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Psychological Factors Related to the Rehabilitation of Athletic Injuries: A Literature Review

University of Northern Iowa

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Abstract

The purpose of the study was to review the literature on the subject of psychological factors related to the rehabilitation of injured athletes. The study attempted to answer questions concerning athletes' perceptions of injuries, experiences with grief response to injury, self-blame, irrational thinking, and alienation. The issues of stress and levels of self-esteem were also discussed in the review.

Research into the literature revealed that athletes may experience many psychological problems and barriers during recovery from sports injuries. Grief was found to be a very natural and healthy aspect of injury rehabilitation. Feelings of guilt, fear, lowered self-esteem, and alienation appear to have negative effects on the recovery rates of athletes. Research findings also revealed that many athletes indulge in self-defeating thought processes (e.g., irrational thought, self-blame, and internalizing negative thoughts) that could significantly inhibit the rehabilitation of their injuries.

Sportsmedicine professionals (e.g., athletic trainers, physicians, and sport psychologists) and coaches are encouraged to become informed on the problems athletes face during rehabilitation so they can understand what athletes experience. Understanding athletes' situations and taking the correct steps to help them along in the process of rehabilitation appear to be necessary priorities for anyone working with athletes.

Coaches, trainers, and sports physicians can do a great deal to assist injured athletes that are experiencing psychological problems during rehabilitation. Athletes that are having difficulty coping with their injuries may be aided by personal counseling to help them learn to accept the situation. Injured athletes should be informed about the nature of their injuries and encouraged to keep open the lines of communication with coaches, trainers, and teammates. Sportsmedicine professionals must work with injured athletes to guide them through periods of self-doubt, depression, internalizing of negative thoughts, and feelings of alienation. It is also the responsibility of the sportsmedicine professionals and coaches to keep athletes actively involved with the team and the rehabilitation process. Active participation and involvement of injured athletes in the process of rehabilitation appear to have positive effects on the physical and psychological recovery of injured athletes.

PSYCHOLOGICAL FACTORS RELATED TO THE REHABILITATION OF ATHLETIC INJURIES: A LITERATURE REVIEW

An Abstract of a Research Paper

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

Allen Hubbell

University of Northern Iowa

May 1992

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The purpose of the study was to review the literature on the subject of psychological factors related to the rehabilitation of injured athletes. The study attempted to answer questions concerning athletes' perceptions of injuries, experiences with grief response to injury, self-blame, irrational thinking, and alienation. The issues of stress and levels of self-esteem were also discussed in the review.

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This study by: Allen K. Hubbell

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has been approved as meeting the research paper requirement

for the Degree of Master of Arts

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CHAPTER I

INTRODUCTION

People become involved in athletics for a variety of reasons. Many enjoy being part of a team (e.g., football, basketball, and hockey) where a group must work as a unit. Others prefer individual sports (e.g., track, wrestling, and cross country) where they must rely on personal abilities to accomplish team as well as individual goals. Some athletes, on the other hand, choose to compete against themselves or some natural element (e.g., skydiving, rock climbing, and whitewater rafting).

It is not uncommon, however, that athletes' daily training, practice schedules, or competition be interrupted by injury. Minor contusions and abrasions generally take a couple of days to heal with little or no loss of participation for athletes. Severe injuries to the body, however, sometimes debilitate athletes on a long term or even permanent basis. Depending on the severity of the injury, and the individual's mindset, athletes' perceptions of injury may differ from one individual to another. An athlete who turns an ankle in practice may view it as a minor setback to that day's practice and try to be ready to train the next day. Another athlete, however, could perceive the same injury as the beginning of a long, painstaking process filled with uncertainty concerning

future competition. It follows, therefore, that psychological side-effects of injury will also be unique to individuals.

In the past, little attention has been given to athletes' psychological needs during injury rehabilitation. Athletic trainers, sports physicians, and sport psychologists are only recently beginning to realize what athletes experience psychologically when injury occurs (Crossman & Jamieson, 1985; Gordon, 1986; Nideffer, 1989; Samples, 1990; Smith, 1990; Thornton, 1990).

Athletes, for example, may experience feelings of alienation if separated from teammates during rehabilitation (Ermler & Thomas, 1990). Injured athletes who are treated at times other than practice sessions report increased feelings of uneasiness and a loss of team camaraderie. Healthy players may also try to avoid injured athletes to avoid being reminded of the possibility of injury to themselves.

Some athletes report a sense of fear concerning their return to competition (Samples, 1987). Such fear may be based upon athletes' concerns they will not be able to perform at their preinjury levels. Others experience guilt for failing to meet certain standards, or expectations of parents, coaches, teammates, and friends (Weiss & Troxel, 1986).

Research has indicated that skill level may also influence how athletes view the seriousness of their injuries (Crossman & Jamieson, 1985; Crossman, Jamieson & Hume, 1990). Lower-level club athletes generally overestimated sports injuries, while elite athletes tended to underestimate their injuries. Skill level was one variable identified by researchers as they attempted to explain how athletes perceive the disruptive effects of injuries.

Self-esteem is one factor that has been found to play a role in the recovery time of an injury (Grove, Hanrahan & Stewart, 1990). Athletes with low self-esteem had a tendency to dwell on the negative aspects of injury and felt slow rehabilitation was caused by some internal element. Low self-esteem athletes also reported that factors of slow recovery and rehabilitation were more often present by chance rather than some intentional act by the athletes. Conversely, athletes with higher self-esteem more often appeared to see a broader picture and take injury in stride. The athletes felt that their efforts did have some impact on the rehabilitative process. High self-esteem athletes also, however, appeared to view causes of fast recovery as a result of some external cause (e.g., rehabilitative method, or the trainer's efforts), giving credit to someone else.

