are met.

Conceptual Framework

The research title "Systematic Review on The Role of Basketball Training in Enhancing Physical Fitness Among Primary School Students" was designed as follows:

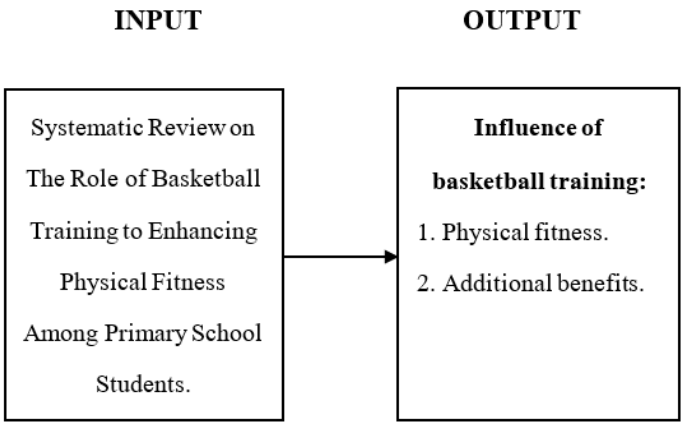

Figure 1 Conceptual Framework

Methodology

According to the population selection criteria, there were a total of 109 articles; 51 articles were excluded (21 articles were not written in English or Chinese, 30 were not research articles, and one was unpublished). The remaining 40 full-text articles were assessed for eligibility, and 32 were excluded (15 articles with unrelated topics, 10 with no intervention, and 7 that did not involve basketball players). Finally, 8 articles were included in the quantitative synthesis.

Research instrument

1. Data extraction form for concluding the data from the related research, from the Cochrane handbook (Higgins et al, 2022), including 4 parts

Part 1: Publication-related information, such as the researcher's name, publication year.

Part 2: Research content, such as the duration of the intervention, the type of intervention.

Part 3: Research methodology, such as the number of samples, the control group, experimental group.

Part 4: Research results, such as physical fitness, mental health, and social health.

Research instrument quality check: The data recording form was created and checked as follows:

1. Study details from documents, textbooks, articles, and related research to be used as information for drafting the data recording form.

2. Submit the draft data recording form to the research project consultant and experts to synthesize the research to check the quality of the content validity and completeness.

3. Modify the data recording form according to the experts' suggestions.

4. Test the data recording form with 1 research report related to basketball training to test the consistency and clarity of the recording form (Inter correlation) between 2 researchers by evaluating the same article. If there is any inconsistency between the 2 researchers, the results will be used to edit the recording form to make it clearer and more complete.

5. Test the data recording form with 1 research report related to basketball training to test the internal validity of the researchers by 2 researchers evaluating the same article twice, with the first and second times approximately 2 weeks apart. If there is any inconsistency between the first and second times, the results will be used to edit the recording form to make it clearer and more complete.

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Data Search: Research reports are searched from many sources, as follows:

1. Web of Science (WOS) database 20 reports
2. Scopus database 28 reports
3. Google Scholar database 61 reports.

Scope of the search:

1. The research report was published abroad from 2015 and 2024.
2. The language used for publication is English only.

Selection and evaluation of research quality:

A team of 2 researchers independently evaluated the quality of the research using the evaluation form. After that, the evaluation results were checked to conclude. If the conclusions were not consistent, the 3rd researcher will jointly consider finding a conclusion. The qualifications of the research report evaluator must be someone who has knowledge of research procedures, statistics used in sports development or basketball training, or physical fitness research, and understands systematic literature reviews.

Data collection

1. The researcher collects data by reading the research that has been evaluated for research quality and records data in each section in the data recording form.

2. Check the accuracy of data collection by comparing the data recording results of 2 researchers to ensure clarity in data recording. If the data is inconsistent, the 3rd researcher considers and discusses it together until the correct conclusion is reached.

Data Analysis

1. Data Organization

Begin by organizing the extracted data into a structured format for analysis. This includes study design, sample demographics, details of the basketball training program, physical fitness outcomes, and study limitations. The data will be entered into spreadsheet software like Excel for efficient management and analysis.

