

Effect of Hypnotherapy on Psycho-physiological Parameters and Performance in Sports - An Analytical Review

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Abstract

Hypnotherapy in sports is utilized to enhance the performance and well-being of an athlete. It allows the athlete to tap into their altered state of consciousness that helps them to align their conscious mind with their subconscious mind which is similar to what takes place in a "flow state," a different level of awareness that improves performance while requiring less effort (relaxed effectiveness). Olympic champions' reports highlight the value of hypnotic state training for optimal performance. . (Unestahl, 2018). The primary objective of the study was to understand the effect of hypnotherapy on various psycho-physiological parameters in sports and the secondary objective of the study was to understand the effect of hypnotherapy performance in sports utilizing a narrative review of literature as a suitable study design. The study was conducted to map the literature for the present narrative review on the effects of hypnotherapy on various psycho-physiological parameters and performance in sports based on the framework outlined by arksey & o'malley (2005) which included guidelines for identifying the research question, relevant studies, study selection, charting the data, collating, summarizing, and reporting the results. The collation and summarization of studies indicated no distinct consistency between the studies with regards to the effects of hypnosis on psycho-physiological & performance parameters in sports. There were methodological and result based inconsistencies across seven studies.

Keywords: Conscious mind, *Hypnotherapy*, *Performance*, *psycho-physiological*, *Sports*, Subconscious mind.

1. Introduction

Hypnosis in sports is utilized to enhance the performance and well-being of an athlete. Hypnosis allows the athlete to tap into their altered state of consciousness that helps them to align their conscious mind with their subconscious mind which is similar to what occurs in a different state of awareness known as a "flow state," which boosts performance while requiring less effort (relaxed effectiveness). Reports from Olympic Games champions show the importance of hypnotic state training for peak performance. (Unestahl, 2018)

According to an Australian study, athletes' mental illness generally manifests during the zenith of their athletic careers (Allen and Hopkins, 2015). Athletes also have unique obstacles, like stress from their sport (Noblet and Gifford, 2002), injuries (Smith, 1996; Appaneal et al., 2009), and living away from home (Bruner et al., 2008) and burnout. (Gustafsson et al., 2011). As a result, it's critical to pay attention to players'

psychological issues. Hypnosis, when utilised as an adjuvant technique, can not only assist athletes avoid mental illness, but it can also help them improve their training and competitive performance.

Hypnosis may be used in athletes' psychological training by sports psychologists since it can assist athletes relax during practise and competition, as well as reduce anxiety and manage stress (Paccagnella, 2004). Meanwhile, hypnosis is a basic and straightforward method of adjusting physical and mental conditioning that requires no particular settings or equipment. A prior study demonstrated that hypnosis improved performance in a variety of sports, with the best benefits being reported in basketball, golf, soccer, and badminton Hypnosis is therefore commonly employed in sports and competitions. (Milling and Randazzo, 2016).

Hypnosis can help athletes relax and unwind before and during competitions. "You may be realising that you are becoming quieter and quieter, and your breathing is getting smoother and smoother," the hypnotist can tell the athlete. "You can win the competition." These tips may have a psychological and physical benefit for athletes (Ji, 1992).

Hypnosis appears to alter cognitive processes such as self-confidence, concentration, and memory, all of which are crucial for athletic performance. Hypnosis is a common tool for increasing rational-emotive techniques and positive self-affirmations (Taylor et al., 1993). Athletes can develop and reach their full potential by using this "believed-in" state.

. The suggestion that hypnotists give patients, such as "you can do well today" or "you can push your limitations," can help them accomplish the desired objective. These encouraging words can help people regain their self-esteem, allowing them to focus more on their work and achieve their objectives more quickly (Taylor et al., 1993).

2. Methodology

The study was conducted to map the literature for the present narrative review on the effects of hypnotherapy on various psycho-physiological parameters and performance in sports based on the framework outlined by Arksey & O'Malley (2005) which included guidelines for identifying the research question, relevant studies, study selection, charting the data, collating, summarizing, and reporting the results. The primary objective of the study was to understand the effect of hypnotherapy on various psycho-physiological parameters in sports and the secondary objective of the study was to understand the effect of hypnotherapy performance in sports utilizing a narrative review of literature as a suitable study design.

2.1. Search Strategy

To identify potentially relevant studies for inclusion, a systematic search was conducted through electronic database using google scholar for SCOPUS and Web of Science indexed articles with the terms 'hypnotherapy', 'hypnosis', 'sports hypnosis', 'psychological' 'physiological', 'psycho-physiological', 'sports'. In addition, all citations of eligible articles for supplementary references that were missed in the initial search were consulted.