Athletes of all levels incur injury at some time. The

rehabilitation time may be short, or involve an extended period of time. Regardless of the length of rehabilitation, athletes' needs must be identified and met. The sooner sportsmedicine professionals (e.g., trainers, sport psychologists, and sport physicians) identify the psychological problems, and the possible causes, encountered by injured athletes the sooner athletes can be set on a path to positive recovery.

Purpose of the Study

The purpose of this research is to review the literature related to psychological factors that can affect athletes during the rehabilitative phase of athletic injury. This review will attempt to answer the following questions:

1. What factors influence an athlete's perception of an injury incurred as a result of participation in sports?
2. Why do athletes experience grief, self-blame, irrational thinking, and alienation when recovering from injury?
3. What effect do stress and lowered self-esteem have on the rehabilitation of athletic injuries?

Significance of the Study

Anyone that has been involved with sport understands the meaning of the term "injury". It conjures up thoughts of wrapped ankles, bleeding fingers and broken limbs. Injuries interrupt practice schedules, games, and daily activities because athletes are not able to function at normal levels.

The physical aspect of injury is commonly understood for those involved with sport. The psychological aspects of a sport injury, however, may not be as well understood by athletes, sportsmedicine professionals, or coaches.

The psychological side-effects of injury may actually lengthen the recovery/rehabilitation process (Caferelli, 1990; Deutsch, 1985; Feltz, 1986; Gieck, 1990; Nideffer, 1983; Samples, 1987; Scott, 1984). Researchers have indicated that, with appropriate knowledge of psychological problems, sportsmedicine professionals may be able to speed up athletes' rehabilitation and reduce the time to recovery.

Definition of Terms

When a person feels loss of his/her former identity with a preferred group, alienation is the result (Doctor & Kahn, 1989). A person may experience an inner conflict associated with feelings of want, need, or belonging. Alienation causes a feeling of depersonalization within an individual.

Self-esteem is the way in which people see themselves at their very best (Doctor & Kahn, 1989). The level of self-esteem is determined by how much personal positive feeling can be amassed.

Stress has been defined as the significant difference between what athletes believe are the demands placed upon them by the situation and the perception of their physical capabilities to comply with and/or meet those demands

(Martens, 1987). A high value must be placed on the outcome of injury rehabilitation for stress to be present.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this research is to review the literature related to psychological factors that may affect some athletes during the rehabilitative phase of athletic injury. This chapter will review literature sources related to the following questions:

1. What factors influence an athlete's perception of an injury incurred as a result of participation in sports?
2. Why do athletes experience grief, self-blame, irrational thinking, and alienation when recovering from injury?
3. What effect do stress and lowered self-esteem have on the rehabilitation of athletic injuries?

This chapter will also discuss the literature related to the following athletes' perceptions of injury: the grief response to athletic injury; the internalization of negative thought and self-blame; irrational thinking and unfounded conclusions; and alienation during rehabilitation.

Athletes' Perceptions of Sports Injuries

The initial research to determine individual perceptions of traumatic injuries was done in the mid 1960's (Suinn, 1967). Suinn's findings were based on his previous work with cases involving victims that, by some traumatic accident or severe injury, had been left disabled. Suinn believed reactions to disability were based on patients'

perceptions of trauma as individuals viewed problems from a personal point of view. Patients' perceptions of injury appeared to affect how they reacted to trauma. Some disabled persons considered their injuries as temporary changes in physical and emotional status. On the other hand, there were disabled persons that considered their injuries as permanent. Suinn stated that each patient brought to the situation a unique personality, which dictated how the patients reacted to the traumatic change of disability.

Gordon (1986) wrote that personality and motivational characteristics influence how athletes perceive injuries. Athletes view injury in a personal manner and react in a way that is unique to the individual. What athletes think of injury and how they react to it during rehabilitation is determined within the personality structures of athletes. According to Gordon, two athletes would never perceive identical injuries in the same way.

Perceptions of injuries by athletes were also considered in a paper by Yukelson (1986). He referred to Rotella's work (1982), stating that individuals will view injury in a manner that is personal to their own coping mechanisms. Athletes may view injury as a grave misfortune to a sporting career, or as a vehicle to remove themselves from a situation viewed as not enjoyable. Athletes who have been

forced into sport by parents or friends may see injury as a way out of a negative situation.

Many recreational athletes feel injuries are debilitating to their sport and personal lives (Deutsch, 1985). Athletes involved in lifetime sports appear to perceive injury as a very disruptive force in all aspects of daily life. Injury breaks a routine that is pleasurable and upsets a balance that has become a natural way of life. The author felt that recreational athletes perceive injury as just as disruptive, if not more so, than do athletes involved in competitive sports.

Some researchers have studied the influence of athletes' perceptions of injury and how personal feelings may have an effect on the length of rehabilitation (Crossman & Jamieson, 1985; Crossman, Jamieson, & Hume, 1990; Smith, Scott, O'Fallon & Young, 1990; Yukelson, 1986). How athletes perceive injury may have some effect on how they would cope with a specific trauma. Injured athletes may fear they will never again perform at a former level, and that is equated with failure (Cafarelli, 1990). Relying on personal experiences from work with athletes, Cafarelli states that athletes may be afraid of returning to a sport and looking foolish if not able to perform at their preinjury levels. Fear of poor performance, depression, and long periods of rehabilitation may affect an athlete's recovery.

A study done at the Mayo Clinic included 72 athletes, 50 males and 22 females, all of who sustained injury serious enough to prohibit exercise for a minimum of two weeks (Smith et al., 1990). Athletes varied widely in personal background, primary sport, and age (12-54). Three groups were formed according to actual length of rehabilitation for full recovery. Group one consisted of athletes that required less than 2 weeks rehabilitation (n=22). Group two athletes needed a period of 2-6 weeks for full recovery (n=27). Group three athletes were those requiring 6-24 weeks of rehabilitation (n=23).

