Enhancing Physical Fitness Through Jump Rope Training for Palu Putra FC Football Players

[1]Kamarudin*, Hendrik Mentara[2], Nyoman Sukrawan[3], Muhammad Agusman[4], Tesa Alex Suhendra[5]

[1,2,3,4,5]Universitas Tadulako, Palu, Indonesia

Abstract.

Background Physical fitness plays a crucial role in football performance, enabling athletes to maintain endurance, reduce injury risks, and optimize game strategies. However, monotonous training routines can decrease player motivation, as observed in Palu Putra FC. Jump rope training offers a simple, low-cost, and engaging alternative to improve cardiovascular endurance, muscle strength, agility, and coordination.

Objectives This study aimed to evaluate the effectiveness of jump rope games as a training method to enhance the physical fitness of Palu Putra FC football players.

Methods A two-day training program was implemented on June 21–22, 2025, involving 22 football players. The intervention combined group and individual jump rope exercises, focusing on endurance, leg muscle strength, agility, and coordination. Physical fitness was assessed through pre- and post-tests, and player satisfaction was measured using questionnaires.

Results Nineteen players (86.4%) showed significant improvements in physical fitness indicators, while three players (13.6%) recorded no notable progress due to fatigue, technical limitations, or incomplete attendance. Participant satisfaction was high, with 21 players (95.5%) reporting the program as effective, enjoyable, and beneficial.

Conclusion Jump rope training is an effective, engaging, and low-cost method to enhance football players' physical fitness. Incorporating such training into regular routines can improve endurance, strength, agility, and coordination while sustaining player motivation.

Keywords: Physical Fitness, Jump Rope Training, Football Performance, Sports Conditioning.

Received: August 01, 2025. Accepted: August 08, 2025

*Correspondence:kamarudin@untad.ac.id
kamarudin
Universitas Tadulako, Palu, Indonesia

How to Cite: Kamarudin, Mentara, H., Sukrawan, N., Agusman, M., & Suhendra, T. A. (2025). Enhancing physical fitness through jump rope training for Palu Putra FC football players. *Nusantara Journal of Community Service (NJSC)*, *1*(3), 47–51. Universitas Tadulako, Palu, Indonesia.

INTRODUCTION

Physical fitness is a fundamental requirement for optimal football performance, influencing both athletic capacity and long-term health outcomes. Low fitness levels during adolescence can persist into adulthood, increasing the risk of chronic diseases such as cardiovascular disorders and obesity (Howley & Franks, 2019). In football, well-developed physical fitness enables players to sustain high-intensity activity, recover quickly, reduce injury risk, and maintain tactical execution throughout the match (Chabibi Arif et al., 2021).

Football is a sport that demands a combination of aerobic and anaerobic endurance, agility, muscular strength, and coordination. Players are required to sprint, change direction rapidly, and maintain physical output for extended periods. However, traditional conditioning programs often rely on repetitive drills, which can reduce motivation and limit training effectiveness, as observed among the young players of Palu Putra FC. These players possess potential and talent, yet their physical conditioning levels vary considerably, necessitating the adoption of training methods that are both effective and engaging.

Jump rope training, often perceived as a recreational activity for children, is in fact a proven form of cardiovascular exercise that improves endurance, agility, and coordination (Yang et al., 2020). It engages multiple muscle groups, enhances balance, and promotes neuromuscular efficiency, making it relevant for football performance. Studies have shown that jump rope exercises significantly improve cardiorespiratory

capacity, lower resting heart rate, and increase muscular strength in both upper and lower body segments (Singh et al., 2022; Zhao et al., 2023).

Moreover, jump rope training is cost-effective, easy to implement, and adaptable to both individual and group settings. It can be structured as an interactive game, thereby enhancing player motivation while delivering physical benefits (Yusroni et al., 2019). Incorporating such activities into regular football training not only addresses the monotony of conventional conditioning programs but also supports the development of key fitness components such as muscular endurance, agility, and coordination, which are vital in competitive football (Turgut et al., 2016).

Given these benefits, this study introduces jump rope games as an alternative conditioning method for Palu Putra FC players. The program was designed to improve players' physical fitness while maintaining high levels of engagement and motivation.

METHOD

Participant

The study involved 22 male football players from Palu Putra FC, aged 17–23 years, all of whom were active members of the club with at least one year of structured football training experience. Players with recent musculoskeletal injuries or medical conditions that could limit physical activity were excluded. Participation was voluntary, and all players provided informed consent before joining the program.

