

## MENTAL IMAGERY AND VISUALIZATION IN SPORT CLIMBING TRAINING

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(Review)

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**Abstract:**

*The aim of this paper was to explain the use of mental imagery and visualization in sport climbing training. Sport climbers use two types of visualization: disassociated and associated. Visualization can be used in the following climbing activities: preprogramming a redpoint ascent, preparing for an on-sight ascent, preparing for competition and climbing injured or tired. Studies clearly show that utilizing the mind/body connection through visualization can significantly improve the climber's skills. It can also help them to become more focused, and even overcome or prevent training burnout.*

**Key words:** *training, competitions, sports, cognitive methods, somatic methods*

**Introduction**

Over the years climbing has been considered most popular and most attractive sport of leisure time with the highest increase of membership worldwide (Creasey, Shepherd, Banks, Gresham, & Wood, 1999). As the popularity of climbing has grown, so has the interest in researching the psychological aspects of climbers. However, it is only recently that research has examined the use of imagery and visualization in climbing (Barton, 1996; Hardy & Callow, 1999; Jones, Mace, Bray, MacRae & Stockbridge, 2002).

All climbing disciplines demand strength, endurance and skills acquired during long systematic training. Physical preparation for sports climbing implies increased volume and specificity of the trainings as forwarding towards the elite athletes sports form. Since majority of sports climbers do not follow any expert plan of training (Twight & Martin, 1999) but utilize their 'feelings' it is assumed that more advanced climbing formula could be obtained by the administration of systematic and documented sports climbing's principles, these being frequencies, intensity, duration and types of trainings (Wilmore & Costill, 1999) which are to be selected considering specific motor abilities of each single climber. But, there is one very specific type

of training that is often overlooked or underrated. This is mental training, or visualization. Many top athletes use this type of training. There have been studies done on the effects of visualization in sports by some of the top universities in the world.

The aim of this paper is to explain the use of mental imagery and visualization in sport climbing training.

**Mental skills training techniques**

Most mental skills training techniques can be grouped into two basic categories, cognitive and somatic methods. Cognitive methods include mental rehearsal, mental imagery and visualization, visuo-motor behavior rehearsal, and cognitive-behavior therapy. Somatic methods include biofeedback, progressive muscle relaxation and meditation. Although cognitive and somatic methods develop the psychological apparatus of the individual from different perspectives there is much overlap because of the nature of psychosomatic function. Therefore, elements of each tend to permeate elements of all, but an explanation of a variety of approaches is useful to characterize the different aspects of human nature that contemporary psychology has undertaken to enhance the mental development of the athlete (Behncke,

2004).

The brain regions responsible for motor execution appear to be also responsible for imagery processes under conscious thought without the intended movement being evoked (Decety, 1996; Jeannerod, 1995). That is, those neural operations involved in executing motor coordination also play a role in mentally representing those actions in conscious thought, through imagery, without generating the actual movement. However, imagining the event happening is not enough to elicit the correct imagery process, and like motor skills, if the mental imagery technique is performed inadequately, without sufficient attention on appropriate execution, subsequent gains in motor performance will be substandard.

There are many requirements in achieving the desired effect of mental imagery, but the first is the approach to teaching and learning the specific techniques. The visuo-spatial and temporal components form the "procedural" knowledge required for effective mental imagery, while conceptual (ideas of movement) and symbolical (language representations) elements form the "declarative" knowledge of mental imagery (Annett, 1995, 1996). These two forms of knowledge are critical if the individual is to learn the techniques needed to perform mental imagery properly. This is because imagining the skill, and actually performing the skill, needs to be as closely executed as possible for effective transfer and reinforcement to neural structures (Currie & Ravenscroft, 1997). Thus, mental imagery competency requires a degree of attention and psychological effort to elicit the desired effect.

Once declarative knowledge has been absorbed and understood and conscious attention to detail during mental imagery forms a reinforcing feedback loop that enhances neural structures, then procedural knowledge can begin. There are many guidelines to enhance the imagery process, and most, if not all, fit within the spectrum of techniques in mental imagery training (Martens, 1987; Levleva & Orlick, 1991; Rushall, 1992).

These aspects of the mental imagery process need to be constantly practiced in order to elicit results. Even though individual differences exist in mental imagery ability, generally, better imagery control correlates to better performance in the motor skill (Annett, 1995). Another approach is to combine the techniques of mental imagery with physical practice of the intended skill labeled visuo-motor behavior rehearsal.