2.2. Inclusion and Exclusion Criteria

All papers that answered the research question were included. However, reports that were not published in scientific peer-reviewed journals, reviews and studies in which the sample target was not met, duplicated, unrelated, abstract-only papers and studies with unavailable full texts were excluded.

2.3. Article Selection and Data Extraction

Every publication title and abstract was separately checked for inclusion by two reviewers in order to guarantee the narrative review's reliability. The following information was extracted from each paper: (a) authors, (b) title, (c) publication year, (d) sample size, (e) research design (f) methodology (h) results

2.4. Statistical Analysis

A descriptive analysis of the characteristics was conducted based on the statistical analysis done by the authors of the included literature to examine the effects of hypnotherapy on various psycho-physiological parameters and performance in sports, this narrative review was conducted according to the PRISMA Flow Diagram .

3. Results & Discussion

The PRISMA Flow protocol was used for identification of studies. The database searches resulted in a total of 700 papers duplicates and ineligible document types were excluded. After screening the titles and abstract, 300 papers were excluded. Following this full text papers were sought. After screening full texts, 142 papers were excluded, resulting in 8 papers for inclusion. A brief overview of the screening criteria and search results is provided in Fig. 1

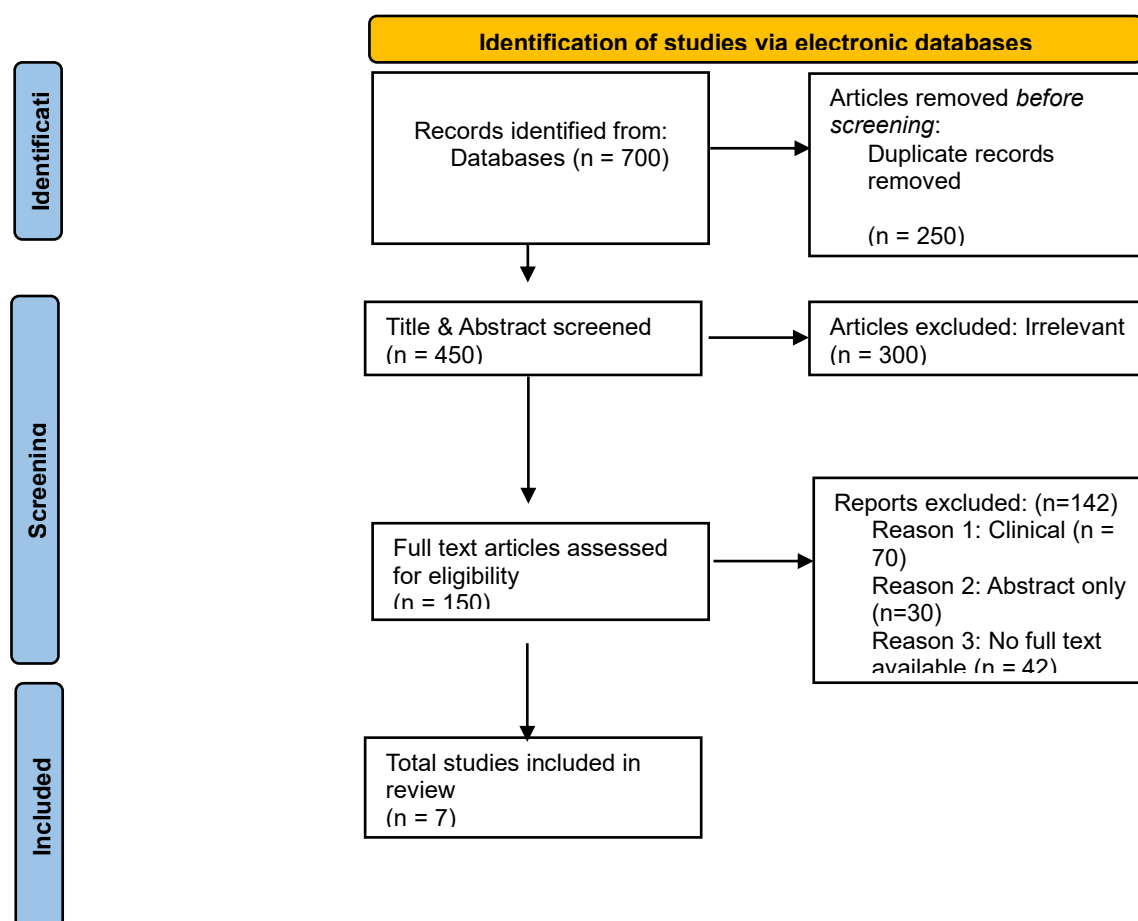


Figure 1: PRISMA flow diagram

Characteristics of Articles:

Owing to the broad scope of this analysis, substantial variations were discovered in the objectives and issues of the research, the technique, the sample size, and the outcome measures.

