

Role of Psychological Factors in Management of Sport Injuries: An Overview

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Abstract

This paper sets out the aspects of sport injuries and relates psychological variables to injuries in context of sports. Since injury is common at all levels of sports and exercise, it can be caused by different factors. In this context, a very brief concept about sports injury has been discussed along with the prevalence and distribution of injuries among various populations. Apart from this, factors for the prevalence and distribution of injury vulnerability to sport injury have been focused. The sport that leads to injury among boys and girls has been highlighted. Also, the interaction of some variables that leads to injury, that vary in their nature and occurrence like, injury occurrence, athlete's psychological response to injury, psychological aspects of the rehabilitation process, and also psychological readiness to return to competition. Among the factors already studied are the stress responses, personality, history of stressors, and coping resources. The later section of this document provides an overview of the factors that affects the rehabilitation processes and its outcome in case of sport injury. The psychological perspectives like psychological and emotional reactions to sport injuries, interventions aimed at facilitating the rehabilitation process and return to sport issues are extremely important, as a result of many different factors. These factors are important in order to better understand sports injury and implement actions that are required for the management of health, to prevent sports injuries and minimize the possibility of injury in sports. The factors that are influential in return to sport have been emphasized with its focus on motivation and self-confidence that may facilitate the recovery and enhance the process of health management.

Introduction

The participation in sport practice has increased along with the increase in the number of professional athletes. Sport injury is an important public health problem and a potential outcome of participation (Watters et al., 1984; Williams et al., 1998). Sport injuries occur frequently, and many sportsmen by medical personnel are treated each year. This participation in sports puts a high demand on sportsmen. For example: being physically fit (Arnason et al., 2004), performing complex movements (Dust et al., 2007), performing adequate decision making (Baker et al., 2003), and properly coping with stress producing factors (Nicholls & Polman, 2007). The inability to deal with these demands leads to increased injury rates among athletes. The consequences of these sports activities are not only

physiological but also psychological.

Each year, over 10 million individuals, with 3.5 million children under the age of 14, suffer from a sport-related injury. It is of high priority for athletes, coaches, and parents to understand the causes and consequences of injury. It is equally important to understand that there are certain social factors as well as psychological factors that can lead to athletic injury, and also to understand the role of rehabilitation to recover from injury. The incidence and distribution of sports injury depends on participation level, sport affiliation and gender and player position (Shanmugam & Maffulli, 2008). Young athletes are vulnerable to different injuries than adults, which include injuries of apophysis, growth plates and cartilage (Radelet et al., 2002). In boys, football and basketball leads to highest rate of sports injuries and in girls, field

hockey, soccer and basketball (Conn et al., 2003; Sen, 2005; Williams et al., 1998). Although injury can occur due to contact and non-contact sports, but contact sports produce more injuries and sudden, traumatic incapacity in either of the two activities. Sports injuries are caused not because of single variable but because of cluster of factors that interact at the time of injury. They may be extrinsic (environmental), intrinsic (personal, host), as well as previous injury, causing up to 50 to 70 per-cent injury (Radelet et al., 2002; Sports injuries in the EU countries in view of the Olympics, 2004).

In order to understand the process of injury recovery, occurrence, and management of health problems, physiological and psychological factors should be considered by the practitioners. The medical literature has de-emphasized the importance of psychological factors. However, psychosocial factors can also have significant impact on injury occurrence and recovery and can be categorized into four broad areas (Wiese & Weiss, 1987).

1. Psychological variables as predictors of injury occurrence.
2. The athlete's psychological response to injury.
3. Psychological aspects of the rehabilitation process.
4. Psychological readiness to return to competition.

Psychological Predictors of Injury Occurrence

The earlier accounts on sport injury highlighted the types of athletes that are prone to injury and found that anxiety, interpersonal conflict, depression, low self-confidence and guilt had important contribution in occurrence of injury (Sanderson, 1977). Research has included a variety of other factors, and the way they interact, has been summed up by Andersen and William (1988) in their model of stress-related to the process of injury occurrence in sport. This model provides a perfect

framework for investigating the psychological precipitators of injury.

The Stress Responses

In the Andersen and Williams's model, the core component is the stress response. This response consists of a psychological/attentional component and a cognitive component, having reciprocal effect on each other. The problem of attention and physiological tension occurs due to the evaluation demand and availability of the resources, resulting in coping problem. The disruption in flexibility and co-ordination as well as interference with the detection of important environmental cues, may increase the risk of injury. It also increases, if the threat perceived is recurrent or sufficiently strong. A large number of factors are potential enough to catalyze or moderate this response.