Athletes were given questionnaires designed to ascertain feelings at the time of injury and how they perceived the injury. The Emotional Responses of Athletes to Injury Questionnaire (Smith et al., 1990) and the Profile of Mood States Test (McNair, Lorr, & Droppleman, 1971) were administered to all those participating in the research.

The results of the study revealed that athletes in group one (less than 2 weeks) and group two (2-6 weeks) perceived injuries as less threatening to overall lifestyle when compared to data provided by a previous study involving college students (cited in Smith et al., 1990). Researchers found no significant difference between the perceived degree of threat (e.g. how athletes felt the injury affected their daily lives) for groups one and two. There was, however, a

significant difference when groups one and two were compared to group three (6-22 weeks for recovery). Group three was significantly higher than groups one and two on degree of mood disturbances, perceived amount of disruption to lifestyle, degree of confusion, anxiety, and depression. In addition, group three was also significantly higher on those factors than data reported as norms for male and female college age subjects (cited in Smith et al., 1990). The researchers concluded that athletes' perceptions of the seriousness of injury and recovery time affected the athletes' emotional responses to injury.

Crossman & Jamieson (1985) conducted a study on how athletes perceived injuries sustained during competition. The study included a total of 43 athletes, 30 males and 13 females ranging in age from 14 to 34 years, and having a variety of injuries. Athletes were identified by ability level: elite, n=9; intercollegiate, n=16; and recreational, n=18. Athletes were asked to provide information regarding their injuries by means of the State Anxiety Questionnaire (Spielberger, Gorsuch, & Lushene, 1970), a scale of mood (Polivy, 1981) and a questionnaire designed to determine perceptions of how the injury affects one's daily life (Crossman & Jamieson, 1985).

Information from the questionnaires was compared to the subjective evaluations of athletic trainers. The trainers

were in charge of the rehabilitation of the injured athletes. Each completed reports on the disruptive effect of injuries for each athlete. The trainers' reports were compared to the information recorded on athletes' perceived injury effect.

Examination of both sets of information led researchers to conclude that many athletes, especially those younger in age and of the recreational club level, tended to overestimate the seriousness of injuries. The researchers also indicated that elite athletes tended to underestimate the disruptiveness of injuries. It was suggested that elite athletes, possibly having gone through previous injury, had learned to cope with setbacks during training and competition. Therefore, experience and ability level may have affected athletes' perceptions of how disruptive the injuries were to their lives.

Crossman, Jamieson and Hume (1990) conducted a follow-up study in which coaches' opinions of the disruptive nature of athletes' injuries were obtained. Thirty-five injured athletes (male, n=9 and female, n=26) ranging in age from 16-37 (25 club-level and 10 elite) answered questionnaires similar to the Polivy (1981) mood scale. The subjects' coaches and trainers also filled out questionnaires concerning their perceptions of each athlete's injury. Each coach and trainer answered the questionnaires without

knowing the athletes had also filled out the same form.

After interpreting information on the questionnaires researchers concluded that athletes and coaches tended to overestimate the seriousness of injuries to club-level athletes, especially those that had not previously sustained a serious injury. Coaches' ratings were, however, found to be generally lower than that of club-level athletes. Although coaches did report lower effects of injuries to club-level athletes, their ratings were consistently higher than evaluations by trainers.

In addition, coaches tended to overestimate injuries to elite athletes while the athletes generally underestimated their injuries and the disrupting effects. The elite athletes appeared to take injury in stride and continued training on a modified schedule, not allowing injury to change their lives dramatically. The researchers speculated that elite athletes were perceived, by coaches, to be more crucial to competition than club athletes. One would expect coaches of world class athletes to be greatly concerned when injury occurs. The time and effort put forth to prepare elite athletes for competition may have been an influencing factor in coaches' perceptions.

Grief Response to Athletic Injury

The occurrence of injury may put athletes in unfamiliar situations, especially if they have not previously

experienced a severe injury and the long-term process of rehabilitation (Cafarelli, 1990; Wiese & Troxel, 1986). As a result, athletes may face a number of unanticipated psychological side-effects. Many athletes are not capable of coping with the psychological effects of an injury (Weiss & Troxel, 1986). Athletes may begin to question their ability and dwell on the negative aspects of injury. Without prior knowledge of injury or of the process of rehabilitation, athletes may need assistance with coping skills.

The process of coping with injury has been equated to dealing with the death of a close friend or relative. Many researchers believe that athletes must pass through the same stages of grief in dealing with injury as that of a person dealing with the death of a loved one (Feltz, 1986; Gordon, 1986; Nideffer, 1989; Samples, 1987; Smith, 1990; Thornton, 1990 & Yukelson, 1986). The grieving process is necessary for athletes to fully accept the changes an injury makes in one's life. There is some disagreement on terminology and the order of the grief stages, but there is general agreement that a step by step process must be followed for athletes to accept a situation and recover.

Kubler-Ross (1969) has identified the five stages of grief as: 1) denial and isolation; 2) anger; 3) bargaining; 4) depression; and, 5) acceptance. In stage one a person is

likely to deny being in a negative situation, such as being injured. One may refuse to believe the obvious and choose to avoid facts. By ignoring the facts one may begin to isolate oneself from others to cushion the harsh reality of loss. Specifically in sport, when an athlete is injured one's first reaction may be total disbelief (Samples, 1987). Many athletes feel injury is something that will occur to someone else. When the injury does occur they immediately feel separated and different from the main group. Athletes may also isolate themselves due to fear of being seen in an inferior role (e.g., not being as talented or skilled as prior to injury).

Stage two, anger, is felt when individuals are upset with themselves or others. Athletes may even lash out at those trying to help or comfort them. Athletes have been reported to be angry with coaches and parents for encouraging them to enter sport (Chan & Grossman, 1988).