Table I provides an overview of the heterogeneity of the data using the variables: Title/; author/year/; Sample; Variables/IV/DV; research design and method; Results. The summary of the characteristics of the article are given below:

Title	Author (Year)	Sample	IV	DV	Research design	Statistical Tools	Findings
Efficiency of hypnosis in psychological & physiological variables in sportsman	Garcia & Sanchez (2013)	n = 24 ; Cyclists	Hypnosis	Psychological variables: (a) very relaxed-very nervous, (b) controlled-no control, (c) very energetic-very fatigued, (d) concentrated- decentred, (e) without effort-with great effort. - Variables of a physiological nature: 1) Perceived fatigue, measured with the Borg Scale (Borg, 1982).	Pretest post-test	Blocking and randomization were used as control techniques for extraneous variables	Significant difference not found however showcased a more positive tendency in exp group (psychological variables)
The effectiveness of hypnosis imagery on mental skills of athletes	Yazdanpanah et al (2022)	n = 30; Sailors	Hypnosis	Mental skills: Goal setting, belief, commitment, stress reaction, relaxing, fear control, energising, focus, imagery, competition planning, mental practice , refocus	Semi Experimental with repeated measure design	ANOVA MANOVA	Goal setting, self-confidence, commitment, reaction to stress significant difference
The role of hypnotherapy in the process of reducing anxiety among the injured athletes	Rachman et al (2019)	n = 1; basketball	Hypnotherapy	Anxiety	Case study	Paradigm & descriptive qualitative research approach	Based on data analysis hypnotherapy reduces anxiety level, and beneficial to recover from injury.
Management of performance anxiety through hypnotherapy of university level hockey players	Dwivedi & Khan (2017)	n = 16 ; University level hockey players,	Hypnotherapy	Anxiety (tool: scat: Sinha comprehension anxiety test)	Pre post experimental	Paired t test	Significant difference (hypnotherapy effectively manages the symptoms of anxiety)
Effects of hypnosis on flow and in the performance enhancement of basketball skills	Vasquez (2005)	N= 43; Basketball players	Hypnosis Relaxation	Flow (FSS-2) Perf - AAHPERD-BST 3-point shooting score	Experimental Pre-post b/w-within	ANCOVA	Hypnosis group scored sig more on dribbling, defensive, 3-point scores; Speed shooting was better within group + dribbling + defensive; significant difference in flow
The effectiveness of hypnosis training on psychological skills & sports performance	Zaraineh et al (2024)	N=40; Judo	Hypnosis	OMSAT & sports performance checklist	Experimental Pre-post design with control group	ANOVA	Positive & significant effect on improving performance & psychological skills of judo players
Effects of hypnosis on flow states & cycling performance	Lindsay (2005)	N = 3; Cycling	Hypnosis	Flow state (FSS) Performance (points accumulated in competition)	Single subject Multiple baseline design		Effect on performance: 1 st participant: positively influenced 2 nd : sporadically influenced 3 rd : No influence Positive effect on flow for one participant. May increase the feelings and cognition associated with flow

The results were collated and summarized on the basis of existing literature on the principles of good practice in narrative reviews. Based on the analysis of the characteristics of the articles that were included in the review on the basis of the inclusion criterion it was found that There were result based inconsistencies across the seven studies, however in terms of methodical approach to the research, there was consistency except one study that operated with a qualitative research approach.

In the research conducted by Garcia & Sanchez (2013) on the efficiency of hypnosis in affecting psychological and physiological variables in sportsmen, it was found that hypnosis can be an effective intervention for athletes. The study revealed that:

1. **Psychological Benefits:** Hypnosis significantly improved various psychological variables such as focus, motivation, confidence, and stress management. Athletes who participated in hypnosis training reported enhanced mental clarity, reduced anxiety, and better emotional control during competitions.
2. **Physiological Benefits:** The study also demonstrated that hypnosis positively impacted physiological variables. Athletes showed improvements in areas such as muscle relaxation, heart rate variability, and recovery times. These physiological adjustments decreased the chance for injury and improved performance overall.

