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A Comparative Analysis of the Effects of Plyometric Training on the Psychological Well-Being and Self-Confidence of Adolescent Athletes

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ABSTRACT

This study explored the subjective experiences of adolescent athletes regarding the role of plyometric training in shaping psychological well-being and self-confidence. The study used a qualitative phenomenological approach involving 15 adolescent athletes aged 13 to 17 years from two sports academies in Jakarta and Bandung. Data were collected through semi-structured interviews, participatory observation, and training journal documentation over six months. The findings showed that plyometric training strengthened athletes' perceptions of physical competence, increased self-confidence, and supported emotional regulation during training and competition. Participants reported that repeated mastery experiences, visible progress, and constructive feedback from coaches encouraged them to take greater initiative, manage competitive anxiety, and maintain motivation. The study also found that social support from coaches and peers played an important role in creating a psychologically safe training environment. These findings indicate that plyometric training has value beyond physical performance improvement. It can support holistic adolescent athlete development when combined with positive coaching, reflective practice, and supportive team interaction. The study contributes to sports education and sports psychology by highlighting the subjective meaning of training experiences in the development of self-confidence, motivation, and psychological well-being among adolescent athletes.

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1. Introduction

Attention to the mental health and psychological development of adolescent athletes is growing in the context of modern sports, both globally and nationally. Research shows that participation in structured training programs not only impacts physical fitness but also influences psychological well-being, including motivation and emotional regulation. Hammami, Hammami, and Mahmoudi (2025) found that plyometric training, which emphasizes explosive movements and muscle strengthening, can improve both physical performance and the self-confidence of young athletes. Additionally, Widiyawanti and Wahyudi (2025) emphasize that progressive experiences in training can motivate athletes to continue participating and develop their personal competencies. Merlin, Vacher, and Martinent (2024) add that athletes' personal perceptions of

training success play a crucial role in shaping long-term self-confidence. Ahsan, Ali, and Alhusayni (2025) also report that plyometric interventions support mental well-being through increased self-efficacy. These findings suggest that plyometric training does not merely improve physical performance but also shapes complex psychological experiences for adolescents(Mudayat, 2026).

In Indonesia, attention to the psychological well-being of adolescent athletes remains relatively limited. Observations at sports academies reveal that many athletes face high competitive pressure, which can lead to stress and reduce motivation to participate. Saha, Khati, and Pepe (2025) demonstrate that structured training combined with psychological strategies can help athletes manage anxiety and boost self-confidence. Forelli, Moiroux-Sahraoui, and Nielsen-Le Roux (2024) emphasize the importance of balancing physical demands with psychological support to optimize the training experience. Ziyan, Ali, and Fransazeli (2025) report that athletes receiving additional psychological guidance show significant improvements in emotional regulation. Badve, Varadharajan, and Govindasamy (2025) add that training programs integrated with psychological strategies enhance adolescents' mental well-being. This underscores that physical and psychological success are interrelated, so the mental aspect must be an integral part of training programs.

Previous quantitative studies have shown a positive relationship between plyometric training and improved self-confidence and emotional regulation. Jiang, Sun, and Yu (2024) reported that adolescent athletes who participated in plyometric training experienced improved focus, self-control, and self-confidence, which impacted their competitive performance. Hammami, Selmi, and Mahmoudi (2025) added that this training helps athletes cope with competitive pressure and reduce pre-competition anxiety. Ma (2025) found that plyometric training influences psychological development through repeated experiences of success. Merlin, Vacher, and Martinent (2024) emphasize that a qualitative approach is necessary to understand the meaning of athletes' subjective experiences and the psychological mechanisms that emerge during training. Also demonstrates that training programs integrating physical and psychological aspects are more effective in building long-term self-confidence.

This gap in the literature is significant from the perspectives of physical education and sports psychology. Moeskops, Oliver, and Read (2022) emphasize that athletes' subjective experiences determine the effectiveness of training, particularly regarding motivation and self-confidence. Widiyawanti and Wahyudi (2025) add that positive experiences during training help enhance self-efficacy and satisfaction with personal achievements. Martínez-Gallego and Sánchez-Alcaraz (2024) demonstrate that integrated training can strengthen athletes' psychological adaptation, while Blanco-Ariza and Reigal-Garrido (2024) emphasize the importance of psychological strategies such as visualization. Using a qualitative approach, this study aims to provide an in-depth understanding of how plyometric training shapes the psychological development and self-confidence experiences of adolescent athletes.

Furthermore, previous research indicates that although athletes experience improved physical performance, they remain vulnerable to stress and mental fatigue due to competitive pressures and high training demands (Ramadan et al., 2025). Forelli, Moiroux-Sahraoui, and Nielsen-Le Roux (2024) emphasize that an imbalance between physical demands and psychological support can affect mental well-being. Badve, Varadharajan, and Govindasamy (2025) assert that without psychological intervention, improved physical performance is not always accompanied by increased self-confidence. Syaikhu et al. (2025)underscore the need for a qualitative approach to explore athletes' internal experiences, including coping strategies and emotional adaptation, to make training programs more holistic. adds that subjective experiences also play a role in athletes' long-term motivation.