Bargaining is the stage where athletes may try to come up with ways to meet an injury halfway and set accelerated goals of return to competition (Yukelson, 1986). Athletes may try to push harder than is allowed, thinking they will be able to regain preinjury status by extra work. Highly motivated athletes may attempt to squeeze in extra periods of rehabilitation in a shorter period of time hoping that the increased workload will result in faster recovery.

When rehabilitation does not go as planned, or there are setbacks in training, athletes may become depressed (Cafarelli, 1990). All the anger, denial, and bargaining has moved them no closer, in the athletes' view, to regaining their health. Depression is marked by loss of motivation and a lackluster effort on an athlete's part. One possible result of periods of depression in athletes would be dropping out of rehabilitation.

When athletes come to grips with the fact that rehabilitation of the injury can neither be accelerated nor avoided, they may have begun to accept the injury (Feltz, 1986). Athletes at the acceptance stage have learned that injury rehabilitation is a process and must be worked through one step at a time. Much like when a person loses a loved one to death, athletes learn that full acceptance of injury is not possible without having met and conquered several emotional barriers.

Researchers seem to agree that progressive steps are essential to the acceptance of a sports injury, but many have distinct ideas on what athletes actually think and feel concerning their injuries. Numerous authors agree with Kubler-Ross (1969), while others have expanded upon her basic work.

Samples (1987), for example, agrees with Kubler-Ross that five steps are present in the grieving process. He

believes, however, that in the first stage of grief athletes tend to simply deny the existence of the injury. Isolation was not a prevalent problem in his experiences. Samples contends that most athletes feel invulnerable to serious injury and choose not to believe such a situation can occur. He feels athletes must complete the process of grieving over injury, whether debilitating or minor, to come to the acceptance stage. Samples agrees with Kubler-Ross on stages two through five of the grieving process.

Feltz (1986) refers to five general steps that athletes must go through when coping with injury. She believes that persons who avoid going through the grief process, or refuse to be cooperative with those attempting to help, will suffer frustration and emotional problems. Feltz also states that athletes who face severe frustration and emotional problems may be those that have difficult periods of adjustment if the injury terminates their careers.

Gordon (1986) states that step five in the grief process for athletes should be "acceptance/resignation". She believes athletes not only must accept the presence of an injury, but make a conscious decision of how to live with the situation. The act of resignation is not that of giving up, rather one of compromise with a situation for a positive outcome.

Rotella (1982) concurs with Gordon on the stage of

resignation. He believes that resignation is a very necessary part of the grief response. According to Rotella, athletes must learn that most injuries are temporary setbacks and they may be able to help the team at a later date.

Yukelson (1986) also agrees that the grief process is vital for athletes to recover psychologically, but he outlines different stages for the process. According to Yukelson, athletes must be given time to grieve over the injury. Many athletes, according to Yukelson, spend a great deal of time blaming themselves for the injury and most feel helpless to change their situations. Athletes may try to rationalize, or bargain, with themselves concerning the injury and how they will be affected later in life. Yukelson feels that athletes must follow a step by step progression to "acceptance and abdication". Abdication is the point where one removes the excess psychological baggage (e.g., blaming oneself for becoming injured, working through the stages of grief, raising self-esteem, fears of nonparticipation, and fears of letting the team down) that has been associated with injury and rehabilitation. Only when athletes have reached the point of full acceptance and dismiss the psychological burdens can they move forward and make strides toward positive recovery.

According to May and Sieb (1987) research in the area of

response to injury trauma is limited due to lack of cooperation from the athlete. They list over 100 common physical, psychological, and behavioral responses that athletes may have after the occurrence of injury. Immediately after injury athletes may be too preoccupied with pain, disbelief, and denial to become involved in a study. The researchers feel that athletes, when injured and waiting for medical attention, are seldom in a proper frame of mind to answer questions on a paper and pencil questionnaire. The result is limited data on athletes' immediate feelings and reactions to injury.

Nideffer's (1989) work on psychological factors indicates that injured athletes must pass through five steps of grieving much like those of the Kubler-Ross (1969) model. Nideffer, however, believes that stage five of the Kubler-Ross model should be listed as "hope". Anticipation of full recovery from injury, looking toward the end of a long rehabilitation, or finding other options for athletic participation are desirable outcomes of this stage. Maintenance of a positive attitude and a high level of self-esteem were also indicated to be important to athletes' rehabilitation.

Some authors feel the phases of grief response to injury involve fewer steps than the Kubler-Ross (1969) model (Gieck, 1990; Pedersen, 1986; Weise & Weiss, 1987). Denial,

anger, depression, and acceptance are the steps necessary for athletes to come to terms with injury, according to one author (Gieck, 1990). Gieck felt that athletes must accept responsibility for their own outcomes and become active participants in the rehabilitation process. The result of active participation would be that athletes would move through the phases quickly and become less dependent upon the trainer or coach. Gieck believes that athletes must be held responsible for much of their own rehabilitation.

Two studies indicated that the stages of grief response are actually three general steps, each with emotional and physical barriers to be conquered (Pedersen, 1986; Wiese & Weiss, 1987). Phase I is cognitive in which the sudden shock of injury is characterized by the barriers of anger, denial, bargaining, and helpless feelings. Phase II is emotional and includes the barriers of guilt, anger, and depression. Phase III is behavioral where athletes reorganize and accept the situation, whether outcomes are positive or negative. The researchers report that athletes may go through any or all of the subphase barriers. Some athletes work through the phases faster than others, according to their perception of the injury and their level of self-esteem. The researchers, however, stress the importance of moving through each phase, in progressive steps, as quickly as possible.

Most studies reviewed to this point, though not in complete agreement on the response, the number, or even the order of stages in the grieving process, had one aspect in common. Each researcher included denial as a primary phase of grief. Only two studies failed to identify denial as part of coping with injury (Chan & Grossman, 1988; Smith, 1990).