Garcia & Sanchez's research supports the notion that hypnosis can be a valuable tool in sports psychology and physiology, helping athletes achieve optimal performance through enhanced mental and physical states.

Yazdanpanah et al. (2022) conducted a semi-experimental study to investigate the effectiveness of hypnosis imagery on the mental skills of sailors. The research aimed to determine whether this psychological intervention could enhance specific mental skills crucial for sailing performance. The study found that:

1. **Improvement in Mental Skills:** Hypnosis imagery significantly improved various mental skills among the sailors. These skills included concentration, visualization, and anxiety control, which are essential for optimal performance in sailing.
2. **Enhanced Focus and Visualization:** Sailors who underwent hypnosis imagery training demonstrated a marked improvement in their ability to maintain focus and effectively visualize their tasks and maneuvers. This enhanced visualization capability allowed them to anticipate and prepare for different scenarios on the water more effectively.
3. **Better Anxiety Management:** The intervention also helped sailors manage pre-competition anxiety and stress, leading to a more relaxed and controlled mental state during competitions. This reduction in anxiety levels contributed to improved performance and decision-making under pressure.

Overall, Yazdanpanah et al.'s (2022) study suggests that hypnosis imagery can be a potent tool for enhancing the mental skills of sailors, providing them with a psychological edge in their sport.

Rachman et al. (2019) conducted a study to explore the role of hypnotherapy in reducing anxiety among injured athletes. Utilizing a paradigm and descriptive qualitative research approach, employing a case study methodology to gain in-depth insights. The various findings from this study are as follows:

1. **Reduction in Anxiety Levels:** Hypnotherapy was found to be effective in significantly reducing anxiety levels among injured athletes. Through guided sessions, athletes reported feeling calmer and more in control of their emotions, which aided their recovery process.
2. **Improvement in Coping Mechanisms:** The study highlighted that hypnotherapy helped athletes develop better coping mechanisms for dealing with their injuries. This included enhanced mental resilience, improved pain management, and a more positive outlook on their rehabilitation journey.

3. **Individualized Therapeutic Approach:** The qualitative case study approach allowed for a detailed examination of individual experiences, showing that the tailored nature of hypnotherapy sessions catered to the specific needs and concerns of each athlete. This personalized intervention was crucial for its effectiveness.
4. **Enhanced Recovery Experience:** Athletes who underwent hypnotherapy reported an overall improvement in their recovery experience. They felt more motivated and optimistic about their return to sports, which positively influenced their physical rehabilitation efforts.

Rachman et al.'s (2019) study underscores the potential benefits of hypnotherapy as a complementary treatment for reducing anxiety in injured athletes, ultimately supporting their mental and physical recovery.

Dwivedi & Khan (2017) conducted a study to investigate the effectiveness of hypnotherapy in managing performance anxiety among university-level hockey players. Employing a pre-post experimental design to assess the impact of the intervention. This study's main conclusions are as follows:

1. **Reduction in Performance Anxiety:** Hypnotherapy was found to be effective in significantly reducing performance anxiety levels among the hockey players. The pre-post design allowed for a clear comparison, showing notable decreases in anxiety after the hypnotherapy sessions.
2. **Improvement in Confidence and Focus:** Players who received hypnotherapy reported increased confidence and improved focus during games. This mental shift contributed to better performance and a more positive attitude towards competition.
3. **Enhanced Game Performance:** The reduction in anxiety and the boost in confidence translated into improved game performance. The following present study's primary conclusions: Athletes were able to perform their abilities more successfully and remain composed under duress.
4. **Sustainable Effects:** The study also indicated that the positive effects of hypnotherapy on performance anxiety were sustained over time, suggesting that hypnotherapy can provide lasting benefits for athletes dealing with performance-related stress.

Dwivedi & Khan's (2017) research highlights the potential of hypnotherapy as a valuable tool for managing performance anxiety in athletes, enhancing their mental state, and ultimately improving their athletic performance.

Vasquez (2005) investigated the effects of hypnosis on flow states and the performance enhancement of basketball skills using an experimental pre-post and between-within research design with a control group. The study's main conclusions are as follows:

1. **Enhanced Flow States:** Hypnosis significantly enhanced the flow states of basketball players. Players who underwent hypnosis reported experiencing greater immersion, concentration, and enjoyment during their games, indicative of an improved flow state.