Focusing on the subjective experiences of adolescent athletes has broad practical implications, particularly for coaches and sports educators (Febrianta et al., 2025). Saha, Khati, and Pepe (2025)

demonstrate that integrating psychological strategies such as self-reflection and visualization can enhance self-confidence, emotional regulation, and long-term motivation. Merlin, Vacher, and Martinent (2024) emphasize that understanding athletes' subjective experiences helps design training programs that balance physical performance and mental well-being. Hammami, Selmi, and Mahmoudi (2025) add that a holistic approach fosters more meaningful learning experiences for athletes, increases participation, and supports comprehensive psychological development.

Against this backdrop, this study aims to explore the subjective experiences of adolescent athletes regarding the effects of plyometric training on psychological well-being and self-confidence (Okilanda et al., 2024). Hammami, Hammami, and Mahmoudi (2025) underscore the importance of examining athletes' personal perceptions to understand the psychological mechanisms underlying increased self-confidence. Widiyawanti and Wahyudi (2025) add that exploring subjective experiences can identify effective coping strategies, while Saha, Khati, and Pepe (2025) emphasize that the study's findings are expected to provide practical contributions to the design of holistic, balanced, and adaptive training programs.

2. Materials and Methods

This study employs a qualitative phenomenological approach, which emphasizes understanding individuals' subjective experiences. This approach was chosen because the research focuses on the meaning of adolescent athletes' experiences during plyometric training, including their perceptions of changes in self-confidence, motivation, and psychological well-being. Creswell and Poth (2018) state that phenomenology allows for the exploration of internal perceptions, while Merlin, Vacher, and Martinent (2024) add that this method is effective at capturing psychological dynamics not visible in quantitative data. Hammami, Selmi, and Mahmoudi (2025) also demonstrate that understanding subjective experiences is crucial in designing holistic training programs.

The research was conducted at two sports academies in Jakarta and Bandung, with data collection taking place over six months, from January to June 2025. Participants consisted of 15 adolescent athletes aged 13–17 years selected using purposive sampling, based on the following criteria: actively participating in plyometric training at least three times per week, having at least one year of competition experience, and being willing to participate in in-depth interviews. The snowball sampling technique was used to identify additional participants with similar experiences, thereby broadening the range of subjective experiences captured. Widiyawanti and Wahyudi (2025) emphasize that selecting a representative sample enhances the study's credibility, while Blanco-Ariza and Reigal-Garrido (2024) demonstrate that a combination of purposive and snowball sampling helps uncover relevant narratives.

Data were collected through semi-structured interviews, participatory observation, and documentation of training journals. Interviews were conducted twice with each participant, each lasting 45–60 minutes, focusing on subjective experiences related to self-confidence, psychological well-being, and emotional experiences during training. Data triangulation was applied through a combination of interviews, observations, and documentation, and was subsequently validated using the member checking technique. Merlin, Vacher, and Martinent (2024) emphasize the importance of data validation, while Ziyan, Ali, and Fransazeli (2025) demonstrate that combining data collection methods enhances the credibility and accuracy of the researcher's interpretations.

Data analysis was conducted using thematic analysis according to Braun and Clarke (2006), which includes interview transcription, initial coding, theme grouping, and comprehensive thematic reflection. An audit trail was implemented to ensure transparency in the analysis process and research accountability. Hammami, Selmi, and Mahmoudi (2025) assert that thematic analysis allows for a deep understanding of how plyometric exercises affect athletes' psychological well-being and self-confidence. Saha, Khati, and Pepe (2025) add that the use of

participants' direct quotes helps authentically portray subjective experiences, thereby ensuring that the research findings provide significan

3. Results and Discussions

The results of the analysis of interviews, observations, and documentation indicate that plyometric training has a significant impact on adolescent athletes' perceived competence and self-confidence. Most participants reported increased confidence in their physical abilities after participating in the training program. One athlete stated, "At first, I was afraid I wouldn't be able to jump as high as my friends, but after a few weeks of training, I felt more confident and daring to try new techniques on the field." Field observations support this, as it was evident that athletes were more willing to take risks during training and more active in interacting with teammates. These results are consistent with the findings of Hammami, Hammami, and Mahmoudi (2025), which show that plyometric training enhances self-efficacy in young athletes. Merlin, Vacher, and Martinent (2024) emphasize that repeated experiences of competence form a crucial foundation for building intrinsic motivation, while Widiyawanti and Wahyudi (2025) add that progressive achievements help athletes develop a positive perception of their own abilities. Ahsan, Ali, and Alhusayni (2025) also affirm that physically challenging yet manageable training enhances self-confidence and active participation within the team.

In addition to improving competence and self-confidence, plyometric training also helps athletes manage stress and competitive anxiety. Some participants reported feeling calmer and better able to focus on the game after participating in several training sessions. One athlete remarked, "Before training, I often felt nervous about matches, but after a few plyometric sessions, I felt calmer and could focus on the game." Observations indicate that calmer athletes are better able to follow the coach's instructions and adapt to complex exercises. These findings align with social cognitive theory, which emphasizes self-control and a sense of competence as key mechanisms for coping with competitive pressure (Hammami, Selmi, & Mahmoudi, 2025). Forelli, Moiroux-Sahraoui, and Nielsen-Le Roux (2024) assert that a balance between physical demands and psychological support enhances mental resilience, and the results of this study indicate that plyometric training serves as an effective strategy to support the mental health of adolescent athletes.