Smith (1990) found evidence to support arguments that athletes do not deny the physical pain of an injury, and that denial had no place in the process of rehabilitation. The study included 72 athletes (50 males and 22 females) 12-54 years in age, representing a wide variety of athletic backgrounds and specific injuries. Athletes were put into groups according to the actual length of rehabilitation. Group one consisted of athletes that required less than two weeks rehabilitation (n=22). Group two involved athletes that needed two to six weeks for recovery (n=27). Group three was formed of athletes with extended rehabilitative periods of six to twenty-two weeks (n=23). Athletes filled out questionnaires designed to aid in the evaluation of emotional responses and mood states.

Smith stated that athletes revealed high levels of anger and depression, followed by anxiety and tension. The researcher reported that denial was not part of the process of coping with injury. Smith felt that the severity of

injuries affected how athletes responded to the stress. His belief was that injury is accepted as part of being involved in sporting ventures. Smith stated that athletes, probably having experienced previous injury, develop an awareness that senses when some part is not functioning properly. He feels that athletes do pay attention to the signals of pain their bodies are sending.

Athletes responses were also compared to existing college norms of nonathletes from other studies (cited in Smith et al., 1990). The comparison revealed few differences between the two groups in mood changes after minor injuries, only anger was reported to be higher for athletes. A significant difference, however, was seen when comparing serious injuries. The discrepancies came from minor and severely injured athletes in levels of fear, anger, and depression. Athletes reported more anger, depression, and overall tension than that reported by nonathletes. The researcher made a point to note that denial was not found in either group studied.

Another study was conducted using information from 30 injury-free runners and 30 injured runners that were prevented from exercising for a minimum of 4 weeks (Chan & Grossman, 1988). The total sample consisted of 32 women and 28 men, ranging in age 15-50. Each group (injured and uninjured) contained 16 women and 14 men. All of the

runners had run 20+ miles per week when healthy. Athletes were administered the Profile of Mood States Test (McNair et al., 1971), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), Zung Depression Scale (Zung, 1965), and an unpublished questionnaire on running designed to record personal information and running history (cited in Chan & Grossman, 1988).

The injured group exhibited signs of anger, anxiety, depression, confusion, and lowered self-esteem. The study did not reveal denial as part of the mood disturbances. In fact, denial was not mentioned as a factor in the emotional response to injury.

Most authors agree that the disruption of normal routine causes feelings of loss for athletes (Thornton, 1990; Scott, 1984). Although athletes respond to the initial shock of injury with surprise and disbelief, it is believed that depression was the most difficult obstacle to overcome for those athletes who are recovering from injury. Thornton and Scott agree that athletes are well attuned to their bodies so that when an injury occurs the balance is upset. After injury some athletes have difficulty becoming motivated to work on rehabilitation. When motivation drops depression sets in and feelings of helplessness may overcome the athletes.

Internalizing Negative Thoughts and Self-Blame

Several authors agree that many athletes internalize negative thoughts during rehabilitation (Brewin, 1982; Cafarelli, 1990; Feltz, 1986, Gordon, 1986; & Grove, Hanrahan & Stewart, 1990). Athletes have reported feelings of inadequacy concerning their ability to control the negative effects of injury and the related setbacks. Loss of strength, endurance, physical fitness, and lowered self-esteem are all factors that have caused athletes to feel that rehabilitation was not proceeding smoothly.

In western Australia, a study was conducted with 276 undergraduate physical education majors, 157 males and 119 females (Grove et al., 1990). Subjects represented a wide variety of ability levels and sports. The students were asked to respond to the Scales of Competition-Specific Achievement Motivation (Willis, 1982), the Sport Competition Anxiety Test (Martens, 1982), and the Self-Rating Scale (Fleming & Courtney, 1984). Athletes were asked how they would respond "physically" to an event in which a sports injury would occur. Those responses also included athletes' perceptions of their control of factors involving the incident, source of cause, globality (if the situation affected just one event or all events in the athlete's life) and intentionality (if the situation was a result of an intentional or unintentional effort by the athletes). All

responses were classified as either rapid or slow recovery by a group of three independent judges.

Information from the testing was listed in three categories. The categories were competition-specific resultant achievement motivation (RAMC), sport complexity anxiety (SCA), and physical self-esteem (PSE). Results revealed that athletes with low PSE tended to equate slow recovery with more internal factors, were more likely to take blame for a longer period of rehabilitation, experienced less stability in their lives, and felt control for the changing situation was external to themselves. Those same athletes were also hesitant to blame others for the lack of progress. The researchers felt that the low PSE athletes were accepting blame for situations not within their control. Conversely, those athletes with high levels of PSE tended to view the causes for fast recovery to be external (e.g., a treatment or the trainer), experienced more stability in their lives, and felt their actions would have some impact on rehabilitation. The evidence indicated that the athletes felt the need to "regain the level of athletic ability" lost due to an injury. The authors indicated that the speed with which athletes recover may well be linked to their levels of self-esteem.

Cafarelli (1990) reports that athletes may experience feelings of failure if rehabilitation takes longer than they

feel it should take. The author states that setbacks are inevitable in most rehabilitation programs and athletes must be made aware that setbacks will probably occur. Athletes may have insufficient background experiences to effectively deal with setbacks. Once some athletes internalize the experience as failure, the cause is felt to be internal and self-blame may be the result.

As athletes begin to blame themselves they may also begin to doubt personal abilities (Feltz, 1986; Gordon, 1986). Self-defeating thoughts are what Feltz called the "self-doubt, anxiety, poor performance" spiral. Anxiety builds when athletes doubt themselves and their own abilities. According to Feltz, the result of self-doubt and anxiety can lead to poor performance. The cycle could be applied to rehabilitation as well as actual performance in sport.

