Implicit in designing and implementing a rehabilitation program is the assumption that an athlete will follow it. A log may be maintained to track progress and to ensure that return to sport participation is expedited. This is a sound approach to the practice of athletic training. If athletes are doing all they can to improve, is there more that athletic trainers and therapists (ATs) might do to advance a holistic approach to treatment?

One area that has drawn increased attention is the psychological impact of injury on the athlete, and ways in which ATs can enhance his or her psychological well-being. Sport psychologists have been researching this area for almost three decades, whereas sports medicine clinicians have more recently recognized the importance of psychosocial factors in injury rehabilitation. Some popular theories and models related to this wide-ranging issue have emerged in recent years.

Psychological adjustment to injury models can be placed into one of two categories: (a) stage or (b) cognitive. The factor that differentiates the two model types is consideration of individual differences, i.e., whether or not an athlete’s cognitive appraisal of the injury is considered to be an important factor in the recovery process. Stage models have largely failed to incorporate this critical factor, whereas cognitive models have recognized its importance. The model developed by Weise-Bjornstal et al. emphasizes the importance of cognitive appraisal as a determinant in the success of the recovery process, which is consistent with the psychology literature on stress-related processes.

Athletes make many appraisals about the recovery process that are central to the ability to cope. If an athlete’s appraisal of personal ability is deemed insufficient to meet an environmental demand, and the consequences are subjectively important, stress ensues. Seyle refers to this response as distress. When dealing with athletes who experience distress during the recovery process, psychological interventions can be effective in facilitating recovery.

An intervention strategy that the sport psychology literature has reported to be effective is relaxation. Relatively few studies have addressed sport injury rehabilitation, but the results are promising. For example, Johnson found that competitive athletes in an experimental group exhibited higher levels of positive mood and perceived readiness for return to sport, both at the midpoint of the rehabilitation process and at its end. A similar study conducted by Cupal and Brewer found that 10 relaxation and imagery sessions produced significantly greater strength of the thigh musculature and less anxiety.

**Key Points**
- Reduce stress during injury rehabilitation.
- The relaxation response can lower an athlete’s stress level.
at 24 weeks after ACL reconstructive surgery among competitive and recreational athletes.

Relaxation skills clearly help athletes to cope with the stresses associated with injury.5 The purpose of this report is to review the effects of stress on the athlete and how relaxation can combat its adverse effects.

**Effect of Stress**

The effects of stress and anxiety on sports performance have been extensively studied.15-17 The ability to regulate one’s emotions during critical moments of competition is a skill that is necessary for optimal performance.18 The terms stress and anxiety can have different meanings, but both concepts are generally considered to be factors that have a detrimental effect on performance.7,19,20 When under stress, the body secretes the hormone cortisol, which is regulated by the adrenocorticotropic hormone (ACTH). Concurrently, there is a drop in the anti-stress hormone dehydroepiandrosterone sulfate (DHEA-S).21,22 The body then exhibits physical symptoms of anxiety (i.e., somatic anxiety), such as increased heart rate, muscle tension, shallow breathing, and elevated blood pressure.20,23 A worrisome thought pattern compounds the difficulty of effectively responding to a task.7 A stressful physiologic state can produce a negative thinking pattern that clearly has an adverse effect on athletic performance, daily functioning, and injury rehabilitation.5 This presents a clear need to manage stress when athletes are recovering from injury. For example, an athlete who is experiencing worrisome thoughts could be thinking, “What if I don’t make it all the way back? How am I going to play again when I know that playing caused this injury? What am I going to do when I get back on the field (or court)? I can’t seem to stop my heart from beating fast or to stop my hands from sweating.” Such thoughts can distract the athlete from focusing attention during a rehabilitation session. Stressful thoughts usually elicit a physiologic effect, and vice-versa.7 When the mind assumes an “anxious” state, the body usually responds. The anxious athlete becomes cognitively distracted and physically stressed, which may limit the degree of benefit derived from rehabilitation sessions.

Relaxation techniques employ either a muscle-to-mind or mind-to-muscle approach. The former focuses on decreasing the activation level of the muscles to induce a sense of relaxation, whereas the mind-to-muscle technique focuses on changing the mental state. Either type of relaxation strategy works, because both accomplish the same effect: alteration of neural signals conveyed from the muscles to the brain or from the brain to the muscles.24 An effective relaxation technique breaks the stimulus-response pattern of muscular tension caused by stress, and a stimulus-response pattern of calm, comfort, and relaxation. A mind-to-muscle technique that has shown promise in reducing stress among patients receiving medical care is Benson’s Relaxation Response.23,25-27

**The Relaxation Response**

Think of a situation that facilitates a sense of calm and relaxation, which most people associate with a relatively quiet scenario. This is a key aspect of teaching relaxation techniques.25,28 However, the athletic training environment presents an obstacle in its lack of intimacy. It is difficult to induce a state of relaxation in another person when the environment is not controlled, i.e., the presence of other athletes and staff makes relaxation difficult to teach, as well as the background noise that is created by others. When combined with a clinician’s lack of experience in systematically implementing a relaxation program, the goal of the intervention may be difficult to achieve.

Despite challenges that must be overcome, the relaxation response can be achieved in the athletic training environment. It is relatively easy to learn and to teach, and the methods are highly adaptable to the chaotic environment of the typical athletic training facility. Research evidence of its effectiveness in reducing somatic anxiety through alteration of hormone levels has made the relaxation response an attractive approach for stress reduction.25

The premise for the relaxation response is rather simple: When the mind enters a state of relaxation, the body follows. “When the mind is focused, whether through meditation or other repetitive mental activities, the body responds with a dramatic decrease in heart rate, breathing rate, blood pressure . . . the exact opposite effects of the fight-or-flight response.”23 Repeating a meaningful word, phrase, sound, or prayer for about 10 minutes will clear the mind and relax the body. This basic principle can be applied to make the relaxation response effective in an athletic training facility.

Benson25 has emphasized the importance of a rhythmic breathing pattern to achieve the relaxation response. Experiencing a feeling of relaxation can be