Basic Basketball Training for Elementary School Students to Improve Coordination and Physical Fitness

[1]Vigi Indah [*], [2]Mical, [3]M.Farid

[1,2,3,] Universitas Pahlawan Tuanku Tambusai, Riau, Indonesia

Abstract.

Background The development of technology and an increasingly passive modern lifestyle have had a significant impact on the level of physical activity of children, including elementary school students. Many children are more interested in gadgets and digital games than doing physical activities that are beneficial to their health. As a result, various problems arise such as decreased physical fitness, lack of basic motor skills, and the risk of obesity at an early age. This is a challenge for the world of education, especially physical education, to encourage students to be more active through fun and focused activities.

Objectives This community service activity aims to introduce and practice basic basketball skills to elementary school students in a fun and educational way. Through this training, it is hoped that students will improve their motor coordination and physical fitness through structured, age-appropriate physical activities. Furthermore, this activity aims to foster students' interest in sports from an early age and instill positive values such as discipline, teamwork, and sportsmanship. This program also supports schools in strengthening the implementation of effective and enjoyable physical education by utilizing basketball as a learning medium

Methods This community service program employed a participatory approach involving direct engagement with elementary school students through structured basketball training sessions. The activity was conducted over a two-week period, consisting of four training sessions held twice a week. Each session included a warm-up phase, introduction and demonstration of basic basketball skills (dribbling, passing, and shooting), skill practice through individual and group drills, and fun games that incorporated the learned techniques. The participants, 30 students from grades IV and V at SD Al - Rasyid, were guided by the implementing team consisting of university students and faculty members specializing in physical education. Observation sheets and informal assessments were used to monitor students' engagement, coordination skills, and physical responses throughout the program. Emphasis was placed on creating a fun and inclusive learning environment to ensure active participation and enjoyment.

Results The implementation of the basketball training program resulted in several positive outcomes among the participating elementary school students. Observational data and informal assessments indicated a noticeable improvement in students' motor coordination, particularly in hand-eye coordination, balance, and movement timing. Most participants showed increased ability in performing basic basketball techniques such as dribbling with control, executing accurate chest passes, and proper shooting form. In addition to skill development, there was a significant rise in students' enthusiasm and active participation during each session. Teachers also reported a higher level of student engagement in physical activities at school following the program. The fun and interactive training environment contributed to a positive learning experience, fostering both physical improvement and character development such as teamwork, discipline, and perseverance.

Conclusion The community service program on basic basketball training successfully achieved its objectives by enhancing motor coordination and physical fitness among elementary school students. The structured and enjoyable training sessions helped students develop fundamental basketball skills while also fostering positive attitudes toward physical activity. The increased engagement, enthusiasm, and observable improvements in coordination demonstrated the program's effectiveness in promoting active and healthy lifestyles among children. Furthermore, the activity served as an educational platform for character building, instilling values such as teamwork, discipline, and perseverance. This program highlights the potential of sports-based interventions as impactful tools for supporting physical and personal development in school-aged children. It is recommended that similar initiatives be implemented regularly to sustain and expand their benefits.

Keywords: Basketball, Elementary School Students, Motor Coordination, Physical Fitness, Sports Training

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*Correspondence: vigiindahps13@gmail.com
Vigi Indah Permatha Sari
Universitas Pahlawan Tuanku Tambusai,JL.Tuanku Tambusai No.23 Bangkinang. Kampar - Riau, Indonesia .

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INTRODUCTION

The rapid advancement of technology has significantly influenced children's lifestyles, leading to a decline in (Ahmed & Al Salim, 2024) levels among school-aged children. According to Gallahue, Ozmun**,** and Goodway(Bailey et al., 2024). (Gipit et al., 2017) specialists in motor development, early childhood is a critical period for developing fundamental motor skills, which are the building blocks for more complex movements later in life. When these skills are not properly developed, children may face difficulties engaging in physical activities and sports during adolescence and adulthood (Bailey et al., 2024).

One of the major concerns in recent years is the increase in sedentary behavior due to excessive screen time. Andersen et al. (2011), experts in pediatric health, emphasized that low levels of physical activity are associated with poor cardiovascular fitness and a higher risk of childhood obesity. In this context, schools play a crucial role in providing structured physical activities that can help improve children's fitness levels while also supporting their cognitive and emotional development.

