



## Training the Mind for Precision Play: The Role of Sport Psychology in Pétanque Performance

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### ABSTRACT

This study systematically examines the effectiveness of mental training in enhancing concentration and technical skills of petanque athletes using a Systematic Literature Review (SLR) approach. Following PRISMA guidelines, literature from 2010 to 2025 was analyzed from databases such as Scopus, Google Scholar, and ScienceDirect. The findings show that techniques like visual imagery, positive self-talk, and relaxation training consistently improve performance in precision sports. Although research specifically on petanque is limited, similar psychological strategies can be effectively adapted. The study underscores the importance of coach-psychologist collaboration and improving psychological literacy in athlete development. It concludes by recommending the creation of integrated, evidence-based mental training programs to support more comprehensive and sustainable petanque training.

## INTRODUCTION

Petanque is a precision sport that relies heavily on technical skills and strategic accuracy. In practice, athletes must be able to throw a metal ball as far and as accurately as possible to approach the target ball (cochonnet). Success in this sport is not determined solely by physical strength but also by sharp concentration and psychological stability (Gusti et al., 2024). During competitions, athletes often struggle to maintain focus, resulting in decreased accuracy and performance (Yanti, 2024).

High concentration is essential in petanque, as the game requires detailed observation of ball positions, angle calculations, and the ability to read field conditions (Rhamadhan et al., 2024). Even minor distractions such as crowd noise or scoreboard pressure can significantly affect an athlete's performance. This highlights the critical importance of the mental aspect, which should not be overlooked in athlete training and competition. However, many training programs for petanque athletes in Indonesia still prioritize physical and technical approaches (Abdurrahman et al., 2024). Training sessions often focus on throwing techniques, arm strength, and game strategies, while the mental component remains underemphasized. In fact, poor mental readiness can become a major obstacle to performance, particularly in competitive situations that demand calmness and full concentration.

With the advancement of sport psychology, mental training has emerged as a method to address psychological barriers in sports. Techniques such as visualization, positive self-talk, relaxation, and breath control have been proven to help athletes manage pressure, boost confidence, and sharpen concentration (Kaplan & Andre, 2021). Although these techniques have been widely applied in other sports like athletics and tennis, their application in petanque remains limited, especially at amateur and regional levels.

Field observations show that many petanque athletes experience inconsistent performance, particularly during critical moments in matches. Symptoms such as nervousness, excessive anxiety, loss of focus, and sudden technical errors often result from inadequate mental preparation (Kaulfuss et al., 2021). This instability can be detrimental not only to the individual athlete but also to the team as a whole, especially when competing at national or international levels.

This situation serves as a reminder that success in petanque is shaped not only by experience or technical ability but also by systematically trained mental readiness (Rony et al., 2021). Mental training should not be seen as a complement but as an essential element to be integrated into athletes' daily training programs (Shoxrux, 2023). Without early preparation, an athlete's full potential may never be realized. Therefore, it is crucial to further explore how mental training can be adapted and specifically implemented for petanque athletes. Research on the effectiveness of sport psychology techniques in this context is highly relevant to meet the needs of more holistic athlete development.

Mental training in sports has been widely studied and has shown significant results in improving athletic performance. For instance, research by Boughattas et al. (2022) demonstrated that mental techniques such as imagery

and goal setting enhance athletes' focus and confidence across various sports. Additionally, Puhlmann et al. (2021) revealed that athletes who consistently undergo mental training tend to maintain optimal performance more consistently, particularly in competitive environments. In the context of precision sports like petanque, Subathra et al. (2021) emphasized the importance of anxiety regulation and concentration enhancement as crucial factors in athlete performance. A local study by Hidayah et al. (2024) also indicated that psychological approaches have a positive impact on mental preparedness among regional athletes, although implementation remains uneven across sports disciplines. These findings provide a strong theoretical foundation for further research into the integration of sport psychology techniques in petanque training.

