

# Mental Imagery and Self Hypnosis in Sports Performance

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**Abstract:** *Self hypnosis and mental imagery are two sides of a coin, specially in case of modern sports. Hypnosis of oneself and mental imagery are totally immersive multi-sensory procedure that associates with numerous senses to create as a mental image and process it in absent of external stimuli. In the sport situation, imagery has been with a state in which person imagine while effecting abilities to deal with the future duty or improve performance capacity. Scientific analyses have stated that imagery increases performance in motor stimuli. Routines mental practice play an important role in sports and games, not only for the acquisition of motor skills, but also for preparation and sport injuries rehabilitation. Imagery techniques in sport are used for different purposes, as outlined by the process of self hypnosis and Model of Imagery Use in Sports, to improve skill acquisition, motivation, and sport confidence and to reduce anxiety.. Clinical sport hypnosis can help athletes acquire certain cognitive, psychological, behavioral and affective qualities so that their physical and mental capabilities are improved. According Wikipedia, sports hypnosis is defined as the use of hypnotherapy with athletes in order to improve sporting performance. Others define sport hypnosis as a form of mental training which can contribute to enhancing athletic performance. . It has been shown that different forms and functions of imagery prove to be effective for the above-mentioned functions depending on the characteristics of different sports and the expertise level of athletes. The present study reviews systematically the findings of other reports on various aspects of mental imagery and self hypnosis in the field of sports.*

**Keywords:** Mental Imagery, Self Hypnosis, Motor Skills and Sports

## I. INTRODUCTION

Student-athletes in interscholastic athletics have been known to encounter many circumstances that lead to poor performance in intense and high-pressure scenarios. Poor performance in intense and high-pressure scenarios stems from student-athletes inability to execute in a competitive environment due to mental obstacles. This ideology of worrying about accomplishing the task-at-hand at full capacity comes from the internal stressors that are not within the student-athlete's control. This form of anxiety is called cognitive state anxiety where the individual worries or has negative thoughts about the performance (1).Mental imagery is the reproduction of perceptual experience (2,3) across multisensory ways and the processing of images in the absence of external stimuli. Mental imagery is a significant element in human functioning.

In competitive sport, imagery has been associated with the state in which people self imagine while effecting abilities to deal with the forthcoming duty for performance elevation. Imagery may be a consequence from both thoughtful and unconscious recall procedures; an individual sees an image, or experiences a movement as an image, without experiencing the real thing through a process. Imagery plays a significant role in this context, improving performance in motor tasks (4,5).

It is usually assessed in the relations of its mental and emotional characteristics, as well as motivational competence (6). Owing to the gains of imagery, it is, nowadays, included in numerous mental skills lineups, in addition to physical preparation. Within the mental mode, kinesthetic (i.e., perceptual involvement of the body while executing a movement) and visual (i.e., what a person sees) are the most usual sensory tested mentally approaches of creating images (7).

However, the imagery is a complex process. In the several explorations of mental imagery, researchers have investigated equally imagery use and imagery ability. The capacity of creating wide images is different kinds to the competence of controlling and manipulating the created images (8). Cognitive psychology designed instruments to measure imagery ability into two aspects: controllability, i.e., “manipulate mentally an image in precise way” (9,10), and vividness, i.e., “the sensory richness of an image” (11). Murphy and Martin (12) defined imagery use as the “use of imagery to reach a variety of cognitive, behavioral, and affective changes”. Hall et al. (13) underline that images address distinct motivational and cognitive aspects, both on a common and definite level. Consequently, differentiations in the use of imagery occur: cognitive specific (e.g., movements), cognitive general (e.g., tactics), motivational general, motivational specific (e.g., aims), motivational general– affective (e.g., anxiety), and motivational general–mastery (e.g. self-confidence). The image maintenance abilities depend on stimulus complexity, according to previous research (14,15). Children are better able to recall an image with specific features than an image with a more abstract pattern (16).