2. Descriptive Statistics

Employ descriptive statistics to summarize the characteristics of the selected studies. This will involve calculating central tendencies (e.g., means) and measures of variability (e.g., standard deviations) to understand the overall trends and patterns in the impact of basketball training on physical fitness.

3. Quality Assessment

Assess the methodological quality of each study using tools like the PEDro scale. This includes evaluating aspects such as randomization, blinding, and follow-up rates to ensure the reliability and validity of the synthesized evidence.

4. Qualitative and Quantitative Synthesis

Qualitative Synthesis: Identify recurring themes and patterns across studies through thematic analysis, such as the impact of basketball training on different aspects of physical fitness.

Quantitative Synthesis: If the data are sufficiently homogeneous, conduct a meta-analysis to calculate pooled effect sizes, providing a quantitative estimate of the overall impact of basketball training on physical fitness.

5. Discussion and Interpretation

Discuss the implications of the findings, limitations, and future research directions based on the analysis. This includes interpreting the size of the effect sizes, potential mechanisms behind training effects, and the generalizability of basketball training outcomes across different settings and populations.

Inclusion Criteria

1. Studies involving healthy primary school students, with no restrictions on their sex, age, or performance level.

2. Research that specifically focuses on basketball training and its effects on physical fitness.

3. The presence of an active control group (If a control group is not present within the study, then the control data would be the baseline measurements taken before the basketball training commenced).

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4. At least one measure of physical fitness (e.g., cardiovascular endurance, muscle strength, height, weight, and agility) both before and after the training intervention.
5. Studies that are randomized controlled trials.

Exclusion Criteria:

1. Research that does not focus on basketball training or physical fitness.
2. Absence of an active control group.
3. Lack of baseline and/or follow-up data.
4. Non-randomized controlled studies.

Results

Part 1: General characteristics of the research

1. Search results

From a systematic review of research from related research reports, there were reports, consisting of research reports 109 articles from the Web of Science (WOS) database 20 reports, 20 reports from the Scopus database 28 reports, and research reports from the Google Scholar database 61 reports. After removing duplicate research from all three databases, there were research reports left 91 to review.

Furthermore, 51 articles were excluded (21 articles not written in English and Chinese, 30 not research articles, and one unpublished). The remaining 40 full-text articles were assessed for eligibility, and 32 were excluded (15 articles with unrelated topics, 10 with no intervention, and 7 that did not involve basketball players). Finally, 8 articles were included in the quantitative synthesis. The number of research reports that were excluded and the reasons for excluding them are shown in Figure 1.

