


## Psychological Interventions of Injury in Athletes A Review

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Injury is one of the worst nightmares of any athlete. With increasing attention given to the development and implementation of psychological interventions during the sport injury rehabilitation process, there is a need to understand the effectiveness of these interventions. The purpose of this review is to summarize the empirical findings of the effects of psychological interventions in reducing post-injury psychological consequences and improving psychological coping during the injury rehabilitation process among competitive and recreational athletes. Post injury psychological consequences can be coped up with many processes like, visual imagery, relaxation, self talk, goal setting, counseling, social support and many more. In this review we will come across the psychological response to injury and its reaction of the athletes. Surgery is often the result of sports injury and is routinely followed by a rehabilitation plan. This plan usually includes physical therapy and focuses on the return of mobility and function of the injured anatomical structure (Rodriguez et al., 2019). Athletic trainers are usually not properly trained on the psychological aspects of injury recovery (Bennett et al., 2016). The use of such psychological interventions is thought to have a positive impact on recovery efficiency and how effectively athletes return to play. As sports injury is a part of games and sports athletes have to accept it and take the risk of it every day to become successful in their career. They have to be ready for the consequences that are to come in the future if injury takes place but all now they can do is be careful and as much as possible protect themselves from injury by taking proper rest, having good diet, not over training and wearing proper equipments etc.

**Keywords:** Psychological Interventions, Anterior Cruciate Ligament Tear, Rehabilitation, Anatomical Structure, Injury

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## Introduction

The term 'injury', in this context, refers to physical trauma to the body that causes temporary, sometimes permanent, disability and impaired motor function. Physical, social, psychological and personality factors all influence injury, while stress and anxiety along with depression also have a central role to play. Several factors can include muscle imbalances, overtraining, physical fatigue, pressure, loss of balance, lack of concentration, bad diet leading to fatigue, over weight and high-speed collisions, etc for the cause of the injury. Social factors refer to the perception that, in certain societies, continuing to play sports with pain and injury is highly valued; a show of commitment and strength; family pressure, audience etc. This is something that continues to happen in the female sporting arena, with women athletes ignoring any pain caused to them by injury and continuing to play through it (Liston et.al. 2006). Many athletes sometimes start training with going through a proper rehabilitation process and end up into re-injury which causes more pain, not only physically but mentally too. Sometimes the pressure of the coaches or jealousy can lead to injury. Jealousy, as in seeing a team mate playing better, leads to anger and frustration, hence leading to injury. Slogans such as "Go hard or go home" and "No pain, no gain" typically push the athlete to accept injuries, play through the hurt, or take needless risks.

To deal with an injured athlete needs a lot of patience, ability to take pressure, understanding and affection. An athlete to reach his or her top level gives his/her all, by changing his/her lifestyle, diet and training day and night. Sports and games are all that they breathe. It is like oxygen to them. They dedicate their whole life in perfecting their game and their sports abilities, changing their sleep schedule and travelling places. Their game becomes their number one priority of their lives. Athletes also run the risk of injury every day when practicing or performing, and unfortunately, sports injury is almost inevitable. During the peak time of their career, when an injury takes place, their whole world shatters into pieces. They start questioning their life choices and abilities.

Over 17 million reported sport injuries occur annually in the United States (Cupal, 1998), and many different factors can contribute to injury, including physical aspects, equipment malfunction,

