



PSYCHOLOGICAL ISSUES RELATED TO INJURY IN ATHLETES AND THE TEAM PHYSICIAN

EXPERT PANEL

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THIS DOCUMENT PROVIDES AN OVERVIEW of selected medical issues that are important to team physicians who are responsible for the care and treatment of athletes. It is not intended as a standard of care, and should not be interpreted as such. This document is only a guide, and as such, is of a general nature, consistent with the reasonable, objective practice of the healthcare profession. Adequate insurance should be in place to help protect the physician, the athlete, and the sponsoring organization.

This statement was developed by a collaboration of six major professional associations concerned about clinical sports medicine issues; they have committed to forming an ongoing project-based alliance to bring together sports medicine organizations to best serve active people and athletes. The organizations are: American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, and the American Osteopathic Academy of Sports Medicine.

Definition

Team physicians must address the physical and psychological issues related to athletic activity. This athletic activity may result in physical injuries, and these injuries produce a variety of psychological reactions. Additionally, psychological factors, especially stress, are an important antecedent to injuries, play an important role in injury rehabilitation, and contribute to successful return-to-play. While

non-injury psychological issues related to athletic activity exist, they are outside the scope of this consensus statement.

Goal

The goal of this document is to help the team physician improve the care of the athlete by understanding the relationship between injury and the psychological issues related to injury. To accomplish this goal, the team physician should have knowledge of and be involved with:

- Psychological antecedents of athletic injuries
- Psychological issues accompanying athletic injury
- Psychological issues of athletic injury rehabilitation
- Psychological issues and return-to-play
- Referring athletes to mental health providers

Psychological Antecedents of Athletic Injuries

Psychological factors (i.e., stressful life events) may contribute to the risk of athletic injuries above and beyond physical and environmental factors. Personality factors (e.g., introversion/

extroversion, self-esteem, perfectionism) and other psychological factors (e.g., a supportive social network, coping resources, high achievement motivation) alone do not reliably predict athletic injury risk. There is no “injury-prone” personality type. However, there has been a consistently demonstrated relationship between one psychological factor — stress — and athletic injury risk.

Stress may be defined as the demands of a situation exceeding the resources to respond to those demands (see Table 1). Athletes who experience high levels of stress, whether on or off the field, are at greater risk of being injured. Certain subpopulations of athletes, such as those experiencing high life stress and low personal coping skills, may be at an even greater risk of sustaining athletic injury.

Stress causes attentional changes (e.g., narrowing of attention, general distraction, increased self-consciousness) that interfere with an athlete’s performance. Stress has been shown to cause increased muscle tension and coordination difficulties which increase the athlete’s risk of injury. Teaching athletes stress management techniques has been shown to reduce injury rates over a season of participation.

It is essential the team physician:

- Recognize that psychological factors may play a role as antecedents to sports injuries.

It is desirable the team physician:

- Promote monitoring by the athletic care network (see *Sideline Preparedness for the Team Physician, A Consensus Statement, 2000*) of major life events and stressors (e.g., death in family, divorce, change in peer relationships, life transitions) which may place athletes at greater risk for injury.
- Develop strategies to address psychological factors that may contribute to the risk of athletic injuries including:



- Educating coaches and parents regarding the effects of attitudes and behaviors that equate injury with worthlessness (e.g., “go hard or go home,” “no pain, no gain”) that may increase stress and consequently increase injury risk
- Educating coaches and parents regarding excessive training and competition regimens in athletes
- Addressing life stressors during preseason evaluations
- Provision of psychological support services, (e.g., stress management, counseling) as needed.

Psychological Reactions Accompanying Athletic Injury

Athletes can be expected to experience a variety of emotional responses and stress upon being injured. They will attempt to interpret injury-relevant medical information, come to terms with being injured, and engage in coping responses. There is no predictable sequence of emotional reactions to athletic injury. For many athletes, exercise and physical activity serves as a primary coping mechanism and outlet for dealing with psychological issues. In these athletes, an injury may result in even greater emotional upheaval.

Emotional responses to injury include sadness, feelings of isolation, irritation, lack of motivation, frustration, anger, alterations in appetite, sleep disturbance, and feeling disengaged.

Problematic emotional reactions occur when symptoms do not resolve or worsen over time, or the severity of the symptoms seems excessive relative to other injured athletes (see Table 2). Depression is an especially significant warning sign. It magnifies other emotional responses and impacts recovery from injury.