Research Design

This was an intervention-based study conducted on 21–22 June 2025 as part of a community service program. The intervention consisted of structured jump rope training sessions implemented in both group and individual formats. Each 90-minute session comprised three phases:

1. Warm-up – dynamic stretching and light jogging (10 minutes).
2. Main Session – jump rope drills targeting cardiovascular endurance, leg muscle strength, agility, and coordination (60 minutes). Drills included single bounce, alternate foot step, double unders, and agility-focused jumps.
3. Cool-down – static stretching to promote recovery (10 minutes).

The implementation followed four stages: initial field survey, socialization of program objectives, execution of the training sessions, and evaluation/monitoring of progress.

Data Analysis

Physical fitness was evaluated using pre- and post-test measurements focusing on endurance, leg strength, agility, and coordination. Data were analyzed descriptively, with results expressed as percentages representing the proportion of participants who demonstrated improvement. Player satisfaction levels were assessed using a structured questionnaire, and responses were categorized as "very satisfied," "satisfied," or "needs improvement."

RESULTS AND DISCUSSION

Results

he jump rope training program was attended by all 22 participants over the two-day intervention period. Analysis of the pre- and post-test results indicated notable improvements in multiple components of physical fitness.

Physical Fitness Improvements

Nineteen participants (86.4%) demonstrated measurable gains in endurance, leg muscle strength, agility, and coordination after completing the training. Three participants (13.6%) did not show significant improvement, primarily due to fatigue, technical limitations, or incomplete participation in all training sessions.

Table 1. Summary of Physical Fitness and Satisfaction Outcomes

Outcome Measure	Improved (n, %)	No Improvement (n, %)
Physical fitness	19 (86.4%)	3 (13.6%)
High satisfaction rating	21 (95.5%)	1 (4.5%)

Participant Satisfaction

A majority of the players (n = 21, 95.5%) rated the program as "very satisfying," citing the enjoyable nature of the activities and the perceived benefits to their physical conditioning. One participant (4.5%)

reported being “satisfied” but suggested extending the duration and introducing more variations in the jump rope drills.

Observational Findings

During the sessions, players displayed increased motivation and engagement compared to their regular conditioning routines. Group-based jump rope games fostered team spirit, while individual drills allowed for skill refinement and personal challenge.

Figure 1. Jump Rope Training Session

Figure 2. Jump Rope Training Session

Discussion

The results of this study demonstrate that jump rope training is an effective and engaging method for improving multiple components of physical fitness in football players, particularly endurance, leg strength, agility, and coordination. The improvement observed in 86.4% of participants aligns with previous findings that structured jump rope programs can significantly enhance both health-related and sport-specific fitness (Singh et al., 2022; Zhao et al., 2023).

The high rate of participant satisfaction (95.5%) also supports the motivational advantage of incorporating game-based training formats. Traditional conditioning drills, while effective, often become repetitive and lead to reduced athlete engagement over time (Chabibi Arif et al., 2021). By integrating competitive and cooperative jump rope games, the present intervention provided a novel training stimulus that sustained attention, fostered team spirit, and encouraged active participation.

Physiologically, jump rope training is classified as a functional exercise that engages both aerobic and anaerobic energy systems. The repeated jumping movements require rapid stretch–shortening cycles, which enhance lower-limb muscular power and improve neuromuscular coordination (Bompa & Haff, 2009).

Additionally, the rhythmic nature of jump rope drills trains balance, footwork, and reaction time, all of which are essential skills for football performance.

The findings are consistent with previous research by Yang et al. (2020), which reported that school-aged participants who engaged in regular jump rope training experienced notable improvements in cardiovascular endurance and motor coordination. Similarly, Turgut et al. (2016) found that both weighted and standard jump rope protocols enhanced agility and lower-limb strength in adolescent athletes.

However, it is noteworthy that 13.6% of participants did not exhibit significant improvements. This may be attributed to incomplete attendance, inadequate recovery between sessions, or limited technical proficiency in jump rope execution. These factors highlight the importance of individualized load management and progressive skill development within jump rope training programs.

From a practical standpoint, the low-cost and easily implementable nature of jump rope training makes it particularly suitable for community-level and youth football teams. Coaches can adapt the intensity, duration, and complexity of drills to meet the specific needs of their athletes while maintaining a high level of engagement. Future studies could explore the long-term effects of integrating jump rope training into regular football conditioning schedules and compare its efficacy with other functional training modalities.

