

Mental Imagery To Enhance Performance

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Abstract

The growth of sport and exercise psychology has provided physical education, exercise science, and sport professionals with a clearer understanding of various psychological factors that may affect an individual's performance. Sport and exercise psychologists have been able to enhance individual performance through the use of a diversity of intervention strategies. Although much of the work done in the area of sport psychology has been with athletes, many of the findings and techniques are applicable to participants in a variety of physical activity settings such as school, community, and corporate fitness programs. As the field of sport and exercise psychology continues to expand, practitioners will gain further insight into how to enhance the performance of all individuals.

Keywords: Mental Imagery, Mental Training, Psychological Training, Sports Performance

Introduction:

Imagery is an important mental training tool found to be effective in improving the performance of athletes. Recreational marathoners, Olympic platform divers, and professional golfers are among the thousands of athletes that use imagery to improve their performance. Imagery develops a blueprint for performance, enabling athletes to improve their physical skills and psychological functioning during competition. Imagery can assist athletes in attaining their goals. Veale and Greenleaf define imagery as the "process of using all the senses to re-create or create an experience in the mind." Anderson explains that "mental imagery occurs when a person images an experience. The person 'sees' the image, 'feels' the movements and/or the environment in which it takes place, and 'hears' the sounds of the movement—the crowd, the water, the starting gun." In contrast to daydreaming, imagery is a systematic process that is consciously controlled by the person, who takes an active role in creating and manipulating the images and structuring the experience. Imagery does not involve overt physical movements. Imagery in conjunction with physical practice can improve performance.

Nature of Imagery:

There are two types of imagery: external imagery and internal imagery. Athletes who engage in external imagery see themselves performing as if they were watching a videotape of their performance. For instance, when a golfer observes

her-self completing a putt for par on a sunny day or a quarterback watches himself successfully throw a pass through the hands of a defender to the out-stretched hands of his receiver, they are using external imagery. Internal imagery is when athletes construct the image of the performance from the perspective of their own eyes, as if they were inside their body when executing the skill. From this perspective, athletes' images are formed from what they would actually see, feel, and/or hear in the situation as if they are actually there. Using internal imagery, a surfer would feel her muscles tense and relax as she balances and moves up and down the board, adjusting her body position to ride the wave; she would see the sun beating down on the ocean, the waves forming, and her feet's position on the board. She would notice the sparkling water droplets from the ocean on her body, and hear the sound of the surf. Athletes using internal imagery see the experience from within themselves. Athletes who are skilled at the use of imagery can use both the internal and external perspectives effectively. Some sport psychologists suggest that internal imagery is most effective for rehearsing skills and refining performance, and external imagery may be most helpful in assisting athletes to correct critical aspects of their performance. Vividness is a critical feature of imagery. Mental image constructed by the athletes. Vividness is enhanced through the use of color, incorporation of multiple senses, and integration of emotion within the imagery. Imagery goes beyond just the visualization or seeing of an event. The

incorporative of other senses, such as kinesthetic sense (sensations of the body as it moves into different positions), gustatory (taste), olfactory (smell), auditory (hearing), and tactile (touch) senses, adds much to the vividness of the image. The use of multiple senses enriches the detail of the image. If you compare the two descriptions of the images that follow, it is easy to see how the use of multiple senses enhances the image. One swimmer uses only vision in constructing a visualization of his event—the 400 yard individual medley. The swimmer imagines swimming and seeing the wall coming closer and closer with each stroke as he approaches the turn. Another swimmer also visualizes the wall coming closer and closer with each stroke. But he adds information from his other senses to increase the richness of the image. The swimmer images feeling the undulations of his body in the butterfly stroke, smelling the familiar odor of the chlorine in the pool, maintaining the pressure on the palms of his hands and soles of his feet with each stroke, and hearing the roar of the crowd as sprints home with his free-style, closing in on a record time. Adding emotions to imagery further enhances its vividness. The swimmer can enhance his image by adding the feelings associated with the anxiety he experiences as he walks out on deck to the event, waiting behind the starting block to be introduced. As he hears himself being introduced and the roar of the crowd, he can feel the excitement of the race, the challenge it presents, and replace anxiety with the confidence he has gained from