Table 1: Selected Signs and Symptoms of Stress

Behavioral	Physical	Psychological
Difficulty sleeping	Feeling ill	Negative self-talk
Lack of focus, overwhelmed	Cold, clammy hands	Uncontrollable intrusive and negative thoughts or images
Consistently performs better in practice/training than in competition	Profuse sweating	Inability to concentrate
Substance abuse	Headaches	Self-doubt
	Increased muscle tension	
	Altered appetite	

Table 2: Problematic Emotional Reactions (Examples)

Persistent Symptoms	Worsening Symptoms	Excessive Symptoms
Alterations of appetite	Alterations of appetite into disordered eating	Pain behaviors
Sleep disturbance	Sadness into depression	Excessive anger or rage
Irritability	Lack of motivation into apathy	Frequent crying or emotional outbursts
	Disengagement into alienation	Substance abuse

Table 3: Selected Techniques for Coping with Stress

Cognitive-Based Techniques	Somatic-Based Techniques	Cognitive Behavioral-Techniques
Thought stopping	Slow, deep, or centered breathing	Goal setting
Thought replacement and imagery	Progressive muscle relaxation	Stress management training
Positive self-talk	Biofeedback training	

It is essential the team physician understand:

- Emotional reactions accompany athletic injuries.
- These reactions may resolve or become problematic, thus impacting recovery from injury.

It is desirable the team physician:

- Promote monitoring of emotional reactions by the athletic care network.
- Facilitate provision of psychological support services as needed.
- Educate athletes, coaches, and parents regarding emotional

reactions to injury and recovery.

- Promote utilization of a supportive social network in injury recovery.

Psychological Issues of Athletic Injury Rehabilitation

Psychological antecedents and emotional reactions play a key role in athletic injury rehabilitation. Injured athletes treated with a comprehensive rehabilitation program that includes addressing these issues experience less stress. Also, some studies have suggested the use of psychological strategies such as goal setting, positive



self-statements, cognitive restructuring, and imagery/visualization is associated with faster recovery. These strategies may be helpful by reducing stress and increasing coping mechanisms and social support.

However, rehabilitation may be affected by problematic emotional reactions, the most common of which

are loss of identity, fear and anxiety, and a loss of confidence. Warning signs characterizing poor adjustment to injuries include:

- Unreasonable fear of re-injury
- Continued denial of injury severity and response to recovery
- General impatience and irritability
- Rapid mood swings

- Withdrawal from significant others
- Extreme guilt about letting the team down
- Dwelling on minor physical complaints
- Obsession with the question of return-to-play

The levels and types of emotional reactions experienced also change

over time, from the initial onset of injury, through rehabilitation, to return-to-play.

A number of factors should be considered when treating injured athletes. These factors include:

- **Building trust and rapport with the injured athlete.** Injured athletes often experience a range of emotions that make it difficult for athletic care network members to establish rapport and build trust. Listening to the athlete is particularly important, not only to make a medical diagnosis but also to assess and monitor their emotional state.
- **Educating the athlete about the injury.** Injured athletes must understand and process injury-relevant information, often at a time when they are experiencing emotional upheaval. It is critical that explanations of injuries be presented in terms that the injured athlete can understand. An effective method to assess this understanding is to ask the athlete to provide their interpretation of information given to them.
- **Identifying misinformation about the injury.** Injured athletes often obtain inaccurate information from a variety of sources (e.g., parents, coaches, teammates, Internet) which may contribute to confusion and emotional upheaval.
- **Preparing the athlete and coach (only with athlete's permission) for the injury recovery process.** The injury recovery and rehabilitation process is variable due to characteristics of the injury, treatment provided, presence of complications and psychological issues. Therefore, the athlete and coach should be educated that an injury is best managed on an individualized basis. In addition, coaches should be encouraged to help the injured athlete avoid isolation from the team.

- **Encouraging the use of specific stress coping skills.** Injured athletes can experience considerable stress throughout the injury and rehabilitation process. Psychological as well as physical strategies will enhance the recovery process (see Table 3).

It is essential the team physician:

- Recognize psychological factors play a role in injury rehabilitation.

It is desirable the team physician:

- Understand athletic injury rehabilitation programs should incorporate psychological as well as physical strategies.
- Coordinate a comprehensive rehabilitation program that addresses physical and psychological issues, including provision of psychological support services as needed.
- Coordinate graduated return to practice and play to promote psychological readiness.
- Assess an athlete's social network.
- Educate athletes, parents, families, friends, and others about the importance of a supportive social network.

Psychological Issues and Return-To-Play

Psychosocial readiness is one criterion for return-to-play (see *The Team Physician and Return-To-Play Issues: A Consensus Statement*, 2002).

Emotional reactions, including a lack of confidence, apprehension, and fear, may accompany an athlete's return-to-play. These reactions may become problematic, interfere with performance and increase the probability of re-injury. The team physician should assess not only physical factors, but emotional reactions, when making the return-to-play decision. In conjunction with medical care, the supportive social network can help reduce the emotional upheaval and stress accompanying an injury and its rehabilitation.

It is essential the team physician understand:

- Physical clearance to return-to-play may not correlate to psychological readiness.

It is desirable the team physician:

- Coordinate the athletic care network to monitor the psychological readiness of athletes who are preparing to return-to-play or have returned-to-play.
- Coordinate efforts to maintain the athlete's contact with the team to enhance psychological readiness.
- Coordinate psychological support services as needed.

Referring Athletes to Mental Health Providers

Athletes experience emotional responses to injury, and most of these responses are transient. The athletic care network and supportive social network are often effective in helping the athlete deal with these issues. However, athletes with problematic emotional reactions who need treatment should be referred to a licensed mental health provider, preferably one with experience working with athletes.