Overuse during training, and more (Fernandes et al., 2014). Over the years, researchers have also identified a mental aspect to the healing process and are striving to better understand the combination of physiological and emotional aspects of sport injury (Cupal, 1998). Combining both elements of the healing process may lead to more effective and efficient recovery processes for injured athletes. Functioning as an athlete can be stressful, as their performance is constantly monitored by others. Being injured only deepens that stress and can affect an athlete's emotional and behavioral responses (Almeida et al., 2014). Additionally, positive self-talk is told to help an athlete maintain a positive outlook on their situation and reduce stress and anxiety levels, because it focuses on the elimination of words such as "I can't" and "I won't," which often helps injured athletes change their attitudes and improve their recovery process (Zakrajsek et al., 2017). Having a positive outlook to the injury can help the athlete overcome his/her fears and negative questions and come back to form. Psychological Interventions Injury is an inevitable, life-disrupting factor for athletes. Injury can be defined as "a source of stress that an individual may perceive as threatening, which then leads to subsequent emotional, behavioral, and physical responses" (Madrigal & Gill, 2014, p. 277). Sport-related injuries are caused by anatomical, environmental, physiological, and physical factors which include things like overtraining, physical fatigue, faulty sports equipment, or bad facilities (Fernandes et al., 2014). Lynch (1988) observed how these emotions can wreak havoc on the body. The stress from injury can cause the body to have muscle spasms or vasoconstriction (i.e., restriction of blood flow to the injured area), which puts the body on defense and makes it more susceptible to being reinjured. Being reinjured can cause secondary-stress syndrome, which intensifies pain and causes muscles to tense (Lynch, 1988). An injury in an athlete's life is like cancer to body, what I would call as life threatening as it not only brings an athlete down physically but also mentally. After an injury most athletes tend to stay alone, filled with anger, frustrations, sadness and even some get into addictions like smoking or drinking to cop up with the mental tiredness. One of the most common injuries and re-injuries among athletes is an anterior cruciate ligament (ACL) injury. Only 44% of athletes return to a competitive level after ACL injury. Twenty-four percent of athletes do

Not return to play due to fear of re-injury and possible pain (Rodriquez et al., 2019). The fear of re-injury mostly stops the athlete from within to perform better. Most athletes after injury start gaining weight and later on during practice they fear more about a re-injury, and hence they stop playing altogether.

So, injuries can be a determining factor for the remainder of an athlete's career. For many athletes, the sport they play defines them; it is a part of their identity (Lattimore, 2017). So, when injury brings a stop to their life, they lose it altogether, as if they are losing their identity. During this time it is very important that the athlete go through a good rehabilitation and also counseling which will give them the internal strength to fight back to court or field again. As if they are gaining back their identity again. During the after phase of injury, an athlete stays in a vulnerable state of mind. It is very much needed that he is looked after and taken care of, because once an athlete has been injured, it is important for them to seek medical attention and other assistance from a parent, coach, sports psychologist, friends, or anyone on their sports-medicine team. This way, the athlete can have multiple sources of support as they are beginning the recovery process. The athlete should be included in the discussion of the plan of rehabilitation, which can also help him/her gain some confidence from within. Injured athletes should discuss the entire rehabilitation plan with their trainer and anyone else who will be involved with the athlete's recovery process (Green, 1992). This involves discussing physical and mental attributes, as well as who will make the final decision on whether the athlete is ready to return to play. An AT (athletic trainer) is the gatekeeper to an athlete's rehab experience (Zakrajsek et al., 2016); as an athletic trainer has more of an experience in this field, which will lead to a more positive experience.

### **Purpose of the study**

Being an athlete, former National level Badminton player to be precise went through a traumatic ACL tear phase on right knee and had to undergo a surgery which led to gaining body weight and eventually giving up the career on playing Badminton, professionally and have been a great sufferer of post injury trauma which led to extreme anxiety attacks and sleepless

Nights. Hoping that athletes going through such drastic phases are helped immensely and brought back to their game that they worship.