Although numerous studies have proven the effectiveness of mental training in improving athletic performance in sports such as athletics and football, similar research in the context of petanque is still very limited. Previous studies have largely focused on physical and technical aspects, while psychological factors such as relaxation techniques, visualization, or self-talk have not been thoroughly explored, especially in petanque. Moreover, no comprehensive systematic review currently exists that evaluates and analyzes scientific findings on the impact of mental training on concentration and technical skills in petanque athletes. This gap is what the present study aims to bridge using the Systematic Literature Review (SLR) approach to identify, synthesize, and analyze relevant findings from existing literature.

The primary goal of this study is to develop scientific recommendations on effective sport psychology techniques to enhance petanque athletes' performance holistically. Theoretically, this research is expected to enrich the literature on sport psychology, while practically, the results may serve as a guide for coaches and sports mentors in designing applicable and evidence-based mental training programs.

## **THEORETICAL REVIEW**

Pétanque, a precision-based sport that demands high levels of concentration, accuracy, and strategic decision-making, increasingly benefits from the application of sport psychology to enhance athlete performance. Unlike purely physical sports, pétanque relies heavily on cognitive and emotional regulation, where factors such as focus, confidence, anxiety management, and visualization directly influence the precision of throws. Research in sport psychology underscores the importance of mental skills training – including goal setting, self-talk, imagery, and relaxation techniques – in improving athletes' consistency and resilience under competitive pressure. Psychological preparation not only sharpens attention and decision-making but also helps players maintain composure in high-stakes situations, thereby reducing performance errors. Furthermore, studies highlight the role of motivation and self-efficacy in sustaining optimal performance, as players who develop a strong belief in their abilities tend to execute more accurate and strategic plays. Thus, integrating psychological training into pétanque practice represents a vital

complement to technical and physical preparation, enabling athletes to achieve precision and peak performance in this highly mental sport.

## **METHODOLOGY**

This study employs a Systematic Literature Review (SLR) approach to systematically identify, evaluate, and synthesize previous research findings related to mental training in sports, particularly in relation to improving concentration and technical skills among petanque athletes. This approach was chosen for its ability to provide a comprehensive and structured overview of how sport psychology techniques have been studied and applied within the context of precision sports. It also allows the researcher to minimize subjective bias by applying consistent and replicable selection criteria.

The literature search was conducted using several leading academic databases, including Scopus, Google Scholar, and ScienceDirect, with keywords such as “mental training,” “sports psychology,” “concentration in sports,” “petanque athletes,” and “precision sports.” The researcher referred to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol as a guideline for structuring the article identification and selection process. The PRISMA flow diagram was used to visualize the stages of literature search, screening, eligibility assessment, and study inclusion, detailing the number of articles found, duplicates removed, records screened by abstract and full text, and the final set of articles analyzed in-depth.

Inclusion criteria consisted of articles published between 2010 and 2025, written in either English or Indonesian, and explicitly discussing mental training techniques within a sports context. Articles focusing solely on physical or technical aspects without any psychological dimension, as well as non-empirical studies such as editorials or opinion pieces, were excluded from the analysis. The selected articles were then analyzed thematically to identify the most relevant mental training techniques, key findings, and their potential application in the development of petanque athletes.

## **RESEARCH RESULTS**

The results of this Systematic Literature Review indicate that mental training has a significant impact on improving concentration and performance in athletes across various precision sports, although studies specifically examining petanque athletes remain very limited. Several techniques that are most commonly used and proven effective include visual imagery, positive self-talk, relaxation techniques such as diaphragmatic breathing, and visual focus-based concentration exercises. These techniques have been reported to reduce anxiety levels, strengthen self-control, and enhance athletes’ attentional stability under competitive pressure.

From the analyzed articles, it was found that regularly and systematically implemented mental training yields more optimal results compared to occasional or unsystematic approaches. For instance, studies showed that consistent mental training over six to eight weeks significantly improved visualization skills and throwing accuracy (Durand-Bush et al., 2023). Although similar studies in petanque are still scarce, the fundamental principles and sport context are

sufficiently comparable, allowing for direct adaptation with promising levels of effectiveness. This presents a substantial opportunity for the development of mental training programs among petanque athletes.