2. **Improved Basketball Skills:** The study demonstrated that hypnosis had a positive effect on basketball performance. Players in the hypnosis group showed significant improvements in various basketball skills, such as shooting accuracy, dribbling, and defensive manoeuvres, compared to the control group.
3. **Pre-Post Intervention Analysis:** The pre-post design allowed for a comparison of performance and flow states before and after the hypnosis intervention. The results showed substantial improvements in both flow states and performance metrics following hypnosis.
4. **Control Group Comparison:** The between-within research design, including a control group, provided a robust comparison to isolate the effects of hypnosis. The control group did not experience the same level of improvement, underscoring the efficacy of hypnosis in enhancing flow and performance.
5. **Sustained Effects:** The study found that the positive effects of hypnosis on flow and basketball performance were sustained over time, suggesting lasting benefits from the intervention.

Vasquez's (2005) study supports the use of hypnosis as an effective method for enhancing flow states and improving basketball skills, with significant and sustained benefits observed in athletes who underwent the intervention.

Zaraineh et al (2024) studied the effectiveness of hypnosis training on psychological skills & sports performance. The study followed a pre-post experimental design and reported that hypnosis has a positive & significant effect on improving performance & psychological skills of judo players. The research results were tested at a significance level of 0.05. The analysis confirmed the following conclusions:

1. **Positive Impact on Sports Performance:** Hypnosis training had a statistically significant and positive effect on enhancing the sports performance of judokas. The findings indicate that judokas who underwent hypnosis training showed measurable improvements in their athletic performance, suggesting that hypnosis can be an effective tool for boosting physical abilities in this sport.
2. **Positive Impact on Psychological Skills:** Hypnosis training also had a statistically significant and positive effect on improving the psychological skills of judokas. The results demonstrate that judokas who received hypnosis training experienced significant improvements in their mental skills, such as focus, confidence, and stress management. This highlights the potential of hypnosis as a beneficial technique for enhancing the mental aspects of sports performance.

These findings suggest that incorporating hypnosis training into the training regimen of judokas can lead to overall improvements in both their physical performance and psychological well-being

Lindsay (2005) conducted a study to examine the effects of hypnosis on flow states and cycling performance, employing a single-subject multiple baseline design. This approach allowed for a detailed analysis of the intervention's impact on individual athletes over time. The study's main conclusions are as follows:

1. **Enhancement of Flow States:** Hypnosis was found to significantly enhance the flow states of cyclists. Participants reported being more fully immersed and engaged in their cycling sessions, experiencing a sense of effortless movement and optimal performance.
2. **Improved Cycling Performance:** The study demonstrated that hypnosis positively impacted cycling performance. Cyclists showed improvements in metrics such as speed, endurance, and overall efficiency. The enhanced flow states contributed to these performance gains, as athletes were able to achieve and maintain peak performance levels more consistently.
3. **Individual Variability:** The single-subject multiple baseline design highlighted individual differences in response to hypnosis. While all participants experienced benefits, the degree and nature of the improvements varied, underscoring the personalized nature of hypnosis interventions.
4. **Sustained Benefits:** The positive effects of hypnosis on flow states and performance were observed to be sustained over time. This suggests that hypnosis can have lasting benefits, helping athletes maintain high levels of performance and optimal mental states beyond the immediate intervention period.

Lindsay's (2005) study provides evidence that hypnosis can be a powerful tool for enhancing flow states and improving athletic performance in cycling, with benefits that are both significant and enduring.

5. Conclusion

There is a lack of sufficient quantity and quality of information within the existing literature to support any of the claims, but the gathered literature did reveal some insights such as out of the 7 studies that were scrutinized for results, it was seen that there existed some methodical and result bases inconsistencies. However, in terms of methodology employed for the study design, only one study out of the 7 utilized qualitative approach while all other studies had employed a quantitative experimental study design in order to study the effects of hypnosis on various psychophysiological and performance parameters in sports. Thus there exists a need for more in depth qualitative or mixed method approaches using triangulation of data in order to compute more reliable results for the research problem.

In terms of the results, it was seen that out of the 7 studies, only two studies showed significant differences in the selected psychophysiological and performance based parameters, whereas in the other studies, there were significant differences in some aspects of the selected variables but not all, which highlights the need for more research on impact of hypnosis in a sports set up and also need for exploring more prudent, specific hypnosis based interventions and how it impacts performance, psychology and psychophysiology of the sportsperson.

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