One psychological technique that began to gain attention in the 1940s as a psychological technique that could help athletes relax was the psychological technique of hypnosis. Although it appears that the application of hypnosis started to begin to get attention from coaches in the 1940s, it was reported that hypnosis was used by athletes and physicians in the early 1900s to try to aid with performance issues (“Hypnotism cures golfers game”, 17). In this article, the author described an athlete who would get so anxious that they could not even swing at the golf ball. The medical doctor analyzed the golfers physical condition and decided that nothing was wrong physically. Thus, the medical professional chose to use hypnotism to help the golfer try to overcome this problem. It was reported that “Hypnotism it is said is likely to become popular among golfers, most of whom suffered at one time or other from golf neurosis.” Also, Hoberman (18) reported that by the early 1930s hypnosis was an area of study in the German sports medicine literature. The importance of helping athletes relax for athletic competition continued to gain attention during the 1950s. Dr. David Tracy’s work with the St. Louis Browns gained much attention during the early 1950s. Tracy was hired to be a psychological consultant to the St. Louis Browns during the 1950 baseball season (19). The main goal Tracy had in teaching techniques to the baseball players was to help them play more relaxed (19). It appears that Tracy’s work with the St. Louis Browns provided much attention to the use of psychological techniques to sport performance. Since this appears to have been one of the first time psychology applied to athletics received a great deal of attention from the media and society the next section of the chapter will provide in detail how David F. Tracy began to apply hypnosis and other psychological techniques to help athletes improve performance (20).

One of the most thorough reviews of the conceptual and research literature was completed by Taylor, Horevitz and Balague (21). Their paper showed the value of hypnosis in applied sport psychology and addressed hypnotizability and other factors influencing the effectiveness of hypnotic interventions. Tracing sport hypnosis back to its origins 100 years ago, they described a rich tradition as well as a history of controversy in which, despite growing support for the use of hypnosis for athletes, little formal consideration had been given to how hypnosis may be best applied to enhance sport performance (22-23). The researcher concluded their review by stating that hypnosis is useful in applied sport psychology, but several important issues must be addressed. For example, the preparation of the hypnotist is of prime importance. Second, APA’s ethical standards must be followed by all hypnotists, and third, there is a need for greater methodological rigor in the conduction of sport hypnotic research. Recent empirical investigations have focused on experimental research designed to determine to what degree hypnosis can be used to enhance sports performance (24,25) studied flow states and hypnosis on golf putting execution. They stated that after receiving the hypnotic intervention, each of the five participants increased their golf putting performance (26).

## **II. MENTAL IMAGERY AND HYPNOSIS**

Mental imaging is a process in which we create or reproduce mental experiences using information stored in our memory. You share photos every time you dream, but this is a random photo shoot. Organized images are aided by clear thinking, and the more controlling the athletes have their thinking, the more they are able to control their performance. Athletes differ greatly in their ability to photograph and in the emotion they use during photography (29).

Some like to 'feel' the movement inside - a process known as kinaesthesia - while others like to see their performance open as if watching a play from a head-cam - this is known as an internal visual image. Another type of frequently used imagery is referred to as visual and external images - you see yourself playing from a distance as if you were looking up or watching a video playback. With practice, it is possible to integrate all the senses simultaneously or synaesthetically to create a very vivid experience.

Research shows that the more clearly you are able to visualize mental images and the more accurately you can control your imagined movements, the more likely you are to translate images into higher performance (30).

### **III. FEATURES OF MENTAL ILLNESS AND SELF HYPNOSIS**

Promotional images must have three elements (31):

- Increasing the level of sensory perception: The psychological images used by athletes in sports are based on direct experience. Athletes need to access this information in memory and use it to create images that they can shape and control. The first step is a good awareness of the sensory experience associated with technical practice: posture, legs and arm movements, temple movements, directional rotation, visual acuity, kinesthetic and hearing. Increasing awareness can be achieved by paying close attention to this approach.
- Increasing mental stamina: This is done using imagination. "The ability to adjust the speed of your photos. Slow down works to focus on skill "
- Increase control: control mental images by increasing the ability to use non-internal images to achieve objectives.

The need for increased awareness of the importance of sports hypnosis is also important in overcoming the stigma of hypnosis as a "stage act". Several factors may contribute to this development, including (30):

- A. Establishing an evidence-based performance model in which physicians can contribute to protocols for specific programs;
- B. Combining hypnosis training and hypnotherapy with specialists;
- C. Increased online visibility (websites / you tube / video) of basic information and models of sports hypnosis and its benefits.

### **IV. UNDERSTANDING IMAGERY AND SELF-HYPNOSIS**

Mental imagery is the process by which we create or recreate experiences in the mind using information stored in our memory. You engage in imagery every time you have a dream, but this is an unstructured form of imagery. Structured imagery is aided by a vivid imagination, and the more control athletes have over their imagination, the more they are able to control their performance. Athletes vary greatly in their imagery ability and in the senses they engage during imagery(29).