Personality

The mediating variable most widely studied is the athlete's personality. But, reliable relationship demonstrated between sports injury and personality is very few. However, there are certain variables that are worthy to be considered, for example, several researches have reported relationship between injury occurrence and scores on Factor A (reserved vs. outgoing) and Factor I (tender-minded vs. tough-minded) of Cattell's 16 PF (Personality Factor) Questionnaire. Players obtaining high scores on these scales near the tender-minded and reserved ends are more prone to injury than other tough-minded and outgoing friends. Similarly, low scores on general self-esteem scale have been found as a precursor to injury. Hardy and Crace (1991) findings also indicate the interaction between the type of injury likely to be experienced and personality. It also suggests that acute injuries occur more frequently among extraverted and low sense of responsibility competitors. Other variables of personality such as, the Type A behavior pattern, hardiness and optimism/pessimism in connection with injury, have not been studied thoroughly. But, these factors have been linked to other outcomes related

to health (Grove, 1993; Rodin & Salovey, 1989).

Coping Resources

The nature of the athlete's coping resources has been considered the final mediators in the stress-injury relationship. There are variety of interpersonal networks and behaviors which helps the individual in dealing with life events i.e., positive and negative life events (Andersen & Williams, 1988). In terms of sport injury and general health, research indicates that social support systems are important resources. These systems include, partners/spouse, coaches/team-mates, supervisors/co-workers, friends/relatives that provide emotional support to the individual. The extent to which care is given by these people to the athlete determines the quality of support system provided. Many research studies indicate that low incidences of injury results in high levels of social support, and high incidence of injury are associated with low social support. Other resources of coping have not been studied extensively as much as support networks.

Psychological response to injury

It is essential to understand the fact that, injury will always be a part of sport. Therefore, how the athletes react and what are the psychological factors that influence the response is something that needs attention. Awareness of these aspects of sport injury will help coaches, therapists, administrators, family and friends, team-mates to interact in a more effective and positive manner with the injured athlete. In the same context, many athletes, practitioners and researchers agree on the fact that sport injury leads to intense behavioral and emotional consequences. These emotional / behavioral consequences consist of three elements as distress, denial and determination to cope, and are cyclic in nature (Heil, 1993). Distress and denial are maximum at the beginning of rehabilitation process and in the later stage give way to determination to cope to increase. Initially, the athlete responds in denial, shock, and has over-optimistic belief about seriousness of injury, than it

actually appears (Grove, 1993). A period of depression, anxiety, isolation, and anger is preceded by initial numbness (Rotella & Heyman, 1993). As a result, the athlete may lose interest in various activities and may not comply with the treatment and rehabilitation process.

The intensity and duration of emotional and behavioral reactions of injury is determined by many factor. However, empirical evidences and models suggest that psychological factors can be predictors of injury occurrence but not of injury response. A related approach has been adopted by other researchers addressing psychological aspects of rehabilitation (Grove et al., 1990; Grove, 1993; Wiese-Bjornstal & Smith, 1993). Sanderson (1977) has proposed that the dimensions of personality like introversion /extraversion and neuroticism/stability can be important determinants of behavioral responses to injury. A highly extraverted athlete would have relatively high pain tolerance and will return to competition soon. On the other hand, introverts may take longer time as they become indecisive, guarded and apprehensive. The rehabilitation may be delayed among high scorers on neuroticism. The factors like dispositional optimism, hardiness and explanatory style might influence sport injury along with general health (Grove, 1993).

The athlete's stress history and resources for coping also mediate response to injury. The trauma and experience of previous injuries influence the nature of post-injury stress. The evidence shows that recovery delays due to general life stress among athletes. But no direct evidence is for life style or social support networks influencing recovery (Ford & Gordon, 1993; Gordon & Lindgren, 1990). Finally, injury-related factors should also be taken into account while analyzing the athlete's injury response. According to Sanderson (1977), if the athlete feels that injury occurred due to an unacceptable behavior of a teammate, then they react negatively. Similarly, the persistence and disruption, pain of normal activities may effect behavior and emotions.

Psychological aspects of rehabilitation process

In the area of psychological aspects of sport injury rehabilitation, research has focused on few perspectives: psychological and emotional reaction to sport injuries, psychological factors that facilitate the rehabilitation process, interventions aimed at facilitating the rehabilitation process, and return to sport issues. The research on psychological emotional reaction to sport injuries has shown that the most common reactions are stress, depression, grief, fatigue and anxiety (Wies-Bjornstal, 2010). The psychological impact of rehabilitation process has been shown by models like integrated model of psychological response to the sport injury and rehabilitation process (Wiese-Bronjstal et al., 1998), which illustrates that personal and situational factors influences cognitive appraisal of the situation generating emotional responses and in turn influence behavioral responses.