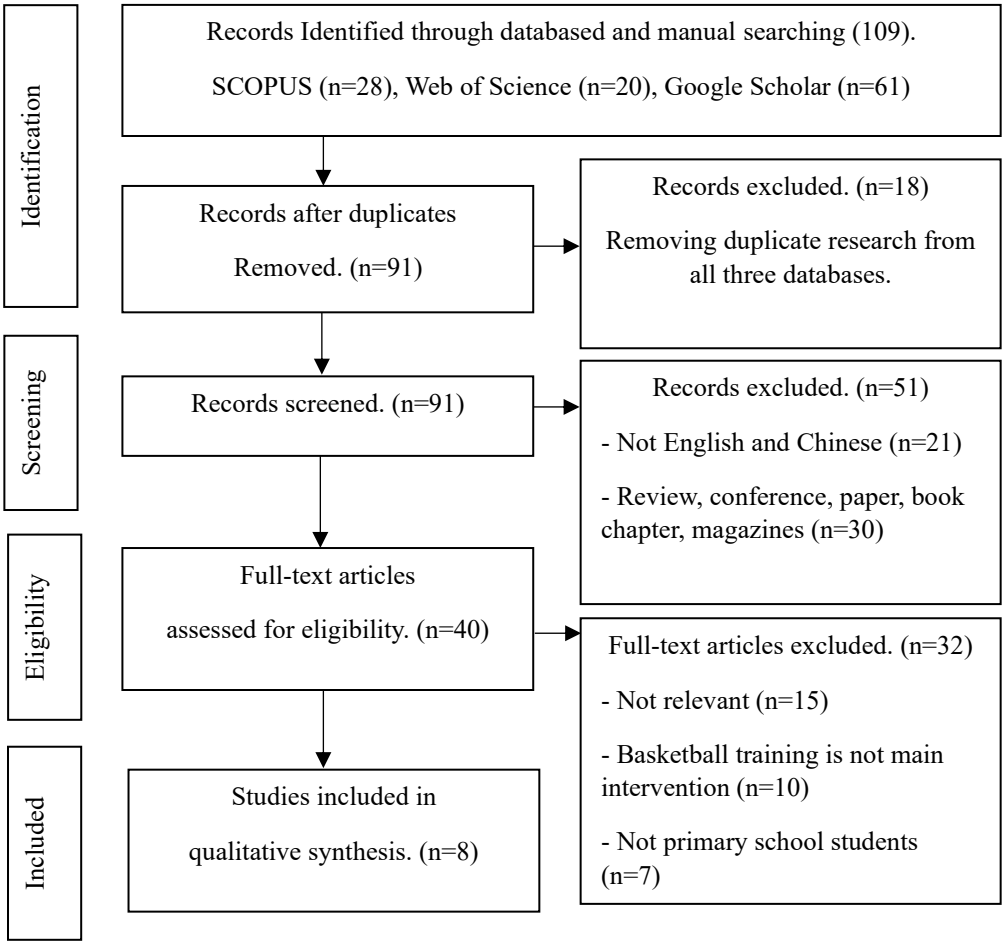

Figure 2 The PRISMA flow chart for the search, screening, and selection strategy for the eligible studies.

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2. Participant characteristics and study design

The participant characteristics of the eight included studies are summarized in Table 1.

Table 1 Breakdown of studies selected for systematic review.

Author	Year	Sample (Control Group)	Sample (Intervention Group)	Duration of Intervention	Type of Intervention	Effects on Physical Fitness
Nikšić et al.	2020	53 fifth-grade students (10-11 years old), regular PE curriculum.	53 fifth-grade students (10-11 years old), modified basketball training including dribbling and passing drills.	4 months (3 times/week)	Integrated basketball activities focusing on ball handling, slalom running, and shooting drills	Improved motor coordination, agility, and ball control. Significant development in situational-motor skills relevant to basketball.
Milenković et al.	2024	64 seventh- and eighth-grade students (13-14 years old), regular PE curriculum.	64 seventh- and eighth-grade students (13-14 years old), basketball drills included in PE classes.	One School Semester	Basketball skills training including dribbling, shooting, and passing exercises integrated into physical education classes	Enhanced speed, agility, and basketball-specific coordination; improved overall quality of life.
Arslan Kabasakal et al.	2024	12 children (7-10 years old) from rural areas with no intervention.	12 children (7-10 years old) from urban areas, participated in basketball balance training sessions.	8 weeks (twice/week)	Basketball training focusing on ball handling, dribbling between cones, passing to targets, and shooting practice	Significant improvements in dynamic and general balance; mitigated decline in static balance during growth spurts.
Yangwan Li et al.	2024	50 first-grade students (6-7 years old), traditional PE curriculum.	50 first-grade students (6-7 years old), basketball footwork training included in PE sessions.	10 sessions	Basketball Mobile Training: Involves a structured program that integrates basketball-specific movements and skills, aiming to enhance agility, coordination, and physical fitness in first-grade students.	Improved running, jumping, and coordination; No difference in BMI index and flexibility.
Olena Mitova et al.	2022	16 6-7-year-old boys (Standard program)	16 6-7-year-old boys (Mini-basketball training)	9 months (108 hours total)	Mini-Basketball Training Sessions: Designed for 6-7-year-old boys, these sessions focus on age-appropriate activities that foster physical development, including coordination, balance, and basic basketball skills.	Significantly better indicators of coordination skills, static balance, sense of time, speed, and strength qualities; Positive effect on physical development indices.
Olena Andriicieva et al.	2020	N/A	148 12-year-old children (Basketball coordination tests)	N/A	Coordination Ability Tests: A series of tests administered to 12-year-old children to assess various aspects of physical fitness, including speed, agility, and balance, while engaging in basketball activities.	Multifaceted development of physical abilities, allowing the development of specific physical qualities without influencing others.
Ding Guangpeng	2017	125 children (7-12 years old), traditional PE curriculum.	124 children (7-12 years old), participated in basketball initiation training.	360 sessions over 1 year	Basketball Initiation Training: A comprehensive program that identifies the sensitive period for basketball training in children aged 7-12, with a focus on developing basketball skills and understanding their psychological and physiological impacts.	Positive impact on children's height and weight development; Improved psychological effects, enhancing children's nature and psychological health.
Sun Kemeng et al.	2023	N/A	15 children (7-9 years old), participated in basketball pace training sessions.	10 weeks	Basketball Pace Training: A 10-week intervention with sessions held three times a week, targeting lower extremity strength, endurance, and flexibility in children aged 7-9. The training includes various drills and exercises that mimic the movements required in basketball games.	No significant effect on waist and abdominal strength and speed quality; Significant impact on lower extremity explosive power and agility; Very obvious influence on lower extremity endurance and flexibility.