### **Methodology**

To explain the review of how athletes respond psychologically to injury, I see that researchers have borrowed and, in some cases, modified theories and models from other areas of psychology. For example, the most comprehensive attempt to represent psychological responses to sport injury and their antecedents conceptually—the integrated model of psychological response to sport injury (Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998)—is based largely on principles from the literature on stress and coping (Lazarus & Folkman, 1984) and is an extension of several previously adapted models (e.g., Gordon, 1986; Weiss & Troxel, 1986). In the integrated model, sport injury is conceptualized as a stressor that athletes interpret (or “appraise”) in terms of its impact and their ability to deal with its effects. This cognitive appraisal process is thought to be influenced by a multitude of personal and situational factors. Personal factors include injury characteristics (e.g., severity, type) and individual difference variables in the psychological (e.g., personality, motivation, identity), demographic (e.g., age, gender), and physical (e.g., health status, eating behavior) domains. Situational factors pertain to aspects of the sport (e.g., level of competition, time of the competitive season), social (e.g., family dynamics, social support), and physical (accessibility to rehabilitation, comfort of rehabilitation sessions) environments. The resulting cognitive appraisals are posited to influence cognitive, emotional, and behavioral responses to sport injury, which are themselves proposed to be dynamic, reciprocally related, and potentially influential on injury recovery outcomes (Wiese-Bjornstal et al., 1998). Research has provided consistent support for predictions generated from the integrated model (for a review, see Brewer, 2007).

As noted in the general section on theoretical perspectives, the integrated model of psychological response to sport injury (Wiese-Bjornstal et al., 1998) and earlier models emanating from the Lazarus and Folkman (1984) approach to stress and coping (e.g., Gordon, 1986; Weiss & Troxel, 1986) ascribe a temporally primary role to cognitive

Appraisals of the impact or personal relevance of sport injury in determining the cognitive, emotional, and behavioral responses that follow. In light of the physical damage induced by injury and the ramifications of that damage for subsequent sport participation, it is not surprising that interpretations of sport injury as threatening or involving harm or loss are common (Clement & Arvinen-Barrow, 2013; Ford & Gordon, 1999; Gould, Udry, Bridges, & Beck, 1997a). Cognitive responses beyond the primary appraisals of the injury can be grouped into three potentially overlapping categories of cognitive content (i.e., injury-related, self-related, and coping-related) and one general category of cognitive processes.

### Psychological Response To Sports Injury

Injuries hurt a lot, physically and mentally. They limit our mobility, and most injuries require a lot of care and affection. Some injuries lead us to major surgeries, following a long period of rehabilitation. Some require physical therapy or care at home. Most people have a negative psychological response to injury, but athletes have more of negative psychological response as because their sports or game and physical abilities are what they rely upon, their whole life. Sport is like their oxygen that they breathe on every day, so such injuries put a huge negative impact in their lives.

Many researchers have studied the psychological response of athletes but the responses varied so much that it is impossible to make model. A small minority have taken decisions to leave their game, while some have experienced negative emotions like anger, frustration, sadness, depression, loneliness, feeling lost, confusion, boredom, anxiety etc. Some have taken decisions to leave sports as a profession but be a coach instead. The negative emotions are not only to feel bad about but also definitely interferes their path to a successful career. It can also interfere in their work life, family life and even personal relationships.

In relation to emotional response, there seems to be a unanimous agreement between researchers, who all coincide in affirming that sportsmen and -women suffer from adverse emotional states as a consequence of the stress generated by injury, both immediately after its occurrence [Citation Chang and Grossman 1988; Citation Pearson and Jones 1992; Citation Ramírez, Alzate, and Lázaro 2002; Citation Weiss and Troxell 1986