Studies related to post- injury perspective have focused on psychological factors that facilitates in the rehabilitation processes and outcomes. Some physical and mental strategies are also essential for effective rehabilitation to take place, like communication skills and motivational techniques. The factors are communication skills, where an effective communication is required in order to provide detailed information of injury, rehabilitation programme, rationale along with expectations and concerns regarding physical and psychological setbacks (Weiss&Troxel, 1986). Also emphasis on persistence and positive attitude during rehabilitation must be properly communicated (Johnson, 1997).

Studies indicate that some motivational techniques become critically important, during the period when there is no or little recovery. Thus, motivation and enthusiasm needs to be maintained especially during the rehabilitation process. There are five categories of motivational strategies given by Heil (1993).The first is, goal setting, that involves following the prescribed treatment procedure (e.g., perseverance with homework

exercises, attendance at treatment sessions) and goals for including psychological techniques (e.g. imagery, relaxation, self-talk) within the rehabilitation programme. The first step is setting specific, measurable and realistic goals, written, evaluated and updated frequently in the report by the athlete. Feedback is also necessary for the athlete, based on the standards of achievement.

The other technique is relaxation, which facilitates in healing, by moderating the functions of sympathetic nervous system, which are usually activated by stressful situations and conditions. It helps in conserving energy needed to promote healing and fight disease and discomfort. The athletes can use relaxation to facilitate and accelerate their injury recovery.

The technique of imagination is used to help in the rehabilitation process, especially with relaxation exercises. Athletes can be taught to channelize their imagination in order to reduce anxiety and fear and increase healing when adverse situations occur. A number of techniques of imagery for injured athletes are there, like emotive imagery, body rehearsal, mastery rehearsal, coping rehearsal, time projection, which effectively helps injured athletes from frustrations, pain or inconveniences and make them learn to deal with injury more efficiently.

Self-talk is an approach having self-reliance and positive thinking as its basic element. The injured athletes can gain benefit by learning a programme on cognitive restructuring because it tends to lie on negative and irrational thoughts, chances of recovery and belief about themselves during the treatment period (Rotella & Heyman, 1993).The main purpose is to teach athletes to integrate behavioral and cognitive skills and applying them in all stressful situations perceived during the process.

According to Rosenfeld et al. (1989), stress level influences social support networks in athlete and involves a great contribution on the part of teammates, coaches, family and friends. Usually the teammates and coaches are not expected to

provide as much emotional support as family and friends. There are certain evidence regarding the level of social support provided by coaches and teammates (Gordon & Lindgren, 1990). Other factors like intrinsic motivation (Podlog & Eklund, 2005) fear of injury (Kvist et al., 2005), and many negative emotions are related to unsuccessful rehabilitation outcomes.

Psychological readiness to return to Competition

Several studies have been done for the intervention of injured athletes so that they can comeback successfully (Brewer, 2010). Strategies like cognitive control and stress management (Johnson, 2000), building confidence in performance capabilities (Podlog et al., 2011) and relaxation (Cupal & Brewer, 2001) increases successful rehabilitation. Some studies have been done associated with returning to sport after injury. It was concluded that high level of self-confidence, motivation and low fear, increased the likelihood of returning to sport after injury (Ardern et al., 2013) processes and others centered on the pain process.

Problems in rehabilitation from injury

One of the more troublesome difficulties confronted by sports medication experts is convincing injured athletes to agree on the recommended recovery plan (Heil, 1993). A few of them, maybe because of apprehension of re-injury, lack of motivation, having the weight of performance expectations, not getting relief up to their expectations may comply poorly altogether. Others may be powered by the fact of "no pain, no gain", accomplishing more than what specialist or their mentor have recommended, or over participation in exercises with an end goal to attempt to increase their performance. These activities can harm and postpone full recovery.

Conclusion

In any physical activity there is always a slight risk

of injury because of overuse, sometimes due to a trauma or due to lack of proper preparation and leads to long-term damage. To assume that the number of people injured while participating in sports, exercise and recreation activities will rise. By applying basic psychological strategies like having, the motivation for the recovery, knowledge about the reactions to the injury and the effects of other factors, is important for predicting athletes' recovery and implementing appropriate interventions. But psychosocial predictors of sport injury for adopting theoretical approach have been criticized. Certain historical personal and social variables show weak but sufficient reliable influences on injury occurrence. Thus, psychologists are making effort in expanding their research in this very area of injury responses and rehabilitation.

Psychological interventions can help them to overcome and manage negative situations and may be helpful to intervene, in order to reduce fear to get reinjured and anxiety, when athletes return to the sports they play. Further, research on the readiness of injured athletes to return to the sport is necessary, involving both quantitative and qualitative methodology. The attitude that 'if the body is ready the mind is also' needs to be challenged continuously. This reflects the significant role of the consultant and mental skill as a part of coaching the athletes, so that they can make decisions on recovery and return to competition.

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