CONCLUSION

This study confirms that jump rope training is an effective, engaging, and low-cost method for improving physical fitness among football players. The intervention significantly enhanced endurance, leg muscle strength, agility, and coordination in the majority of participants, while also generating a high level of player satisfaction. Incorporating jump rope drills—both individually and in group formats—into regular football training routines can sustain athlete motivation and contribute to better on-field performance. Future research should investigate the long-term impact of such training and its integration with other sport-specific conditioning methods.

ACKNOWLEDGMENT

The authors would like to express their gratitude to the Rector of Tadulako University and the Dean of the Faculty of Teacher Training and Education (FKIP) of Tadulako University for their financial support in carrying out this community service program. The authors also extend their sincere and heartfelt appreciation to Palu Putra FC for their willingness to collaborate in the implementation of this activity.

AUTHOR CONTRIBUTION STATEMENT

All authors contributed substantially to the conception, design, execution, and reporting of this study. Kamarudin led the program design and coordinated the implementation of the jump rope training. Hendrik Mentara conducted field observations and assisted in data collection. Nyoman Sukrawan delivered the physical fitness training sessions. Muhammad Agusman provided football-specific coaching in alignment with the training principles. Teza Alex Suhendra carried out monitoring and evaluation procedures. All authors participated in data analysis, contributed to the drafting and revision of the manuscript, and approved the final version for submission.

CONFLICT OF INTEREST AND FUNDING

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

REFERENCES

Bompa, T., O., & Carrera, M. (2005). *Periodization Training for Sports*. Human Kinetics.

Bompa, T., O., & Haff, G., G. (2009). *Periodization: Theory and Methodology of Training*. Human Kinetics.

Chabibi Arif, A., Maksum, A., & Kristiyandaru, A. (2021). The Effect of Daily Physical Activity on Increasing Physical Fitness and Academic Achievement of Elementary School. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, *4*(2), 964–974. https://doi.org/10.33258/birle.v4i2.2082

Howley, E., T., & Franks, B. D. (2019). *Health Fitness Instructor's Handbook.* Human Kinetics.

Irianto, J., P. (2004). *Pedoman Praktis Tes dan Pengukuran Kebugaran Jasmani*. Andi Offset.

Mentara, H., Rejeki, H. S., Kamarudin, K., Kungku, C., & Kandupi, A. D. (2023). Pelatihan Kebugaran Jasmani Masyarakat Melalui Olahraga Panahan di Klub Rejeki Archery Kota Palu. *Panrannuangku Jurnal Pengabdian Masyarakat*, *3*(4), 138–141. https://doi.org/10.35877/panrannuangku2386

Nugroho, R. A., & Gumantan, A. (2020). Pengaruh Latihan Plyometricterhadap Peningkatan Kemampuan Vertical Jump Peserta Ekstrakurikuler Bola Basket SMAN 1 Pagelaran. *Sport Science and Education Journal*, *1*(1).

Singh, U., Ramachandran, A. K., Ramirez-Campillo, R., Perez-Castilla, A., Afonso, J., Manuel Clemente, F., & Oliver, J. (2022). Jump rope training effects on health- and sport-related physical fitness in young participants: A systematic review with meta-analysis. *Journal of Sports Sciences*, *40*(16), 1801–1814. https://doi.org/10.1080/02640414.2022.2099161

Turgut, E., Çolakoğlu, F. F., Atalay Güzel, N., Karacan, S., & Baltacı, G. (2016). Effects of Weighted Versus Standard Jump Rope Training on Physical Fitness in Adolescent Female Volleyball Players: A Randomized Controlled Trial. *Türk Fizyoterapi ve Rehabilitasyon Dergisi*, *27*(3), 108–108. https://doi.org/10.21653/tfrd.286776

Yang, X., Lee, J., Gu, X., Zhang, X., & Zhang, T. (2020). Physical Fitness Promotion among Adolescents: Effects of a Jump Rope-Based Physical Activity Afterschool Program. *Children*, *7*(8), 95. https://doi.org/10.3390/children7080095

Yusroni, Moch., Syam T, A. R., & Khamidi, A. (2019). The Effect of Individual and Group Jump Rope Games on Physical Fittnes and Motivation. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, *2*(4), 648–652. https://doi.org/10.33258/birle.v2i4.682

Zhao, Q., Wang, Y., Niu, Y., & Liu, S. (2023). Jumping Rope Improves the Physical Fitness of Preadolescents Aged 10-12 Years: A Meta-Analysis. *Journal of Sports Science and Medicine*, 367–380. https://doi.org/10.52082/jssm.2023.367