Gordon (1986) believes that if athletes think negatively, blame themselves, or make excuses for difficult tasks failure is the end product. Athletes may fail themselves by entertaining self-defeating thoughts, raising their own anxiety level, and lowering self-esteem through negative attitudes. In order to avoid failure Gordon feels athletes must focus on the positive aspects of rehabilitation and learn to take minor setbacks as a natural part of working toward recovery.

Brewin (1982) states that people may blame themselves for causes and results of injury. He feels that certain characteristic types had a tendency to take responsibility for situations beyond their control, indulge in unwarranted self-blame, and may be in need of counseling. Self-blame, Brewin states, can lead to severe depression because one cannot find a method sufficient to alleviate the problems at hand.

Irrational Thinking

As injured athletes become more anxious about their futures in sport, rash, unfounded conclusions concerning the final outcome of rehabilitation may surface (Eldridge, 1983). According to Eldridge, some humans fulfill a personal need with their involvement in sports. If that is true, then injuries that keep athletes out of sport would create a void and/or an unfulfilled need. Athletes may then begin to indulge in irrational thoughts based on fear, half-truths, and personal feelings.

Gieck (1990) discussed exaggeration of simple facts, including three types of irrational thought, as a factor that tended to cloud the rehabilitation issue faced by athletes. The first, oversimplification, is making judgments about a situation (e.g., good-bad, right-wrong). The second type of irrational thought is overgeneralizing a situation. Athletes may choose to pay little attention to

proper care of an injured part and decide it will be fine if left alone to heal, or decide that all injuries of a certain nature result in disability or nonparticipation. Thirdly, unwarranted conclusions may come in the form of irrational thoughts based on fear (e.g., "I will NEVER be able to play again!"). In all of the examples of exaggeration the athletes appear to be rationalizing their need for being involved in sport.

Gordon (1986) believes that athletes' irrational thinking is a result of all aspects of the occurrence of injury and how they react to a situation. Irrational thinking, unwarranted conclusions, and preoccupation with injury were apparently negatively tied to rehabilitation. According to Gordon, irrational thoughts should be identified and halted as quickly as possible by the athletic trainer or coach.

Yukelson (1986) agrees and wrote that irrational thinking is one of 5 possible barriers to full recovery for injured athletes. He cited self-esteem, helplessness, anger and depression, and uncertainty of the future as major hurdles in the path of athletes that are in rehabilitation programs. Lowered self-esteem is a result of feelings of failure and guilt. Helplessness may overcome athletes when they realize that a situation is out of control and there seems to be no possible way for them to halt the problems.

Anger and depression appear to be results of athletes' frustration at the changes taking place.

Alienation

Alienation is a problem that athletes have reported during the rehabilitation of injuries (Ermler & Thomas, 1990). Alienation has been divided into three subconstructs that, added together, form an overall feeling of separation and uncertainty that may be felt by injured athletes. The subconstructs are: 1) powerlessness, 2) anomie, and 3) isolation.

Powerlessness is the feeling of inability to change a situation and influence the outcome (Seeman, 1959). Before injury athletes are free to take risks whenever they choose. The possibility of making choices and taking risks is, however, swept away when injury occurs and the "power" over their own destiny is lost. Athletes then find themselves in a situation where they are not able to control choices concerning their own behavior and actions.

When individuals' normal social structures have been altered for some unwanted and unexpected reason people may find themselves in completely new and strange situations. Anomie is experienced when athletes are thrust into an unfamiliar situation and have little or no idea of the role they must now assume (Finifter, 1972). According to Ermler and Thomas (1990) athletes are put into a state of anomie

when they realize that the previous role of active athletes and participants has been altered. Feelings of camaraderie with teammates could also be altered so that injured athletes lose the sense of close association once felt with team members. The isolation experienced by injured athletes during rehabilitation has been reported by Ermler and Thomas (1990). Injured athletes may be physically separated from their teammates for treatment. The authors believe that treatment isolation causes injured athletes to feel self-conscious about the injury. Athletes also believe that being separated while injured projects a message that they are no longer a vital part of the team.

Samples (1987) also suggests that injured athletes feel uncomfortable when placed in situations where there is no contact with teammates. His association with sports teams leads him to believe that athletes recover more quickly when they are made to feel as a contributing member of the team. Samples stated that the results of keeping athletes involved were fewer feelings of alienation, easier coping with the injury, and raised self-esteem of the athletes.

Alienation of athletes, whether actual or perceived, can make individuals feel insignificant in the scheme of team outcomes (Sciera, 1983). Sciera argues that injured athletes must be made to feel as if they are still a part of the team and somehow contributing to the team goals and

outcomes. Uncertainty of the future sets in when athletes are unsure of the role they play within a team and are given little attention by coaches. Lowered expectations of coaches appear to result in lowered self-esteem and expectations by the injured athletes.

Athletes may lose some of the closeness once felt with teammates by not being made to feel as contributing members of the team (Deutsch, 1985). Other athletes may worry about an athletes' injury and whether a comeback is possible. Healthy teammates may also avoid injured athletes in order to separate themselves from any reminder that they could also experience an injury.

Several studies reported that the athletes' feelings of loneliness and helplessness were the most difficult part of rehabilitation (Deutsch, 1985; Ermler & Thomas, 1990; & Pedersen, 1986). Injured athletes that are treated outside of practice times may feel as if they are being hidden from others on the team. Rules by coaches and trainers are seldom questioned and athletes may feel they have no alternative but to abide by them.

Moos and Tsu (1977) suggest maintaining personal contact with the team to help injured athletes cope with the effects of serious illness. Their work includes a seven step process for coping with illness/injury. Three of those are: 1) maintain communication lines (e.g., teammates, coaches,

and trainer); 2) maintain a healthy self-esteem; and, 3) maintain relationships as before illness (e.g., peers and coaches). Rotella (1982) suggests that injured athletes stay as much a part of the team as possible. He also states that teammates and coaches must keep injured players involved in daily team activities. Active participation and involvement assist athletes in building self-esteem and avoiding the alienating effects of injury.