months of hard work. As he completes the race and looks up to the scoreboard to see his time, he can imagine feeling jubilant and excited at achieving a personal best. In experiencing these emotions, athletes should tune into the associated physiological responses, such as their heart rate or sweaty palms, and recognize the positive and negative thoughts associated with the various emotions. Emotions coupled with multisensory input enhance the effectiveness of imagery. Controllability is an essential feature of effective imagery. Vealey and Greenleaf define controllability as "the ability of athletes to imagine exactly what they intend to imagine, and also the ability to manipulate aspects of the images that they wish to change." Athletes must be able to control their images so that they can manipulate the image in certain ways to focus on critical aspects of performance. The ability to control images allows athletes to re-create experiences and view them from different perspectives. It also allows athletes to place themselves in situations that have not occurred previously and rehearse different ways to effectively deal with these situations. If the situation occurs, athletes can respond to it competently and confidently because they have imagined their response. Being able to control the content and perspective of the image is critical to its effectiveness.

Uses of Imagery:

Imagery is a versatile mental training technique and can be used in many different ways by athletes to enhance their performance. Vealey and Greenleaf identify seven uses

for imagery: developing sports skills, correcting errors, rehearsing performance strategies, creating an optimal mental focus for competition, developing pre performance routines, learning and enhancing mental skills, and facilitating recovery from injuries and return to competition. Using imagery to learn and practice sports skills is one way that imagery can enhance athletes' performances. Athletes should select one or two skills to rehearse in their mind. They should rehearse these skills focusing their imagery on executing the skill perfectly; this practice will help create a mental blueprint of the response. As possible, athletes should incorporate as much relevant sensory information as they can. Athletes who are just beginning to learn a skill may benefit from viewing videotapes of correctly performed skills. Coaches can also demonstrate the correct performance as well as provide verbal cues that will assist the athlete in correctly sequencing the skill's components or mastering its timing. Athletes can perform the imagery on their own or the coach can incorporate imagery into the regular practice. Error correction is another use for imagery. Athletes frequently receive feedback from their coaches, suggesting corrections in skill execution or adjustments in execution of strategies. To enhance the effectiveness of this feedback, athletes can use imagery. After receiving feedback from the coach, athletes should image their performance with the corrections integrated into the image. Imagery allows athletes to experience how the skill or play looks and feels when

performed correctly. Learning and practicing performance strategies is another way that imagery can be used effectively by athletes. This allows athletes to rehearse what they would do in specific situations. For example, after a coach reviews set plays on a corner kick, soccer players can imagine themselves moving through the plays. This approach can also be used after the coach reviews a scouting report on an opponent. Using imagery, players can rehearse the strategies they will use against the opponent. For example, basketball players can rehearse the strategies they will use to counter the opponents' full court press. Imagery is also a useful tool for athletes seeking to optimize their mental focus. They can rehearse creating and maintaining a strong mental focus during competition. Vealey and Greenlead suggest that coaches can assist athletes with this aspect of imagery by posing and helping them answer two questions: "What will it be like?" and "How will I respond?"²⁸ Helping athletes understand the distractions, crowd noise and boing, and challenges in the competitive environment, such as poor officiating, allows them to imagine themselves effectively dealing with these situations. This advance preparation helps athletes to respond with greater confidence and composure, not react. Imagery allows athletes to gain experience in responding to a diversity of competitive challenges, whether expected or not. Imagery is often incorporated into pre performance routines. Many athletes have a set routine they use prior to the performance of a skill and imagery is a part of