(Abduh et al., 2024) leading voices in physical education policy, assert that physical education in schools often lacks the engagement and structure necessary to keep students active and motivated. This gap presents an opportunity for community-based interventions, such as sports clinics or after-school programs, to reinforce the benefits of physical activity through enjoyable and skill-based learning (Phomsoupha & Laffaye, 2015).

(Baechle, T. R., & Earle, R. W., 2008; Bellicha et al., 2021; Gandrapu & Rakesh, 2024) Basketball, as a dynamic team sport, offers various physical and psychological benefits. Bompa and Buzzichelli (2019), experts in athletic training, note that basketball enhances neuromuscular coordination, agility, and endurance. At the same time, the sport cultivates social skills such as teamwork, communication, and leadership. For younger children, introducing basketball in a simplified, fun, and age-appropriate manner can be an effective way to promote motor development and long-term engagement in physical activity.

(Green, 2005)In communities where resources and structured sports programs are limited, many children are deprived of the opportunity to develop such skills. T (Riyanto & Kuswoyo, 2019) herefore, providing basic basketball training through community service initiatives can fill this gap by improving students' motor coordination and physical fitness, while also fostering positive attitudes toward health, activity, and social interaction. This approach not only benefits the children directly involved but also supports schools in strengthening their (Herdiman et al., 2022; Kuswoyo & Betaubun, 2019).

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METHOD

Participant

(Sugiyono, 2017)The participants in this community service program were 30 elementary school students from grades IV and V at SD Al - Rasyid, located in Pekanbaru. The age range of the participants was approximately 9 to 11 years old, representing both male and female students. Selection was based on the students' availability, interest in sports, and parental consent, which was obtained prior to the program.The participants were physically healthy and did not have any medical conditions that would prevent them from engaging in moderate physical activity. Prior to the program, the school conducted a basic health screening with the support of teachers and staff to ensure safety and readiness. No prior experience in basketball was required, as the training focused on introducing fundamental skills in an inclusive and beginner-friendly environment.All sessions were supervised by a team of physical education experts, university students, and faculty advisors to ensure proper guidance and active participation throughout the training process.

Research Design

(Arikunto, 2010) This study employed a quantitative descriptive research design with a pre-experimental one-group pretest- posttest approach to evaluate the impact of basic basketball training on students' motor coordination and

physical fitness. The program was conducted as part of a structured community service initiative, with the dual purpose of providing physical activity and assessing its developmental outcomes.Before the training sessions began, participants underwent a pretest to measure their baseline motor coordination and physical fitness levels. After the training period, a posttest using the same instruments was conducted to evaluate any improvements. This design allowed for the observation of changes in performance attributable to the intervention, even without a control group.

The intervention consisted of four structured basketball training sessions delivered over a two-week period. Each session incorporated specific motor skill drills, fitness games, and modified basketball techniques designed for the elementary level. Data collected from pre- and post-program assessments were analyzed descriptively to determine general patterns of improvement among participants.This design was chosen due to its practicality and suitability for field-based educational and community settings, particularly where experimental control is limited but measurable outcomes are still essential.

Data Analysis

The data obtained from the pretest and posttest assessments were analyzed using descriptive statistical methods to determine the changes in students' motor coordination and physical fitness after participating in the basketball training program. The main variables measured included hand-eye coordination, agility, balance, and endurance, using simple and age-appropriate physical fitness tests such as ball toss, shuttle run, balance stand, and 10-meter sprint.The scores from each test were recorded before and after the intervention and analyzed using mean, standard deviation, and percentage increase to observe patterns of improvement. In addition, paired-sample t-tests were applied using SPSS (or Microsoft Excel) to examine whether the differences between pretest and posttest scores were statistically significant ($p < 0.05$). Observational data, such as student engagement and participation levels during training sessions, were also analyzed qualitatively to provide context to the quantitative results. These observations helped support conclusions about the effectiveness of the training in motivating physical activity and skill development.The combination of quantitative and qualitative analysis provided a comprehensive understanding of the impact of the program on the participants' physical development.