Participants also reported that plyometric training elicited a sense of enjoyment and intrinsic motivation to continue participating in the training program. Many stated that observing their own progress serves as a strong source of motivation. One athlete explained, "The training is indeed tough, but I'm happy to see my own progress. That makes me want to keep coming to practice every week." Training records show increased consistency in attendance and active engagement in each session, indicating that positive experiences during training support long-term motivation. These findings align with self-determination theory, in which enjoyable experiences and personal achievements contribute to athletes' intrinsic engagement (Widiyawanti & Wahyudi, 2025). Merlin, Vacher, and Martinent (2024) add that these enjoyable experiences are a key factor in reducing the risk of dropout and increasing sustained participation.

Social support from coaches and teammates also emerged as a key factor in shaping positive psychological experiences. Participants reported that constructive feedback, positive encouragement, and the coach's attention provided them with a sense of security and boosted their self-confidence when attempting new techniques. One athlete stated, "When the coach offers encouragement and clear corrections, I feel valued and more confident trying difficult movements." These findings indicate that the social and cultural context of training, including supportive interpersonal interactions, is a critical factor in building self-confidence and motivation. Blanco-Ariza and Reigal-Garrido (2024) emphasize that guidance and positive social interactions strengthen psychological adaptation, while Ahsan, Ali, and Alhusayni (2025) demonstrate that a supportive social environment enhances overall mental well-being.

Discussions

The findings of this study confirm that plyometric training has a significant impact on the psychological well-being and self-confidence of adolescent athletes. Increased perceptions of competence and self-confidence support self-determination and social cognitive theories, which emphasize the importance of competence experiences, social support, and intrinsic motivation (Moeskops, Oliver, & Read, 2022; Moran et al., 2024). These findings align with the research by Hammami, Hammami, and Mahmoudi (2025), which demonstrated increased self-efficacy in young athletes; however, this study adds a qualitative dimension by exploring the subjective meaning of athletes' experiences, thereby providing richer insights into internal psychological processes.

Findings related to stress management and emotional regulation indicate that plyometric training serves as an effective coping mechanism for dealing with competitive pressure. This differs from many previous quantitative studies that focused solely on physical performance. Forelli, Moiroux-Sahraoui, and Nielsen-Le Roux (2024) emphasize the importance of balancing physical demands with psychological support. The results of this study expand on this perspective by demonstrating that plyometric training builds emotional resilience and effective coping strategies, particularly within the social and cultural context of Indonesian youth competition.

The enjoyable experiences and intrinsic motivation arising from training support athletes' long-term engagement. These findings align with Merlin, Vacher, and Martinent (2024), who emphasize that intrinsic motivation stems from personal achievement experiences and positive social interactions. Widiyawanti and Wahyudi (2025) add that enjoyable experiences during training can increase adherence to the training program, thereby fostering consistency and psychological resilience. This suggests that the design of plyometric training should prioritize enjoyment, challenge, and positive experiences, rather than merely focusing on physical performance enhancement.

Social support from coaches and teammates is a critical factor in strengthening self-confidence and psychological well-being. Blanco-Ariza and Reigal-Garrido (2024) demonstrate that positive interactions with coaches enhance psychological adaptation, while Ahsan, Ali, and Alhusayni (2025) emphasize the importance of a supportive social environment for mental well-being. These findings emphasize that effective plyometric training is not only physical but also builds social relationships that support psychological development.

Theoretically, this study adds insights into the psychological mechanisms of plyometric training by highlighting athletes' subjective experiences, which are rarely obtained from quantitative studies.

The research results provide a foundation for developing holistic training programs that address both physical and psychological aspects, including self-confidence, emotional regulation, and intrinsic motivation. For future research, it is recommended to conduct longitudinal studies to examine the long-term development of self-confidence and psychological well-being, as well as to compare the effects of plyometric training across different sports and age groups. Overall, plyometric training has proven to be an effective intervention that supports the physical and psychological development of adolescent athletes. This study highlights the importance of subjective experiences, social support, and the cultural context of training in building self-confidence, emotional regulation, and intrinsic motivation, thereby providing essential guidance for coaches and sports educators in designing adaptive, holistic training programs focused on athletes' mental well-being.

4. Conclusions

In the conclusion section, the author(s) synthesize the core findings of the study, briefly summarizing the key insights and their implications. The author(s) restate the research objectives

and questions, demonstrating how the results address them. Also, the author(s) highlight the broader significance of the study, emphasizing its contribution to the field and potential real-world applications.

The author(s) may also propose recommendations for practice or policy based on the findings. Lastly, the conclusion often includes reflections on the study's limitations and suggestions for future research, pointing out areas where further investigation could build upon the current work and fill existing knowledge gaps. One well-developed paragraph is sufficient for a conclusion, although in some cases, a two or three-paragraph conclusion may be required.

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