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Table 1 summarizes the basketball training interventions aimed at enhancing the physical fitness of primary school students. The interventions included a variety of basketball-related activities such as dribbling (Niksic et al., 2020; Milenkovic et al., 2024; Arslan Kabasakal et al., 2024); passing (Niksic et al., 2020; Milenkovic et al., 2024; Li et al., 2024); shooting (Niksic et al., 2020; Arslan Kabasakal et al., 2024; Li et al., 2024); footwork drills (Niksic et al., 2020; Milenkovic et al., 2024; Li et al., 2024); and integrated into physical education (PE) curricula or as standalone training sessions. The duration of these interventions ranged from a few weeks to a full school semester, with some programs offering multiple sessions per week.

3. Quality assessment using the Pedro scale

A comprehensive evaluation of each study using the Pedro scale is presented in Table 1.

Table 2 Summary of methodological quality assessment scores of all included studies using the Pedro scale.

Criteria	Articles							
	Nikšić et al. (2020)	Milenković et al. (2024)	Arslan Kabasakal et al. (2024)	Li et al. (2024)	Miotove et al. (2022)	Andriieva et al. (2020)	Ding & Sugiyama (2017)	Sun et al. (2023)
1. Eligibility criteria	1	1	1	1	1	1	1	1
2. Randomly allocated	1	1	1	1	1	1	1	1
3. Allocation concealment	0	0	0	0	0	0	0	0
4. Group similar at baseline	1	1	1	1	1	1	1	1
5. Subject blinding	0	0	0	0	0	1	1	1
6. Therapists are blinded	0	0	0	0	0	0	0	0
7. Assessors' blinding	1	1	0	1	1	1	1	0
8. Less than 15% dropouts	1	1	1	1	1	0	1	1
9. Intention to treat analysis	1	1	1	1	1	0	1	1
10. Between-group comparisons	1	1	1	1	1	1	1	1
11. Point measure and variability	1	1	1	1	1	0	1	1
Total score	**7**	**7**	**6**	**7**	**7**	**5**	**8**	**7**

Table 2 presents a comprehensive evaluation of various studies using the Pedro scale, which is a metric for assessing the methodological quality of randomized controlled trials.

Each study was rated based on several criteria, and the total score was calculated out of a possible 10 points. All studies were rated favorably on the Pedro scale, with scores ranging from 5 to 8, representing a comprehensive evaluation of each study that was of moderate to high quality.

Influence of Basketball Training on the Physical Fitness of Primary School Students

Basketball training is a dynamic and comprehensive activity that impacts various dimensions of physical fitness, including balance and coordination, strength and endurance, flexibility, and body composition.

Balance and Coordination: Basketball training significantly improves balance and coordination through activities like dribbling, jumping, and shooting.

Strength and Endurance: Basketball training enhances muscular strength and cardiovascular endurance.

Flexibility: While basketball training contributes to dynamic flexibility, studies showed mixed results regarding significant improvements in static flexibility.

Body Composition: The impact of basketball training on body composition was inconsistent. While short-term interventions showed limited effects on BMI, long-term training demonstrated improvements in lean muscle mass and reduced fat ratios.