Visuo-motor behavior rehearsal is an extension of mental imagery, in that, it combines the psychological aspect of generating the mental image with

feedback from the performance of the physical skill (Lane, 1980). This method has been used successfully, especially with closed motor skills, in a number of sports including Karate (Weinberg, Seabourne, & Jackson, 1981), basketball (Gray & Fernandez, 1989; Onestak, 1997), racquet ball (Gray, 1990), tennis (Noel, 1980), and cross-country running, golf, track and field, gymnastics, and diving (Lohr & Scogin, 1998). Visuo-motor behavior rehearsal involves three phases, first, an initial relaxation phase to retrieve a psychological state conducive for mental imagery, second, visualizing performance through various imagery techniques, and finally, performing the actual skill under realistic conditions.

By repeating this process with the intended skill during training it is hoped that real-time feedback ensues between mentally coordinating the visualization and imagery component with actual performance, thereby, minor changes in either the skill, and/or the imagery process, can be maintained in parallel. The rationale behind visuo-motor behavior rehearsal is keeping mental imagery and skill performance closely associated in training, which should correspond to an increase in performance because the individual can fine-tune both processes simultaneously. (Behncke, 2004)

### **Imagery and visualization in sports climbing**

Fewer studies have examined how imagery use can affect climbing performance. Barton (1996) examined the use of an imagery script by beginner climbers. One group of volunteer college students who had never climbed before received ten minutes of imagery training per day, over a period of ten days, in addition to the regular physical practice of climbing skills. The control group, who were also beginner climbers, was limited to physical practice of climbing skills over the same time period. It was found that the beginner climbers who received the ten-day imagery program in addition to regular physical practice did not perform any better than the control group. Jones and colleagues (2002) conducted a similar study in which novice climbers' levels of perceived stress, self-efficacy and climbing performance were assessed. Climbers who were randomly assigned to the motivational imagery intervention group reported significantly lower levels of perceived stress and higher levels of self-efficacy in their ability to execute the climb than the control group. No differences were found between the groups in overall climbing performance.

Hardy and Callow (1999) examined the kinesthetic and visual imagery used by expert climbers from both an internal and an external perspective.

The climbers were divided into four groups. Each group completed a series of bouldering problems using the combinations of internal or external visual imagery with or without the use of kinesthetic imagery. It was found that the use of external visual imagery combined with kinesthetic imagery was most effective for climbers. This supported earlier research that external imagery can be highly beneficial for tasks such as climbing, where form is important (White & Hardy, 1998).

According to Horst (2003) sport climbers use two types of visualization: disassociated and associated. Disassociated visualization provides an “on-TV” perspective, where climber sees himself climbing from an observer’s point of view. This mode of visualization is best for reviewing some past poor performance that he hopes to improve upon. As a detached observer, he can replay the movie and objectively view the mistakes or falls without reliving the possibly unhappy emotions of the situation.

Associated visualization provides a “through-your-own-eyes” perspective and thus triggers small neurological reactions as if the climber were doing the climb, as well as the feel and emotion of the movie he is playing. This makes associated visualization ideal for preprogramming some future ascent. Repeated playing of a highly detailed, positive mental movie helps trick the subconscious mind into thinking he has done the climb before (Horst, 2003).

There’s also a negative visualization. For instance, if climber visualizes himself failing on a route or in a competition, he not only preprogram this possible outcome but also destroy his self-confidence in the process. To avoid this, it’s vital that climber visualizes only positive events and ideal outcomes when he projects into the future in the associated state.

Visualization training can be used in the following climbing activities:

- preprogramming a redpoint ascent,
- preparing for an on-sight ascent,
- preparing for competition and
- climbing injured or tired.

### Conclusion

Studies clearly show that utilizing the mind/body connection through visualization can significantly improve the climber’s skills. It can also help them to become more focused, and even overcome or prevent training burnout. Like any other training, visualization must be practiced often in order for it to be truly effective. A few minutes each day is enough. Visualization can be very effective,

but it doesn’t take the place on physical sports specific training. It is a tool to help the athlete to be the best he can be. It takes patience and practice.

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## МЕНТАЛНАТА ИМАГИНАЦИЈА И ВИЗУАЛИЗАЦИЈА ВО ТРЕНИНГОТ НА СПОРТСКОТО КАЧУВАЊЕ

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(Презледен труд)

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### Апстракт:

Целта на овој труд е да се објасни корисноста на менталната имагинација и визуелизација во тренингот на спортското качување. Во спортското качување се користат два вида на визуелизација: неоврзана и оврзана. Визуелизацијата може да се користи во следниве активности за качување: програмирање на качувањето на редовно, подготвување на сигурно качување, подготвки за најпревари и качување во текојот на праењето на телесните повреди и заморот. Досегашните студии јасно укажуваат дека корисноста на оврзаноста на умот со телото низ визуелизацијата, може во значајна мера да ја унапреди вештината на качувањето. Истото така, тоа може да помогне за поголема фокусираност, а дури и да спречи и да помогне во совладувањето на „прегореноста“ со тренингот.

**Клучни зборови:** тренинг, најпревари, спортови, когнитивни методи, соматски методи