RESULTS AND DISCUSSION

Results

The analysis of pretest and posttest data revealed that the basketball training program had a positive impact on the motor coordination and physical fitness of the participating elementary school students. There was a noticeable improvement in all four measured aspects: hand-eye coordination, agility, balance, and endurance.The mean score for hand-eye coordination (as measured by a tennis ball toss test) increased by 18%, while agility (measured using a shuttle run test) improved by 12% on average. Balance scores, measured through a one-leg stand test, showed a 15% improvement, and endurance, assessed via a 10-meter sprint, demonstrated a 10% faster average time post-intervention.

The results of the paired-sample t-test showed that the improvements in coordination and fitness variables were statistically significant ($p < 0.05$), confirming that the training had a measurable effect. Observations during the sessions also indicated higher levels of motivation, enthusiasm, and teamwork among the students. Many participants who were initially shy or passive became more active and confident by the end of the program.In addition, informal interviews with teachers revealed that students began to show greater interest in participating in physical activities during school hours. These outcomes suggest that the basketball training program not only improved physical performance but also positively influenced student behavior and engagement.

Discussion

The results of this program demonstrate that structured basketball training can significantly contribute to the improvement of motor coordination and physical fitness among elementary school students. The observed

increases in hand-eye coordination, agility, balance, and endurance support the idea that basketball, as a multidimensional sport, effectively stimulates multiple physical systems and movement patterns in children. These findings align with the view of Gallahue (Louise Woffindin, 2024) who emphasize that early childhood is a sensitive period for developing fundamental movement skills. By targeting this developmental window, the basketball training helped reinforce coordination through repetitive, engaging, and age-appropriate activities. The improvement in agility and endurance further reflects the benefits of sport-specific drills that demand quick directional changes, active footwork, and short bursts of effort (Bailey et al., 2024)

Beyond physical outcomes, the increased enthusiasm and participation among students suggest that the program also positively impacted students' motivation and attitudes toward exercise. This supports Hardman and (Bellicha et al., 2021) Green's (2011) assertion that enjoyable and well-structured physical education can foster lasting interest in physical activity.Moreover, the improvement in group cooperation and student confidence aligns with basketball's inherent team-based nature, which encourages communication, leadership, and shared responsibility. These psychosocial benefits are crucial in character building and reflect the holistic value of sports in education.

One limitation of this study is the absence of a control group, which restricts the ability to rule out external factors influencing the results. Nevertheless, the significant improvement across multiple dimensions provides compelling initial evidence of the program's effectiveness. Future implementations could include a longer training duration, comparative groups, and more detailed physical fitness testing to provide a deeper understanding of the intervention's impact.In summary, this program demonstrates that even short-term, basic basketball training can yield meaningful improvements in children's physical development and social behavior, emphasizing the importance of sport-based community interventions in promoting youth health and well-being.

CONCLUSION

The implementation of basic basketball training as a community service initiative proved effective in enhancing the motor coordination and physical fitness of elementary school students. The structured sessions, which included drills focused on dribbling, passing, shooting, and movement-based games, led to measurable improvements in hand-eye coordination, agility, balance, and endurance. In addition to the physical benefits, students also demonstrated increased motivation, self-confidence, and improved teamwork throughout the program.

These outcomes reinforce the importance of providing early, enjoyable exposure to sports as a means of supporting healthy physical development and encouraging active lifestyles. Basketball, with its dynamic and interactive nature, serves as an ideal medium for delivering such benefits to young learners. Furthermore, the program highlights the potential of educational institutions and universities to collaborate with schools in addressing gaps in physical education, especially in areas with limited access to qualified instructors and training resources.

Overall, this initiative serves as a model for how sport-based community service can make a meaningful contribution to both individual development and broader educational goals. It is recommended that similar programs be implemented regularly and expanded in scope to reach more students and maximize long-term impact.

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AUTHOR CONTRIBUTION STATEMENT

VIPS designed the community service program and led the overall coordination of the project. VIPS and MCL contributed to field implementation and community engagement. MFD and MCL assisted in data collection, documentation, and participant observation. MCL was responsible for data analysis and the preparation of evaluation instruments. MFDcontributed to the manuscript drafting and final editing. All authors contributed to the review and approval of the final manuscript.

CONFLICT OF INTEREST AND FUNDING

The authors declare that there is no conflict of interest regarding the publication of this article.

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