this routine. For example, a basket-ball player taking a free throw carefully positions her feet a certain way at the line, bounces the ball a set number of times, spins the ball in her hands, next places her hands for the shot, and then takes a deep breath and exhales before shooting. Before releasing the ball, the player visualizes the ball leaving her hand, spinning, and entering the basket with-out touching a rim. Pre performance routines have beneficial effects on athletes' performance. These routines are practiced until they are automatic, essentially becoming part of the skill sequence. Imagery can be used to strengthen a variety of mental skills critical to athletes' performance. Imagery can be used to enhance self-confidence and engender feelings of competence. This can be done by having athletes mentally recreate past successful performances, focusing on their accomplishments and the feelings associated with them. They can also rehearse via imagery, coping confidently with performance errors, effectively managing their emotions in the heat of competition, and assertively meeting unexpected challenges during performance. The regulation of arousal is another way imagery can be used by athletes. Athletes can use imagery to "psych up" for a competition or to decrease their arousal if too high. Facilitating recovery from injury and return to competition is another way that athletes can use imagery. When athletes cannot participate in practices because they are injured, they can attend practices and mentally imagine rehearsed skills and strategies. They can

imagine themselves engaging in practices, performing drills and scrimmaging, just as if they were actually there. Imagery can also be used by athletes to enhance their recovery by setting rehabilitation goals and imaging their attainment. Imagery can be used in many different ways to enhance athletes' performance. It can facilitate the learning of skills and correction of mistakes and provide opportunities to rehearse and experiment with different performance strategies and tactics. Imagery can be used to strengthen athletes' mental skills and to aid in returning to competition following injury. Athletes use imagery during their training, immediately prior to and during a competitive event, and following competition. When using imagery it is important that the skill or situation be visualized correctly. If the skill is imaged incorrectly, performance decrements could occur. As imagery is learned and practiced, users should be encouraged to be accurate and precise in their imagery in order to gain maximum benefit.

Imagery Theories:

Sports psychologists and motor learning specialists have advanced several theories to explain how imagery facilitates learning and enhances performance. Magill notes that at present, there are no comprehensive theories to explain its performance-enhancing effects. Two of the several explanations advanced to explain how imagery works are the psychoneuromuscular theory and the symbolic learning theory. The psychoneuromuscular theory suggests that rehearsing skills through imagery strengthens the neural

pathways used to perform the actual movement, even though the movement itself is not physically performed.³⁰ Imaging leads to the innervations of the muscles actually used in the performance of the skill, although at a level that is below the level of activation needed for overt movement. The symbolic theory explains that imagery is effective because it generates a mental blueprint of the skill's movements, including the sequence of movements and their timing. As athletes mentally rehearse skills and review strategies, the mental blueprint is strengthened and becomes more automatic.

Strategies to Enhance Imagery:

Imagery is a skill that needs to be taught correctly and practiced regularly and correctly in order for athletes to reap maximum benefits. Vealey and Greenleaf suggest a four-step systematic program to help athletes learn imagery. The first step entails introducing athletes to imagery and convincing them of the merits of this training tool. Next, athletes must be helped to assess their imagery abilities—their ability to create vivid and detailed images. Athletes differ in their imagery abilities just as they differ in their physical skills. As the third step, athletes should begin to train their imagery abilities. This includes learning to integrate all appropriate senses and emotions into the imagery. This could include a short imagery practice session of 10 minutes a day to help athletes become proficient. Last, the imagery should be incorporated into the athlete's training program. Imagery should become a part of athletes' routines and must

be practiced regularly to be effective. Athletes should practice imagery in a variety of circumstances. Initially, when athletes are first learning this skill, they may find it easier to practice following a relaxation exercise and in a quiet, distraction-free environment. As athletes become more proficient, they should introduce more distractions into the environment and practice their skills in a variety of settings, including during practice and, when appropriate, in the competitive realm. Athletes' images should be vivid, rich in detail including an array of sensory, emotional, and physiological responses associated with the execution of the skill and performance. Vividness and focusing on rehearsing successful, perfect responses are critical in strengthening the mental blueprint of the skill. Athletes should also concentrate on im-aging the desired outcome of the skill and goal attainment. For example, European handball players should imagine a hard, corner shot to the goal and see the ball entering the goal and successfully scoring. Imagery should be tailored to the specific needs of the individual athlete. Not all athletes need or require the same set of images. A cross-country runner who consistently gets blocked in would benefit from using a wide array of images associated with that specific problem, whereas her teammate who consistently goes out too fast only to fall behind after leading for most of the race would benefit from imagery focusing on pacing and, perhaps, confidence. Tailoring the imagery to the specific needs of the athlete helps maximize the effectiveness of imagery.