Athletes may have a difficult time expressing feelings to anyone concerning any injury (Nideffer, 1983). With increased anxiety, feelings of lowered self-esteem, and a lack of confidence, athletes may find themselves wanting to express certain feelings of loneliness, helplessness, or even hopelessness. Other researchers feel that athletes may become severely introverted and be unable to discuss personal feelings, or even to carry on normal conversation (Gordon, 1986; May & Sieb, 1987; & Pedersen, 1986). Actions of that type appear to make the effects of alienation more deeply rooted and tend to exacerbate the problems of feeling alone.

Trainers and coaches are encouraged to initiate open lines of communication with injured athletes (DeBennette, 1990; Ermler & Thomas, 1990; & Samples 1990). It is important to have athletes talk about the injuries they have sustained and to keep injured athletes as close to the team

as possible (e.g., rehabilitation during practice time, attending practice sessions when possible, working on rehabilitation with other athletes). It was suggested that injured athletes be visible to other members of the team to help alleviate teammates' fears and misconceptions concerning the injury.

Chapter III

METHODS

The purpose of this paper has been to review the literature related to psychological factors that can affect some athletes during the rehabilitation phase of athletic injury. This review attempted to answer the following questions:

1. What factors influence an athlete's perception of an injury incurred as a result of participation in sports?
2. Why do athletes experience grief, self-blame, irrational thinking, and alienation when recovering from injury?
3. What effects do stress and lowered self-esteem have on the rehabilitation of athletic injuries?

Procedures

Investigation into the subject matter began with use of the Compact Disc-Read Only Memory (CD-ROM) and Educational Resources Information Center (ERIC) on-line reference programs housed in the University of Northern Iowa's Donald O. Rod Library. The focus of the research was: 1) emotional responses of athletes to injury, 2) psychological problems met during rehabilitation, and 3) the role of sportsmedicine professionals (trainers, physicians, and sport psychologists). ERIC proved to be somewhat helpful in the search, and provided a few sources available at the University of Northern Iowa (UNI).

The Psychology Literature on-line program, also on the CD-ROM system, yielded a few sources of information in the clinical psychology literature that were helpful in the research process. There were few references related directly to sport, and what was listed proved to be of meager value.

The next step of the investigation was to search the Physical Education Index volumes available in the UNI library reference section. Numerous references were found, many of which were available within the collections of the UNI library. Periodicals such as Athletic Training, Journal of Physical Education, Recreation, and Dance, Perceptual and Motor Skills, Canadian Journal of Sport Sciences, and Research Quarterly for Exercise and Sport were easily accessible for retrieving information.

Interlibrary loan proved to be the most fruitful resource of all. Several books and articles were borrowed from other institutions, such as; Indiana University, Ohio State University, University of Iowa, Iowa State University, and Palmer School of Chiropractic. Not only did interlibrary loan make other articles available, but it also led to other sources not previously referred to by other authors.

CHAPTER IV

DISCUSSIONS AND CONCLUSIONS

The purpose of this research is to review the literature related to psychological factors that may affect some athletes during the rehabilitation phase of athletic injury. This discussion will attempt to answer the following questions for sportsmedicine professionals and coaches:

1. What factors influence an athlete's perception of an injury incurred as a result of participation in sports?
2. Why do athletes experience grief, self-blame, irrational thinking, and alienation when recovering from injury?
3. What effects do stress and lowered self-esteem have on the rehabilitation of athletic injuries?

Athletes recovering from injury appear to face many psychological barriers during rehabilitation. Many of the psychological problems may be displayed in the athletes' behavior. Researchers have pointed out, however, that athletes may be experiencing problems, undetectable even to someone who is closely observant of the athlete. Coaches, trainers, and physicians appear to be in the best position to detect signs of low self-esteem, irrational thinking, self-blame, and feelings of alienation in athletes.

Coaches may, by reading this paper and the studies to which it refers, find applications for the information on athletes' perceptions of injuries, as presented by Crossman

and Jamieson (1985), Crossman, Jamieson, and Hume (1990), and Smith, Scott, O'Fallon & Young (1990). Athletes facing long rehabilitation, especially younger athletes, may have a very difficult time coping with injury and expressing personal feelings. It appears to be very important for athletes to feel comfortable about talking with someone.

Coaches may be surprised to discover their own perceptions concerning athletes' injuries. One may not be aware of a difference in concern for athletes of various ability levels. Once coaches realize their perceptions of athletes' injuries may be different from those of the injured athletes, coaches can begin to understand what their athletes are feeling and why.

There are many authors that feel athletes must be allowed to grieve over an injury (Gordon, 1986; Smith, 1990; Thornton, 1990; Weiss & Troxel, 1986; & Yukelson, 1986). According to the literature, athletes felt some type of personal loss. Grieving appears to be a very healthy, normal, and necessary response to injury. Most authors refer to the work of Kubler-Ross (1969) and the five stages of grief in dealing with the loss of a loved one. While some authors are in total agreement with Kubler-Ross on the stages, many have used the basic work to develop their own theories as to how athletes deal with injury and grief.

Sportsmedicine professionals may fully understand the

grieving process, but many coaches have no training or background for dealing with injured athletes and their grief. Coaches may need more information to understand why athletes seem to go through moods during rehabilitation. The information on the stages of coping with injury would best be presented in a context of sport. Kubler-Ross' work may have little meaning for coaches, but the work of Nideffer (1989), May and Sieb (1987), Rotella (1982), and Yukelson (1986) could shed light on the behavior of injured athletes during rehabilitation. Even though researchers agree that athletes must go through a grieving process, they do note that individual differences may exist. For example, athletes may exhibit explicit denial concerning an injury, refuse to be treated, and express a desire to go back to practice or competition. Other athletes with the same injury, however, may indulge in self-blame concerning the situation and try to isolate themselves from anyone involved with the sport. The researchers contend that athletes attack problems and grieve in ways unique to their own personalities.