Licensed mental health providers have met the minimum educational and training requirements by their state. These are the only mental health providers licensed to treat problematic emotional reactions (see examples in Table 2). Along with other providers, they may also offer "sport psychology" consultation (e.g., performance enhancement, life skills training, imagery). In treating both transient and problematic emotional responses, athlete confidentiality is of particular importance.

Among athletes, there are different levels of comfort with referral to licensed mental health providers. Obstacles to referral include general apprehension, confidentiality concerns, perception of others, fear of revealing symptoms, and

misunderstanding of mental health treatment. Coaches and team physicians' attitudes towards mental health have an impact and influence on athletes. In addition, accessibility to providers and issues related to reimbursement may serve as obstacles to obtaining treatment.

It is essential the team physician:

- Identify licensed mental health providers for athlete referrals.
- Maintain confidentiality, recognizing psychological issues are particularly sensitive.

It is desirable the team physician:

- Integrate licensed mental health providers into the athletic care network.
- Educate coaches, parents, and athletes about the importance of psychological treatment.
- Dispel the perception that “counseling equals weakness.”
- Coordinate referrals for mental health treatment.
- Involve mental health providers in educational programs for coaches, athletes and parents about psychological issues.

Conclusion

Psychological factors have been shown to be an important antecedent to the onset of athletic injuries and also play an important role in injury rehabilitation and ultimately successful return-to-play. Team physicians must consider psychological, as well as physical factors, when treating and coordinating care for injured athletes.



Selected References

- Ahern DK, Lohr BA. Psychosocial factors in sports injury rehabilitation. *Clin Sports Med.* 1997;16:755-768.
- Antoni MH, Baum A, Gordon P, et al. Cognitive behavioral stress management effects on injury and illness among competitive athletes: A randomized clinical trial. *Ann Behav Med.* 2003;25:66-73.
- Beck L, Bridges D, Gould, D et al. Stress sources encountered when rehabilitating from season-ending ski injuries. *The Sport Psychologist.* 1997;11:361-378.
- Berger RS, Ross MJ. Effects of inoculation training on athletes' post-surgical pain and rehabilitation after orthopedic injury. *J Consult Clin Psychol.* 1996;64: 406-410.
- Bianco T. Social support and recovery from sport injury: Elite skiers share their experiences. *Res Q.* 2001;72:376-388.
- Bianco T, Eklund RC. Conceptual considerations for social support research in sport and exercise settings: The case of sport injury. *J Sport Exerc Psychol.* 1996;23:85-107.
- Botterill C, Flint FA, Ievleva L. Psychology of the injured athlete. In: Quillen WS, Zachazewski JE, eds. *Athletic Injuries and Rehabilitation.* Philadelphia, Pa: WB Saunders Inc; 1996:791.
- Brewer BW. Review and critique of models of psychological adjustment to athletic injury. *J Appl Sport Psych.* 1994;6:87-100.
- Brewer BW, Cornelius AE, Ditmar TR, et al. Psychological factors, rehabilitation adherence, and rehabilitation outcome after anterior cruciate ligament reconstruction. *Rehabil Psychol.* 2000;4:20-37.
- Brown CH. Injuries: The Psychology of Recovery and Rehab. In: Murphy SM, ed. *The Sport Psych Handbook.* Champaign, Ill: Human Kinetics; 2005.
- Crossman J. Psychological rehabilitation from sports injuries. *Sports Med.* 1997;223:333-339.
- Evans L, Hardy L. Sport injury and grief responses: A review. *J Sport Exerc Psychol.* 1995;17:227-245.
- Heil J. *Psychology of Sport Injury.* Champaign, Ill: Human Kinetics; 1995.
- Ievleva L, Orlick T. Mental links to enhanced healing: An exploratory study. *The Sport Psychologist.* 1991;5:25-40.
- Kerr G, Goss, J. The effects of a stress management program on injuries and stress levels. *J Appl Sport Psychol.* 1996;8:109-117.
- Pargman D. *Psychological Bases of Sport Injuries.* 1st ed. Morgantown, WV: Fitness Information Technology; 1993.
- Patterson E, Ptacek JT, Smith RE. Moderator effects of cognitive and somatic trait anxiety on the relation between life stress and physical injuries. *Anxiety, Stress and Coping* 13: 269-288, 2000.
- Petitpas A, Danish S. Caring for injured athletes. In: Murphy SM, ed. *Sport Psychology Interventions.* Champaign, Ill: Human Kinetics;1995.
- Udry E. Coping and social support among injured athletes of cognitive and somatic trait anxiety on the relation between life stress and physical injuries. *J Sport Exerc Psychol.* 1997;19:71-90.
- Weinberg RS, Gould D. *Foundations of Sport and Exercise Psychology.* 3rd ed. Champaign, Ill: Human Kinetics; 2003.
- Williams JM, Andersen MB. Psychological antecedents of sport and injury: Review and critique of the stress and injury model. *J Appl Sport Psychol.* 1998;10:5-25.

This consensus statement, as well as past statements, can be downloaded from the AOSSM Web site, www.sportsmed.org.