

Visualization

Reference:

Plessinger, Annie (2010). Excerpts from: The Effects of Mental Practice on Athletic Performance.

What is Mental Imagery?

Mental imagery, also called *visualization and mental rehearsal*, is defined as experience that resembles perceptual experience, but which occurs in the absence of the appropriate stimuli for the relevant perception. Whenever we imagine ourselves performing an action in the absence of physical practice, we are said to be using imagery.

Claims

Visual imagery advocates purport that this technique increases energy and avoids injuries as well. Not only will visualization improve athletic performance but the ads also claim that it will enhance motivation and overall enjoyment of the sport.

The Importance of Mental Imagery

Many sports such as golf, tennis and skating, not only require physical skills, but a strong mental game as well. Most coaches preach the line that sports are 90% mental and only 10% physical. Especially in sports where hundredths of a second or tenths of an inch separate the champions from the mediocre athletes, an extra edge can be extremely crucial. Hence, numerous athletes are turning towards mental imagery to take their game to the next level. Different uses of imagery in sport include: mental practice of specific performance skills, improving confidence and positive thinking, problem solving, controlling arousal and anxiety, performance review and analysis, preparation for performance, and maintaining mental freshness during injury.

How to Implement Mental Imagery

There is no correct way to practice mental imagery. It is all left up to individual preferences and the present circumstances. It can be done on or off the field, very short (within a few seconds or minutes), of a long duration, sitting up, lying down, in complete silence, with a stereo, eyes closed or they can be open. A shorter version of imagery is best implemented during matchplay. For example, a tennis player may take a few seconds to visualize him or herself hitting the perfect serve in the place where he or she wants. Or a quarterback can go through a play in his mind just before calling the play. Longer, specific guided visualizations are usually designed for a quiet room prior to competition. In this case, the player should be in a relaxed and receptive state in order for the image to go deeply into the mind. It is recommended to do visualization two or three times per week.

Studies

There is sufficient reliable evidence that suggests imagery rehearsal can sometimes improve motor performance in a variety of sports.

Not only does mental imagery seem to enhance athletic performance, but it has been shown to enhance intrinsic motivation as well. A study in 1995 tested who would spend more time practicing a golf putting task and who would result in having higher self efficacy. Thirty nine beginner golfers were grouped into an imagery or control group. For 3 sessions, both groups were taught how to hit golf balls. The imagery group practiced in an imagery training session designed for this specific golf skill. As a result, the imagery group spent significantly more time practicing the golf putting task than the control group. In addition, the subjects in the imagery group had more realistic self-expectation, set higher goals to achieve, and adhered more to their training programs outside the experimental setting (Martin, 54-69).

How Mental Imagery Works

The reason visual imagery works lies in the fact that when you imagine yourself perform to perfection and doing precisely what you want, you are in turn physiologically creating neural patterns in your brain, just as if you had physical performed the action. These patterns are similar to small tracks engraved in the brain cells which can ultimately enable an athlete to perform physical feats by simply mentally practicing the move. Hence, mental imagery is intended to train our minds and create the neural patterns in our brain to teach our muscles to do exactly what we want them to do (Porter, 17).

Theories of Imagery Rehearsal Mechanisms

Sports psychologists have attempted to understand the exact mechanisms that cause mental imagery to work. Numerous theories exist, but sports psychology lacks a single theory which completely explains the effectiveness of mental imagery. The earliest theory was proposed by Carpenter in 1894 called the psychoneuromuscular theory. This theory maintains that imagery rehearsal duplicates the actual motor pattern that is being rehearsed. His view is that the motor patterns which are generated during imagery practice are the same as those used for physical practice.

Another prominent theory is the symbolic learning theory. This differs from the previous theory that instead of imagery working due to muscle activation, mental imagery works from the opportunity to practice the symbolic elements of a motor task. Therefore, it is assumed that the learning obtained from imagery relates to cognitive learning.

A third theory, called the arousal/activation theory, connotes that by practicing imagery, one will obtain a level of arousal that is optimal for the specific performance. The arousal functions as a way of "priming" the muscles which result in a lowering of the sensory threshold of the performer to facilitate performance.

Peter Lang came up with an information-processing model of imagery which presumes that an image is a functionally organized, definite set of propositions stored by the brain. It is not simply a stimulus in a person's head to which one responds. This image has two main types of statements: response propositions and stimulus propositions. The latter describes the content of the scenario to be imagined. Response propositions, on the other hand, describe the imager's response to that scenario. Lang further states that an image contains a motor program which holds instructions for the imager on how to respond to the image. Hence, the image is a template for overt responding. So modifying either overt behavior or vivid imagery will result in a change in the other (Suinn, 492-506).

Another popular theory is Suinn's visual motor behavior rehearsal (VMBR) model which posits that imagery should be a holistic process that includes a complete reintegration of experience. This includes visual, auditory, tactile, emotional, and kinesthetic cues. He has demonstrated that physiological responses can result from athlete's usage of mental imagery. Suinn's method is one of the few which has solid evidence to support its effectiveness.

A more recent model, which also places importance on psychophysiology, goes even further by including a specific meaning for an image. This model is known as Ahsen's Triple Code Model of imagery (ISM). According to Ahsen there are three fundamental parts to an image. The first part is that the image itself must be a centrally arousing sensation so it is more like the real world. It has all the attributions of a sensation, the only difference is that it is internal. This image provides the imager with so much realism that it can enable him or her to interact with the image as if it were the real world. Secondly, there exists a somatic response. Therefore, the very act of imaging results in psychophysiological changes in the body. Finally, the third part of the image is the actual meaning of the image. Every image has a significant meaning and that specific meaning can imply something different to each individual. Since every person has a unique background and upbringing, the actual internal image can be quite different for each individual, even though the set of imagery instructions are the same (Murphy, 153-172).

Conclusion

After reading through numerous studies, visual imagery seems somewhat promising and beneficial. Although it is not as beneficial as physical practice, visual imagery fairs better than no practice at all. Hence, a program with physical practice combined with mental training seems to be the best method. Virtually all of the studies show that mental training improves motor skills. More recently a lot of studies go even further and prove that visual imagery can improve various skills related to sports in actual field contexts. Visual imagery seems to be beneficial to anyone who wants to improve at their sport. Whether you are a recreational athlete or a professional does not matter. The benefits of mental imagery have proved successful at any level. So if you are a professional looking to break into the top, or a club player who simply wishes to defeat his/her friend, I recommend incorporated mental imagery along with physical practice. Not only can mental imagery improve specific motor skills but it also seems to enhance motivation, mental toughness and confidence, all which will help elevate your level of play.

However, even though most of the studies demonstrate that mental imagery results in significant sports improvement, I am skeptical to the extent of the external validity of these experiments. If

one can return a serve more precisely in volleyball, does that mean that it will work under real pressure situations? In addition, does this mean that improvements will be made in other areas of the game besides the serve? Will this work in other sports not yet tested such as football? It seems rather naive to generalize these findings to real world, intense pressure situations of all sports. There also lies a shortage of evidence regarding exactly how mental imagery works to enhance performance. More studies need to be done to determine when and why imagery techniques are and are not effective. If this problem can be addressed, then more effective techniques can be created and will in turn further increase the effects of mental imagery. In addition, it might also help solidify the validity of the previous experiments.

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