Some like to 'feel' movement internally – a process known as kinaesthesia – while others like to see their performance unfold as if watching the playback from a headcam – this is known as visual-internal imagery. Another frequently used type of imagery is referred to as visual-external imagery – seeing yourself perform from a distance as though watching from a grandstand or viewing video playback. With practice, it is possible to engage all of the senses at once or synaesthetically to create really vivid experiences.

Research shows that the more clearly you are able to experience mental images and the more accurately you can control your imagined movements, the more likely you are to translate the images into superior performance(30).

### **V. FACTORS OF MENTAL IMAGERY AND SELF HYPNOSIS**

Developmental imagery must to experience three factors (31):

- **Increasing the degree of sensory perceptions:** The mental images that athletes use in sports are based on direct experience. Athletes need to access this information from memory and use them to create images that they can shape and control. The first step is a good awareness of the sensory experiences that accompany the technical execution: body position, legs and arm movements, movement tempo, change of direction, visual,

kinesthetic and auditory perceptions. Increasing awareness can be achieved by focusing attention in this direction.

- **Increasing the intensity of mental images:** This is done using imagination. “The ability to adjust the speed of your imagery. Slow motion is effective for focusing on technique”
- **Increase control:** control over mental images by increasing the ability to manipulate inresemantal images to achieve goals.

The need for increased awareness of the value of sports hypnosis it is also essential that the stigma of hypnosis as a “stage act” be overcome. Several factors can contribute to this moving forward, including (30) :

- A. Establishing an evidence-based practice model where practitioners can contribute to protocols for specific applications;
- B. Integrating hypnosis and hypnotherapy training by professionals;
- C. Increased visibility on the internet (websites/you tube/ video) of basic information and models of sports hypnosis and its benefits.

### VI. MENTAL IMAREY THEORIES AND MODELS

For many years, researchers have been interested in how images are used and used by individuals. When people in the picture begin to retrieve information from memory to create or re-create something in their mind (32). With image integration, sub-processes, such as image editing (e.g., photo rotation), scanning (e.g., obtaining image details), and retention (e.g., keeping the image for a while), are clear and controllable. In addition to the appeal of a simple definition, a deeper understanding of how images work is needed. Therefore, multiple theories have been proposed (psychoneuromuscular, bio-informational, triple code). In addition to the support and criticism of each of these ideas, they collectively provide the basis for continuing to lead and refine photographic research and therefore allow for exploration and interpretation. The most commonly discussed ideas in sports, exercise, and cognitive functioning are presented as well as summaries of visual model models (33).

**Table 1:** Theories and models of mental Imagery

Year	Theory and Models	Key Authors	Description
1930	Psychoneuromuscular theory	Jacobson, E	It notes that when an individual mentally imagines a skill, the activated neural pathways are identical to those activated when physically performing the skill. The feedback one receives from the muscle innervation of the imagined skill enables the individual to make adjustments in motor behavior
1984	Bioinformational theory	Ahsen, A	In stimulus proposition and response characteristics, he added a third concept as such, the most effective images are those that are realistic and vivid, evoke psychophysiological responses, and impart significance to the individual.
1985	Analytic model	Paivio	It is well established that imagery has cognitive and motivational functions that operate at a general or specific level
1999	Applied Model of Imagery	Martin, Moritz, and Hall	The sport situation influences the types of imagery used, which are then associated with various cognitive, affective, and behavioral outcomes
2005	Applied model for exercise settings	Munroe-Chandler and Gammage	The antecedents include factors beyond the physical setting (e.g., exerciser’s goals and experiences), efficacy beliefs mediate the function-outcome relationship, and the individual differences that moderate the relationship extend beyond imagery ability (e.g., frequency of exercise, age). This model has allowed for the refinement and development of exercise imagery research.

2001	PETTLEP model	Holmes & Collins,	The PETTLEP model was developed to guide imagery interventions and is based on functional equivalence, which suggests that processes that occur in the brain during imagery mimic the processes that occur during actual movement. Seven key factors are identified to help guide imagery interventions; physical, environment, task, timing, learning, emotion, and perspective
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### VII. SELF HYPNOSIS THEORIES AND MODELS

For over a century scientists and clinicians have proposed mechanisms to explain the phenomenon associated with hypnosis. The key theories of hypnosis, historical and current, are presented here. For the more recent models some knowledge of cognitive psychology is useful. Within psychology most current models of how the mind works, what is termed 'executive function' make use of the concept of an executive control system (34).