Athletes with low self-esteem appear to take problems associated with injury very personally. They tend to internalize negative thoughts and blame themselves for injury occurrence and lack of progress during rehabilitation. Coaches should be aware that many athletes

indulge in self-blame for whatever goes wrong with their athletic careers. Athletes may become negative and impatient with themselves and their inability to control the pace of rehabilitation.

Coaches should also note that athletes may feel that they have failed teammates, parents, coaches, and themselves by becoming injured. Athletes who feel they have failed are less likely to be motivated to work hard and continue rehabilitation (Brewin, 1982; Cafarelli, 1990; Deutsch, 1985; & Weiss & Troxel, 1986). Athletes who doubt themselves and their abilities may experience failure if presented with setbacks during rehabilitation. Sportsmedicine professionals and coaches must be observant to tell if athletes are experiencing problems and try to find the cause of such feelings.

When athletes are injured they may become preoccupied with irrational thoughts based on half-truths and personal biases. Coaches should be aware that athletes may exaggerate simple facts and complicate matters with personal feelings concerning the injury and future participation. Gordon (1986) and Yukelson (1986) felt that irrational thought would adversely affect rehabilitation and increase other problems encountered by athletes. Athletes may experience lowered self-esteem, anger, frustration, and come to unwarranted conclusions as a result of irrational

thought.

Coaches and sportsmedicine professionals should be aware that athletes may be involving themselves in irrational thought during rehabilitation. Preoccupation with the injury and its possible negative outcomes may negate some of the progress made in rehabilitation. Athletes need help to keep levels of self-esteem as high as possible. Sportsmedicine professionals and coaches must teach athletes to realize that the tendency to become preoccupied with injury and to indulge in irrational thought are negative factors that could affect their recovery.

After injury, athletes may feel they are no longer a part of a team's daily routine. Whether separation from the group is actual or perceived the result appears to be the same. Athletes who feel that they are set apart from teammates and the day to day functions of the team may experience alienation and depression. Coaches have a responsibility to the team as a whole and one injured athlete should never take priority over the rest of the team. Many times, however, injured athletes become a lower priority for a coach. Sometimes personnel and time restraints are such that injured athletes must be treated at times other than regular practice sessions. Athletes that are treated in separate areas or moved to another time of day may experience feelings of alienation.

Healthy players may have little information on a teammate's injury and be too shy or afraid to ask questions in order to satisfy curiosities. Coaches can alleviate some of the fears and uncertainties by requiring injured athletes to attend all practice sessions and take rehabilitation during such times. The visibility of injured athletes and closeness of healthy teammates may break down some of the psychological barriers of alienation and clear up misconceptions concerning an athlete's injury.

Athletes may face psychological problems when battling with a sports injury. They report feelings of fear, anger, disbelief, and alienation. This can further hinder athletes from making a full, healthy, and speedy recovery. Levels of stress appear to play different roles in the athletes according to gender, age, and level of competition.

Self-esteem is important when looking at the recovery of injury. Researchers feel an athlete that has a high level of self-esteem will be better able to cope with injury. High self-esteem athletes are also less likely to lay blame for an injury. It is this type of person that takes the injury in stride, most times, and will work toward a goal of full recovery. The sportsmedicine professional must weigh the factors of seriousness of injury, age, sex, ability level of the athlete, and external factors playing upon the athlete to make a diagnosis and form proper recovery goals.

Sports medicine professionals are encouraged to be attentive listeners, keep athlete confidence by actively pursuing rehabilitative paths that will allow athletes the best possible chance of recovery, keeping athletes informed of possible delays met along the way, and helping to raise athletes' self-esteem by working to keep athletes actively involved with daily activities of the team. The process should be coupled with the full involvement of athletes. Knowledge of one's complete rehabilitative plan allows athletes to face recovery knowing what to expect during the process. The result will be faster recovery and less worry by the athletes concerning unforeseen setbacks encountered along the way.

Active athlete rehabilitation, reduction of injury's alienating effects, and raising of self-esteem of injured athletes are important issues, of which all coaches, athletic trainers, and sports physicians should be aware and knowledgeable. Each may play a role to significantly reduce the recovery time and the degree of psychological anguish athletes endure.

CHAPTER V

RECOMMENDATIONS FOR FURTHER STUDY

There are several questions that have unresolved answers in the area of athletes' responses to injury. The void left by lack of information leaves much room for research. Based on the findings of this study, future research should focus on the following:

1) How does the early identification of psychological factors experienced by injured athletes affect the process of rehabilitation? Are there significant reductions in the amount of time to recovery? Do athletes appear to go through the process of rehabilitation and coping easier than those that are not aided?
2) What persons should take responsibility for educating athletes to cope with the stresses that accompany injury? How much should athletes be told of the possibilities of setbacks and reinjury?
3) To what degree will raising the self-esteem of injured athletes significantly enhance motivation and reduce negative thought and self-blame?
4) When should coaches and trainers begin aiding athletes to avoid feelings of alienation and its effects during rehabilitation?
5) The topic of denial, and its presence or absence, in

the process of grief response to athletic injury warrants further study. Two studies provide support that denial is not a part of the process, while all others appear to report it as a crucial aspect in coping with injury.

6) Internal and external locus of control was not mentioned in the studies for the review. Future research should be focused on what role locus of control might play in athletes' perceptions of injuries and whether those athletes are likely to experience depression during rehabilitation.

7) Athletes that become severely depressed appear to lack motivation to continue rehabilitation. What role does athlete motivation play in the process of rehabilitation? Can it significantly be attributed to reduced time to recovery?

Research would most likely be a long, arduous process to find all the answers to the questions posed in this review. Study should be focused on the athletes and the methods used to recover, physically and psychologically, from injuries received as a result of involvement in sports.

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