Furthermore, most of the reviewed literature agrees that coaches play a central role in the success of mental training. Beyond serving as technique facilitators, coaches must also understand the individual psychological conditions of their athletes to ensure the chosen approach is well-targeted (Poczwardowski et al., 2023). These findings also highlight the importance of collaboration between coaches and sport psychologists in designing mental training modules tailored to athletes' specific needs. This research reinforces the urgency of implementing comprehensive mental training programs in petanque athlete development, especially to support performance at higher competitive levels.

## DISCUSSION

### *The Strategic Role of Mental Training in Precision Sports*

In precision sports such as petanque, victory is not solely determined by technical skills or physical strength, but also by an athlete's ability to maintain emotional stability and focus with every throw. Petanque demands high levels of accuracy, composure in decision-making, and sensitivity to the condition of the playing field and the position of the opponent's ball. Competitive settings filled with pressure whether from the atmosphere of the match, expectations from the coach, crowd noise, or fluctuating scores require athletes to have strong self-control to avoid distractions (Gusti et al., 2024). In such situations, physical and technical training alone is insufficient to ensure optimal performance.

Mental disturbances such as anxiety, loss of focus, or uncertainty about outcomes can disrupt the rhythm of play and lead to a significant decline in performance (Schinke et al., 2024). Even technically proficient athletes may fail to perform well if they are unable to manage competitive pressure. This is where mental training becomes a highly strategic component. Sport psychology techniques such as concentration exercises, breathing control, and visualization serve as tools to help athletes remain calm, focused, and confident under pressure. Mental training enables athletes to cultivate positive thinking habits and build resilience when facing failure or adversity.

Findings from this review reveal that mental techniques such as visual imagery have a tangible impact on an athlete's preparedness (Phytanza et al., 2022). Through the mental rehearsal of ideal movements, athletes strengthen neuromuscular connections and develop a success-oriented mindset before taking action. This technique is widely used in other precision sports and has been shown to enhance accuracy and movement efficiency. Meanwhile, self-talk (repeating affirming phrases) helps sustain motivation, manage nervousness, and foster the psychological drive needed in critical moments (Kaplan & Andre, 2021).

From a long-term development perspective, mental training should not be regarded as an optional activity conducted only before competitions. Instead, it should be an integral part of the routine training program, embedded alongside

physical and technical exercises from the early stages of athlete development (Price et al., 2022). This approach allows petanque athletes to grow in both technical ability and mental toughness. When these two aspects are developed simultaneously, the chances of performing consistently at various competitive levels are significantly increased. Mental training not only supports athletes during matches but also shapes resilient characters capable of navigating the unpredictable journey of a sports career.

### ***Adaptability of Sport Psychology Techniques to Petanque***

Although some literature reviewed in this study originates from other sports such as shooting, golf, or archery, the sport psychology techniques applied in those contexts are highly relevant to petanque. These sports similarly require high levels of focus, emotional stability, and precise control of movements. Therefore, the principles of mental training successfully implemented in other precision sports can serve as a foundation for designing appropriate mental training programs for petanque athletes (Irawan et al., 2022).

In practice, visualization techniques can be adapted to illustrate court conditions, the position of the cochonnet, and the desired ball trajectory (Effendi et al., 2024). Meanwhile, breathing and relaxation techniques can be used to reduce muscle tension and manage nervousness before critical throws (Saghita Pratama et al., 2024). These adaptations allow coaches or sports practitioners to design mental training programs that are contextual, realistic, and applicable for petanque athletes. Although further research is needed to directly test these techniques in the context of petanque, evidence from other precision sports is already strong enough to serve as an initial reference point.