A key debate in hypnosis throughout the twentieth century has been between 'state' vs. 'non-state' theories, properties of these types of theories are given below. Recently, attempts have been made to integrate findings from both of these positions (Table-2) (35).

**Table 2:** Description of some properties of state and non-state theories of hypnosis

Year	Theory	Authors	Description	Type
1950	Role theory	Sarbin	A general theoretical framework for understanding human social behaviour.	Non-state
1974	Neodissociation theory	Hilgard	Hypnotic phenomenon are produced through a dissociation of high level control systems.	State, Dissociation
1986	Socio-cognitive theory	Spanos	It reveals that attitudes, beliefs, imaginings, attributions and expectancies all shaped hypnotic phenomena.	Non-state
1985	Response expectancy theory	Kirsch (1985, 1991, 1994), Lynn	An extension of social learning theory. How a participant <i>expects</i> suggestions to change their subjective experience lead to a change in experience, and can generate involuntary responses.	Non-state
1994	Dissociated control theory	Woody & Bowers 1994	The control systems which initiate an action become dissociated from the components that initiate an action	Dissociation
1998	Integrated dissociative theory	Woody & Sadler (1998)	A re-integration of dissociated experience and dissociated control theories.	Dissociation
1999, 2004	Integrative cognitive theory	Brown, Oakley	Placing emphasis on the nature of perception and consciousness, they incorporate ideas from both dissociated control and response set theories. They include the dissociated control theory concept that suggested responses may be facilitated by an inhibition of high-level attention, and the response-set idea that suggested involuntariness is an attribution about the causes of behaviour.	Integrative
2007	Cold control theory	Dienes, Perner	Draws a distinction between: being in a mental state being aware of being in that state Argues that a successful response to hypnotic suggestion can be achieved by forming the intention to perform an action, without forming higher order thoughts about intending that action	Cognitive

### 7.1 Application of Imagery and Self Hypnosis

- Environment should be right for focusing attention. At the first environment must be quiet and later mental imaging can be used in the competitive environment that is extremely demanding.
- Athlete's condition should be relaxed. Relaxation is an essential component in perfecting mental imaging.
- Athlete's motivation - to improve physical and mental techniques must be intrinsic motivation.
- Athlete's attitude and expectations - for efficiency, the athlete has to believe in mental images. Negativity and distrust counteract the power of mental images just as it negatively influences performance. The attitude should be reasonable, they don't have to expect immediate results.
- Practicing techniques - simply performing techniques can not lead to the achievement of these goals its must be exercised continuously (32).

### 7.2 Mental Imagery Training for Development of Sports Performances

The following factors are helpful for development of mental imagery,

- **Ability:** Both Martin, Moritz, and Hall (36) and Munroe-Chandler and Gammage (37) have proposed that the relationship between imagery use and desired outcome is moderated by various individual differences, especially the ability to image.
- **Image Speed:** Regarding the Timing element of the PETTLEP model, Holmes and Collins (38) have recommended that athlete image primarily in real-time speed, due to the accurate representation of movement speed and duration of images.
- **Age:** The cognitive development of the individual, most often distinguished by age, is another factor influencing imagery use. Much of the research conducted by Kosslyn and colleagues (39) in the general psychological domain notes differences in imagery use between children and adults. More specifically, it is not until age 14 that children are able to image similar to their adult counterparts. Age differences also hold true in the sport, exercise, and active play domain.
- **Skill Level :** One of the most consistent findings from the performance imagery literature is that higher skilled performers report using imagery more often than lower skilled performers (40,41). In the sport domain, although it had been suggested that novice athletes should use imagery more frequently than elite athletes, simply for the purposes of the learning, and development, of new strategies and skills (42).
- **Imagery Perspective:** Morris and Spittle (42) noted that imagery perspective is a key factor impacting an athlete's use of imagery. Performers can imagine the execution of a skill from their own way (internal imagery) or they can view themselves from the perspective of an external observer (external imagery).
- **Other Factors:** Scholars have recently acknowledged the scant research assessing the influence of personality characteristics of imagery use and its effectiveness (43-44). Athletes' emotional regulation associated with their imagery ability. Indeed, their results indicated that athletes who change how they think about a particular situation scored higher on imagery ability.