The additional benefits of basketball training beyond the physical fitness of primary school students

Psychological and Cognitive Benefits: Basketball training enhances cognitive functions such as decision-making, spatial awareness, and attention.

Social Skills and Teamwork: Basketball training fosters essential social skills, including communication, leadership, and teamwork.

Discussion

The reviewed studies collectively demonstrate that basketball training is a comprehensive intervention for enhancing physical fitness and promoting holistic development in primary school students. The findings are consistent with the broader literature on the benefits of sports participation and physical activity (Malina, 2010; Strong et al., 2005). However, the study also highlights the need for long-term interventions and the importance of integrating basketball training into school curricula to achieve sustained benefits.

Influence of basketball training on balance and coordination: Basketball training significantly improves balance and coordination in primary school students. Activities such as dribbling, shooting, and navigating the court enhance proprioception and spatial awareness. The

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dynamic movements involved in basketball, such as cutting, pivoting, and jumping, improve balance and overall motor coordination (Nikšić et al., 2020; Milenković et al., 2024). These findings are supported by Shumway-Cook & Woollacott (2016), who emphasized the importance of balance and coordination in physical fitness.

Influence of basketball training on strength and endurance: Basketball training enhances both muscular strength and cardiovascular endurance. The high-intensity nature of the sport, involving activities like sprinting, jumping, and defending, contributes to increased lower-body strength and aerobic capacity (Ben Abdelkrim et al., 2010). Additionally, the sport stimulates the growth of fast-twitch muscle fibers, improving explosive strength and endurance (Suchomel et al., 2018). These findings align with the broader literature on the benefits of high-intensity sports for physical fitness (Andersen et al., 2006).

Influence of basketball training on flexibility: Basketball training positively influences flexibility, particularly in the lower body and core. Dynamic movements such as lunges, pivots, and deep squats increase joint mobility and flexibility (Cumps et al., 2007). However, some studies reported mixed results, suggesting that additional stretching exercises may be necessary to achieve significant improvements in flexibility (Behm et al., 2016)

Influence of basketball training on body composition: Basketball training contributes to favorable changes in body composition. Regular engagement in the sport, which combines cardiovascular exercise and strength training, is linked to reductions in body fat percentage and improvements in lean muscle mass (Kriemler et al., 2011). Long-term participation in basketball training can lead to a healthier body composition by promoting muscle development and caloric expenditure (Latino & Tafuri, 2023).

Influence of basketball psychological and cognitive functions: Basketball training provides substantial benefits to psychological and cognitive functions. It improves concentration, problem-solving skills, and decision-making abilities (Reiner et al., 2013). The mental challenges of reading the game, making quick decisions under pressure, and executing complex plays enhance cognitive flexibility. Additionally, the social interaction in team settings contributes to emotional regulation, stress management, and the development of resilience (Biddle & Asare, 2011).

Influence of basketball training on social skills and teamwork: Basketball training significantly enhances social skills and teamwork abilities in primary school students. Through collaborative gameplay, students learn important skills such as communication, trust, conflict resolution, and leadership (Eime et al., 2013). Working in teams and participating in competitive activities also helps students build a sense of camaraderie and belonging, which positively impacts their social development and interpersonal relationships.

Recommendations

Recommendations for the application of research results

1. Develop Comprehensive Guidelines for Implementing Basketball Training Programs in Primary Schools.
2. Conduct Assessments of School Facilities and Resources.
3. Provide Additional Support to Schools with Limited Resources.
4. Incorporate Basketball Training into School Curricula.
5. Implement Regular Evaluation and Feedback Mechanisms.
6. Provide Professional Development for Teachers and Coaches.

Recommendations for future study

1. Longitudinal Studies on the Impact of Basketball Training.
2. Explore the Impact of Basketball Training on Academic Performance.
3. Develop and Test Age-Appropriate Basketball Training Models.
4. Examine the Role of Basketball Training in Reducing Sedentary Behavior.
5. Investigate the Social and Emotional Benefits of Basketball Training.
6. Assess the Feasibility of Integrating Basketball Training with Other Physical Activities.

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