Technology can be used to enhance the effectiveness of athletes' imagery. Some sport psychologists develop personal highlight videotapes, showing their athletes' peak performances. Special effects and motivational music enhance the impact of these videotapes. These highlight tapes can be used in conjunction with imagery to enhance the confidence of the athletes and motivate them to achieve at the highest level. Imagery is an important mental skill. Even though imagery was discussed in relation to athletes, it can be used in a variety of performance situations, such as public speaking or taking the NATA certification exam. Imagery, goal-setting, and self-talk are important mental skills that can enhance the learning and performance of people in a variety of situations.

Intervention strategies:

In recent years coaches, teachers, and sport psychologists have turned to a variety of intervention strategies to help athletes achieve their optimal performance. As discussed earlier, anxiety and arousal can have harmful effects on athletes' performance. Athletes' performance can also suffer due to lack of motivation, poor level of self-confidence, and, because of the intimate relationship between the mind and the body, negative thoughts and feelings about themselves and their capabilities. With the help of appropriate intervention techniques, athletes learn skills and strategies to regulate their physiological and psychological state to achieve optimum performance.

Sometimes athletes experience excessive anxiety and arousal, which causes a deterioration in their performance. Intervention strategies focusing on reducing this level would benefit these athletes. One way to deal with elevated levels of arousal is through the use of a variety of relaxation techniques. These techniques teach the individual to scan the body for tension (arousal is manifested in increased muscular tension) and, after identifying a higher-than-optimal level of tension, to reduce the tension to the appropriate level by relaxing. Once specific relaxation techniques are learned, this process should take only a few minutes. Types of relaxation training include progressive relaxation, autogenic training, transcendental meditation, and biofeedback. A note of caution is in order here, however. Athletes should be careful not to relax or reduce their level of arousal too much because this will have a harmful influence on their performance. In recent years, the use of cognitive strategies to facilitate optimum performance has gained increased acceptance. Cognitive strategies teach athletes psychological skills that they can employ in their mental preparation for competition. In addition to focusing on alleviating the harmful effects of anxiety and arousal, these cognitive strategies can also be used to enhance motivation and self-confidence and to improve performance consistency. These approaches include cognitive restructuring, thought-stopping, self-talk, hypnosis and self-hypnosis, goal-setting, and mental imagery. Some cognitive intervention techniques focus on changing athletes'

thoughts and perceptions. Self-talk, previously discussed, is an example of a cognitive intervention technique. Cognitive strategies can also be used to alter athletes' perceptions of events, thus reducing anxiety. Affirmation of athletes' ability to succeed in an upcoming competition is another cognitive strategy frequently used to promote optimal performance. Imagery is the visualization of a situation. This technique has been used in a variety of ways to enhance performance. It can be used to mentally practice skills or to review outstanding previous performances. By remembering the kinesthetic sensations associated with the ideal performance, the athlete hopes to replicate or improve performance. Imagery has also been used as an anxiety-reduction technique. The athlete visualizes anxiety-producing situations and then "sees" himself or herself successfully coping with the experience, thus increasing confidence to perform successfully in similar situations. Intervention strategies have proved useful in helping athletes maximize their performance. These strategies are not only for athletes but also have implications for all participants in physical activities and sport. For example, the beginning jogger may derive as much benefit from goal-setting as the high-level performer. The practitioner using these strategies must be cognizant of individual differences; otherwise, performance may be affected adversely.

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