### 7.3 Practice Makes Perfect

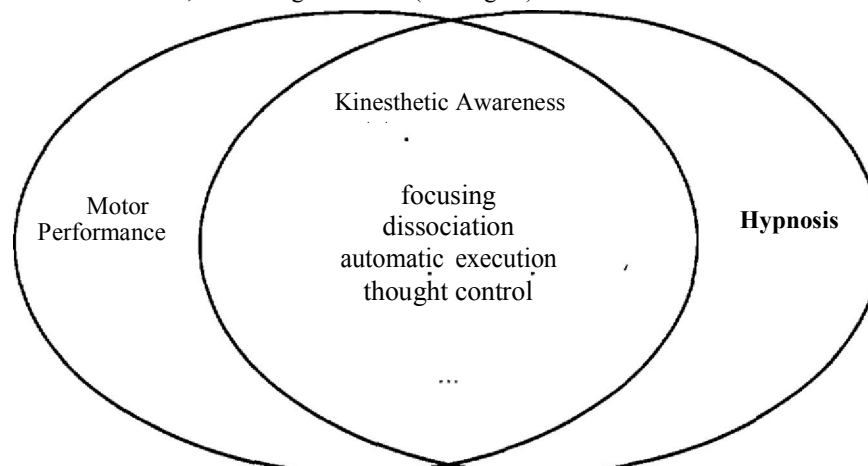
Imagery is a skill, and, just like any skill that you perform in your sport, you will need to practice in order to be perfected(45).

1. **Quality... not quantity.** Because imagery is a mental skill, you will need to concentrate on creating and controlling your images, which can be tiring when you first get started. For this reason, it is best to begin your imagery training by imaging, high quality images for short periods of time, and then gradually increasing the time you spend imaging.
2. **Set the scene.** Try to make your imagery as realistic as possible by re-creating important details of your sport setting (e.g., practice and competition venues) in your mind's eye.
3. **Plan your imagery.** Images of sport can frequently pop into head, but to really benefit from imagery, one should plan the content of r imagery to meet one's current needs. Here are just some examples:

- If you are struggling to perform a certain skill or strategy in game situations, you should try imaging yourself performing that skill or strategy perfectly and confidently in an upcoming game.
- If you often let distractions get in the way, try imaging yourself staying relaxed and focused in the presence of those distractions.
- If you have problems handling your nerves in competition, try to imagine yourself performing exactly the way you want to under those conditions that normally would make you nervous.

#### 7.4 Self Hypnosis Training for Development of Sports Performances

The Isomorphic Model is based on the assumption that hypnosis and motor performance share common skills, like the development and perception of somatic sensations (kinesthetic awareness), imagery, focusing, dissociation, automatic execution, and thought control (see Fig.-1).



**Figure 1:** Skills common to motor performance and hypnosis

Following the lines of this model, mental-training programs have two phases. (1) During practice, active-alert hypnosis is used to develop and strengthen important mental skills for performance, and (2), after practice, traditional hypnosis is applied to develop and strengthen the same mental skills considered in the first phase. To induce traditional hypnosis, the procedures are identical or very similar (isomorphic) to those in alert hypnosis. The whole procedure must be adapted to meet task requirements and subjects' characteristics. During practice, active-alert hypnosis are obtained by asking the athlete to become absorbed by specific somatic sensations, images, and thoughts, involving one by one all the sensory channels (kinesthetic, visual, auditory, tactile, and sometimes vestibular) important for motor activity as well as for trance induction. In Fig. 2 examples are given to show induction of active-alert hypnosis and traditional hypnosis.

#### 7.5 First Phase: During Practice

Exercises to increase bodily awareness and mental skills (imagery, focusing, automatic execution) through alert hypnosis are considered (46):

- **Bodily Awareness** —Bodily awareness is important to carry out movements correctly and to achieve optimum conditions, i.e., arousal level, for performance. The subject is asked to (a) pay attention to perceptions from bodily areas important for movement like muscular tension of lower limbs when starting a race; (b) pay attention to perceptions coming from bodily Exercises to increase bodily awareness and mental skills (imagery, focusing, automatic execution) through alert hypnosis are considered. Contact with equipment such as hands' contact with the ball before the serve in volleyball or with the carbine in shooting; (c) perceive and control breathing to increase or decrease arousal; and (d) perceive heartbeat. To develop alert hypnosis for body awareness, the athlete is required progressively (a) to focus on kinesthetic muscular

perceptions, breathing, and heartbeat, (b) to imagine coloring or lighting body areas, (c) to perceive breathing, and (d) to perceive contact with the ground or with equipment. This way, kinesthetic, visual, auditory, and tactile sensory channels are gradually involved, and alert hypnosis are easily achieved.