] and during the recovery period. In the latter case, certain discrepancies have been noted between the results obtained by different authors. On the one hand, some authors maintain that changes in the injured person's mood state are intrinsically linked to his or her perception of recovery [Citation McDonald and Hardy 1990; Citation Smith, Scott, O'Fallon, et al. 1990]. Other authors [Citation Le Mott 1994; Citation Morrey 1997] argue that the emotional changes follow a U-type evolution, with the injured person suffering from a negative mood state immediately after the injury, a slightly more positive outlook during the second and third periods, and then a more negative attitude once again during the final recovery period. Studies analyzing the emotional response frequently have used the POMS questionnaire [Citation McNair, Lorr, and Droppleman 1971]. One of the most interesting contributions made using this instrument are the studies carried out by [Citation Morgan (1980)], in which the author describes the ICEBERG profile. This profile outlines a series of sporting data that are characteristic of good performance, with tension, depression, anger, fatigue, and confusion being located beneath the 50th percentile, and vigor being above this figure. Despite a lack of agreement between the results obtained, it seems logical to assume that as athletes recover from their injuries and acquire a level of performance similar to that achieved before their occurrence; their mood state profile should gradually grow to resemble the ICEBERG profile proposed by Morgan, as a predictor of good sporting performance. In light of this, the second objective of this study is to assess how the different mood state factors fluctuate from the beginning to the end of the recovery period.

However, the impact of the injury does not affect only the emotional response of athletes. The results obtained in some studies suggest that the cognitive response also is affected. (Brewer, 1993), for example, used a physical self-worth subscale with injured athletes at a sports medicine clinic and found that it predicted post injury depression; and found significant pre- and post injury differences in global self-esteem (Leddy, Lambert, and Ogles, 1994). Similarly, other studies found significant differences in this variable between injured and noninjured athletes (Chang and Grossman, 1988; McGowan, Pierce, Williams, et al. 1994). Among the cognitive appraisals that have been studied within the context of sporting injuries,

Perceptions about recovery are one of the best documented. There are, however, others—such as the athlete's perception of the extent of the injury, seriousness, interference with short- and long-term sporting expectations, and fear of relapse upon competing once again—that can also influence the length of the recovery period and that have received significantly less attention from researchers. In this area, special mention should be made of the studies conducted by Citation Crossman and Jamieson (1985) and Citation Crossman, Jamieson, and Hume (1990).

Finally, if the psychological response does play a key role in recovery from injury, despite not having been the focus of many studies, this is mainly due to its potential effect on the time required for recovery. When we speak of recovery from injury, we refer to both physical and sporting recovery. The few studies that have analyzed recovery from injury have concentrated solely on the moment at which the athlete resumes his or her sporting activity. However, it is evident that if the psychological response of the injured person is important during the recovery process, it is also important during the attempt to regain the level of performance obtained prior to the injury (a process we have termed *sporting recovery*), which, in short, is the ultimate indicator of optimum recovery. Therefore, it may be supposed that, in addition to influencing physical recovery from the injury, the psychological response also affects the time required for sporting recovery, and that injured people who recover more quickly in both senses are those demonstrating a better mood state, greater adherence, and a less serious subjective estimation of their injury.

Whether it's recreational or professional, injury is a common occurrence at all levels of sport and exercise. Evidence has shown that physical factors such as over-training, lack of concentration, wrong equipments and playing conditions are the major contributors towards an athlete's injuries. However, there are many other psychological factors that play a massive role in the gaining, prevention and rehabilitation of injuries. Factors that predict and moderate injury include *personality* (i.e. mental toughness, internal locus of control, trait anxiety etc.), *history of stressors* (i.e. life stress, previous injury), and *coping resources* (i.e. coping mechanisms, social support, stress management, attention strategy, medication).

## Coping resources

### Few coping resources for successful injury rehabilitation are as follows:

Approaches such as imagery and mindfulness could assist in pain management, positive thinking and motivation. In addition, CBT (Cognitive Behavioral Therapy) and REBT (Rational Emotive Behavioral Therapy) techniques could alleviate stress and anger, together with educating athletes on coping skills and self-help strategies.