### ***The Implementation Gap in Petanque Athlete Development***

One of the critical findings from this literature review is the significant gap between scientific theory on mental training and its practical implementation on the field. According to study by Abdullah et al. (2024) across many sports communities (especially at the local and regional levels of petanque) mental training has yet to receive adequate attention within athlete development programs. Most clubs and coaches continue to focus their training programs solely on physical and technical aspects, while the psychological dimension of athlete development tends to be neglected. The absence of dedicated mental training sessions or support from sport psychologists leaves athletes emotionally unprepared to face the pressures of competition, particularly at higher competitive levels.

This situation is further exacerbated by the lack of human resources with expertise in sport psychology, both at the coaching and team management levels. Many coaches do not yet have a comprehensive understanding of the importance of mental aspects in athlete development (Schinke et al., 2024). This may be due to the lack of formal training or accessible literature on mental training specific to the context of petanque. As a result, many coaches feel ill-equipped to guide athletes psychologically and instead choose to focus on more visible aspects, such as throwing technique or physical endurance (Saghita Pratama et al., 2024).

On the other hand, limited facilities and institutional support also pose major challenges. Few clubs have access to sports counseling services or adequate spaces for mental training (Yanti, 2024). Therefore, a systematic strategy is needed to bridge this gap, such as through coach training and the development of practical, evidence-based mental training modules. By equipping coaches with the appropriate tools and knowledge, mental training can be integrated into the daily training curriculum in a structured and continuous manner, making petanque athlete development more holistic and better prepared for the demands of modern competition.

### ***The Need for Interdisciplinary Collaboration in Athlete Development***

In many of the studies analyzed, the involvement of sport psychologists has been shown to significantly enhance the effectiveness of mental training. Collaboration between technical coaches and psychology professionals enables the design of more personalized, targeted, and athlete-centered training programs. Each athlete has a unique stress level, thought pattern, and personal background, making generalized approaches less effective unless combined with in-depth psychological analysis (Phytanza et al., 2022).

In the context of petanque athlete development, this interdisciplinary collaboration becomes even more essential. Coaches can serve as mediators between technical and psychological needs, while sport psychologists provide a scientific framework for building mental resilience (Schinke et al., 2024). Through such cooperation, the training approach becomes more holistic and long-term oriented, not merely focused on short-term victories, but also on developing character and mental toughness to withstand pressure and navigate the dynamic nature of competition. This approach aligns with modern athlete development philosophies, which emphasize the integration of physical strength, technical skills, and mental readiness as a unified whole.

## **CONCLUSION AND RECOMMENDATION**

Based on the systematic review of various pieces of literature, it can be concluded that mental training plays a highly strategic role in enhancing concentration, emotional resilience, and technical skills among petanque athletes. Techniques such as visual imagery, positive self-talk, and relaxation have been proven effective in helping athletes cope with competitive pressure and maintain consistent performance. Although most of the studies originate from other sports disciplines, the core principles of mental training can be effectively adapted to the context of petanque. Nevertheless, a gap in practical implementation still exists, as mental training has yet to become a priority in athlete development, particularly at the local and regional levels.

Therefore, it is recommended that petanque coaches begin to systematically integrate mental training programs into daily training routines. Enhancing sport psychology literacy among coaches and trainers should also be encouraged through targeted training or workshops. In addition, collaboration with sport psychologists is a critical step toward designing more effective and athlete-specific mental training modules. Further research is also recommended

to develop evidence-based and sport-specific mental training models tailored to petanque, in order to create a more comprehensive athlete development system that is better prepared to meet the demands of high-level competition.

### FURTHER STUDY

Future research could focus on designing and testing sport-specific mental training models tailored to the unique demands of petanque. Experimental and longitudinal studies would be valuable to measure the direct impact of techniques such as visualization, self-talk, and relaxation on athletes' performance consistency, emotional regulation, and competitive outcomes. Additionally, exploring the role of coach education and interdisciplinary collaboration with sport psychologists could provide deeper insights into effective implementation strategies. Comparative studies across different competition levels and cultural contexts would also help refine mental training approaches, ensuring they are both evidence-based and practically applicable to petanque athlete development.

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