### **7.6 Second Phase: After Practice**

In the second phase, after practice, hypnosis is induced following the lines of the model, that is, with procedures identical or very similar (isomorphic) to those for alert hypnosis. The aim is to establish strong connections between the two phases (alert hypnosis during practice and traditional hypnosis after practice) so the athlete can achieve mental skills important for sports as well as hypnotic performance. The differences regard the setting in which suggestions are given. In alert hypnosis, instructions are given before or during the motor task (by an external operator or by the subject) in wakeful conditions. In traditional hypnosis, hetero- or self-hypnotic suggestions may be aimed at relaxation and drowsiness.

Coherent and interactive links between alert hypnosis and traditional hypnosis are sought to acquire skills transferable to motor performance. If, during training, attention is placed on somatic perceptions to develop bodily awareness and to induce alert hypnosis, also hypnosis which follows training must be induced through somatic techniques. Suggestions should be given to involve gradually the sensory channels, (a) kinesthetic through "body scanning," (b) visual by imagining a progressive coloring (or lighting) of the whole body, (c) auditory by focusing on breathing noise, and (d) tactile by perceiving body contact with the ground.

## **VIII. IMPORTANCE OF MENTAL IMAGERY AND SELF HYPNOSIS IN SPORTS**

Although some Champion athletes insist that they spend more time practicing their mental field, it is clear that mental imagery cannot fully complement your physical training (47):

1. **Improve Physical Activity in Sports:** Because your mind sees the imaginary experience as if it were real, you can feed it with the emerging choices of your choice. So if, for example, you wanted to work on your golf swing, you could imagine yourself pulling yourself out of perfection, thus creating a memory block that would pass on to your future physical death.
2. **Increase Motivation:** You can use a motivating image to charge by motivating by customizing your goals. Experts like Arnold Schwarzenegger (bodybuilder) have given an account of how they claimed first place on the winner's platform countless times first in their imagination before translating their knowledge into reality.
3. **Gain Confidence:** Do you know that boost in confidence when you achieve something worthwhile? With your imagination, you can masterfully create future success situations, or you can visit your previous victories. Somehow, seeing yourself succeeding, strengthens your self-confidence in this visual activity.
4. **Reduce Stress and Anxiety:** If you return to the world of thought, you can stop being depressed and anxious. At Psycho-Cybernetics the world's best-selling, Drs. Maxwell Maltz called that inner world a "Mental Foxhole." It is your private domain where you can do whatever you like. To relax and reduce anxiety, you would visit a quiet, relaxed environment free of stress. Last resort for recovery. Visiting a safe place you think is an effective remedy for stress and anxiety, often. As an athlete, in particular, to reduce work stress, you can imagine yourself acting calmly and confidently (or in any other desired mood), symbolizing all the details that make up a complete athletic practice.
5. **Keep the Top Form and Get It Quickly When You Are Injured or Sick:** In times when you may not be able to exercise because you are suffering from an injury or have a fever, you may still be able to continue your training sessions, visit your mental health center, thus speeding up your recovery and maintaining a good form.
6. **Familiarize the runner with a competitive environment, racecourse, complex play pattern or standard procedure, etc .**
7. **Encourage the athlete by remembering pictures of their goals for the session, or of success in the previous race or by hitting the race;**



8. **Complete skills or a sequence of skills the athlete reads or refines;**
9. **Focus on the athlete where necessary**, e.g. if performance feels lazy, a picture of good past performance or a focus on a previous event can help restore things to normal;
10. **Success** :success when a runner sees himself performing the skills well and the results he wants;
11. **Mental Performance** :Set the stage for a complete mental performance with the essentials of their performance to set the mood and focus the athlete wants.

#### **IX. CONCLUSION**

The most stored image in memory when the word 'hypnosis' is mentioned. This Stage hypnotist demonstration causes fear and misunderstanding in the minds of athletes and others, who would like to use hypnosis to dispel fears, instill confidence or reduce psychological problems. For sports hypnosis to be more effective, a Stage hypnotist image must be displayed. What we need is more scientific evidence and case studies showing the benefits of hypnosis for athletes and coaches. In addition, we need to show how sports hypnosis can be used to control waking levels, set goals, eliminate restrictions, images, and improve performance in a variety of sports in controlled environments and real competitions. So let's hope it is applying '.

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