01. **IMAGERY:** Imagery is basically the visual imagery that helps an injured athlete to cop up with the post injury phase. Instead of having a negative impact in the mind of an athlete, he can start thinking about positive images or situation in his mind such as, winning the games again and coming back to form better than before. It involves the use of figurative representation of coming back to form in such a way that it appeals to the physical sense. Thinking about winning a medal again and the crowd cheering for you can bring him back to his positive self again. It encompasses the creation of a visual representation of ideas in the mind. A visualization that ditto mimics the reality as it distracts the athlete from the pain. This process comes into action gradually, step by step.
02. **RELAXATION:** Such technique is widely used in psychology, not only by inured athletes but also by people with anxiety and depression problems etc. it mostly helps in stress and anger management and makes the person become calm and be at peace. Relaxation techniques have been proven affective. Techniques like breathing: HOF method is very much popular; meditation with background calm music known as music therapy also had been proven affective. Relaxation with visual imagery helps altogether very affectively and assists each other in recovering process. The use of suitable music, while treating the injury could also induce a relaxation response.
03. **POSITIVE SELF TALK:** Injuries can lead to negative thoughts in an athlete's mind. Therefore, positive self talk is like a self made medicine which cures the negative thoughts away. Positive self talk leads to intrinsic motivation which eventually fastens the recovery process mentally. CBT and REBT approaches could help an athlete manage these

01. thoughts, while educating them on cognitive restructuring processes, thought reframing and the importance of their own views on a situation, rather than the actual situation. Telling to self that "I CAN" and "I WILL" solves half of the negative thought problems.

02. **GOAL SETTING:** A successful approach in goal setting is the SMARTER principle, with the sequence below:

Specific - Measurable - Achievable - Realistic - Timely - Evaluated - Reward

Goal setting is one of the important coping techniques which help the athlete to move forward towards their success. Injury is a part of sports but that should not stop him from overcoming all the hurdles and reach his success. Planning and goal setting is one of the keys to proper rehabilitation as it brings in hope in the life of an injured athlete to come back stronger.

05. **COUNSELLING:** Sometimes the upper coping mechanisms do not work and therefore here comes the help of a professional. Athletes after injury sometimes get addicted to alcohol and smoking or some start binge eating food for comfort as it helps them to cop up with the stress and depression. Such things need medical treatment and professional help, when it cannot be cured by the athlete himself or surrounding people. Counseling helps the athlete to come back to track again, and gain back his confidence. Sometimes some athletes go medication to deal with depression and anxiety which causes panic attacks which cannot be handled without medications.

06. **ROLE OF SOCIAL AND FAMILY SUPPORT:** Role of support from family and other people who are involved with the athlete in some way or the other is extremely important. It can be a very critical factor in injury recovery. Athletes could receive support from a range of people, including their family, coach, physiotherapist, medical practitioner, friends and psychologist. Some basic principles on supporting an injured person, as described by person-centered theories and REBT are:

- Unconditional positive regard (being non-judgmental)
- Congruence (authenticity) in the relationship
- Empathy and active listening

Injury is a relatively common occurrence in sports. However, until recently emphasis was placed mostly on the physical aspects of it. It is important to recognize the role of the psychological aspects of injury and how these could be a significant part of the rehabilitation process and successful return to sport.

### Conclusion

Sport injury can affect athletes both physically and psychologically. Pain, cognition, emotion, and behavior are primary areas of psychological functioning affected by injury. Psychological responses to sport injury tend to be strongest in close temporal proximity to injury occurrence and fluctuate over the course of rehabilitation. Psychological readiness to return to sport after injury is an emerging concept that incorporates aspects of cognition, emotion, and behavior, including anxiety, confidence, motivation, and postreturn expectations. A variety of theoretical perspectives have been used to guide a body of research on psychological responses to sport injury. Relatively few controlled investigations of interventions designed to influence psychological responses to sport injury have been conducted.

As sports injury is a part of games and sports athletes have to accept it and take the risk of it every day to become successful in their career. They have to be ready for the consequences that are to come in the future if injury takes place but all now they can do is be careful and as much as possible protect themselves from injury by taking proper rest, having good diet, not over training and wearing proper equipments etc.

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