Review

Effectiveness of psychological intervention following sport injury

Laura M. Schwab Reese a, Ryan Pittsinger b, Jingzhen Yang a,*

a Department of Community and Behavioral Health, The University of Iowa, Iowa City, IA 52242, USA
b Department of Psychological and Quantitative Foundations, The University of Iowa, Iowa City, IA 52242, USA

Received 21 April 2012; revised 4 June 2012; accepted 6 June 2012

Abstract

With increasing attention given to the development and implementation of psychological interventions during the sport injury rehabilitation process, there is a need to document the effectiveness of these interventions. The purpose of this review was to summarize the empirical findings of the effects of psychological interventions in reducing post-injury psychological consequences and improving psychological coping during the injury rehabilitation process among competitive and recreational athletes. In February 2012, utilizing a comprehensive search strategy, we conducted electronic searches of multiple electronic databases for randomized and nonrandomized control trials that evaluated interventions targeting populations of injured competitive and recreational athletes age 17 years and older. We included interventions that directly intervene on injured athletes’ psychological outcomes (e.g., psychological consequences, psychological coping and re-injury anxiety) and utilized psychological strategies including imagery, goal-setting, relaxation, and other common techniques during the post-injury rehabilitation period. Six studies, described in seven peer-reviewed published articles, met study inclusion criteria and were included in this review. Of those studies, two included randomized control trials, two used before and after study designs and two were case study designs. Two interventions utilized guided imagery and relaxation, two interventions utilized goal-setting and one each utilized microcounseling, written disclosure, and acceptance and commitment therapy. Guided imagery/relaxation was shown to be associated with improved psychological coping and reduced re-injury anxiety. Goal setting, however, was not directly associated with the reduction of negative psychological consequences. Other psychological techniques such as microcounseling skills, acceptance and commitment therapy, and written disclosure have demonstrated effectiveness in reducing negative psychological consequences, improving psychological coping, and reducing re-injury anxiety. Our findings suggest a significant need to develop and implement well-designed intervention studies that target improvement of post-injury psychological outcomes in order to assist injured athletes successfully recovery from sport injury.

Keywords: Intervention; Psychological consequence; Psychological coping; Sport injury

1. Introduction

Sport injuries frequently have profound negative consequences on the physical health of sports participants.1,2 They also have the potential to cause a great deal of psychological disturbance through increased anger, depression, anxiety, tension, fear, and decreased self-esteem.3–23 Sport injuries often result in an immediate imbalance and disruption to the lives of the injured athletes including loss of health and achievement of athletic potential.24,25 In extreme cases, injuries result in a permanent disability or even death.26–31 Such functional loss or the inability to continue sports participation can be devastating and hinder the recovery process, and consequently affect the way athletes mentally deal with future injuries.15,23 Thus, including a component that addresses psychological recovery from a sport injury in the traditional injury rehabilitation program becomes critical to
preventing and/or reducing negative psychological consequences resulting from the injury and promoting return to active involvement in sport-related activities.

Increasing attention has been given to the development and implementation of psychological interventions during the sport injury rehabilitation process in recent years. Many sport injury rehabilitation programs are beginning to integrate psychological interventions into the treatment regimens in order to expedite both physical and psychological recovery from injury. The psychological techniques commonly used with injured athletes in these interventions include relaxation, mindfulness, imagery, goal setting, and stress management. Existing studies indicated these psychological interventions help reduce negative psychological consequences, improved coping skills, and reducing re-injury anxiety. As a result of improved psychological well-being, injury recovery period is shortened and injured athletes frequently return to play sooner. Despite growing interest in utilizing psychological interventions, few controlled outcome studies have been published. Empirical evidence demonstrating that psychological interventions decrease negative psychological consequences or increase psychological coping still remains limited.

Advances in medical treatments have reduced the time required for physical healing, which may result in athletes who are physically healed and ready to return to play but not yet psychologically recovered. This potential discrepancy between psychological and physical recovery calls for increased attention to the recovery process for injured athletes. Understanding the role of psychological and other factors contributing to injury recovery will provide a critical foundation for the development, implementation, and evaluation of psychological interventions, which will subsequently improve the recovery process for injured athletes. The objective of this review was to summarize the empirical findings on the effects of psychological interventions in reducing post-injury psychological consequences, and/or improving psychological coping during the injury rehabilitation process among competitive and recreational athletes.

2. Materials and methods

2.1. Types of studies

We included randomized control trials (RCTs), non-RCTs that utilize a comparison group, before and after study designs, and qualitative methods.

2.2. Types of participants

We included intervention studies with target populations of severely injured competitive and recreational athletes age 17 years and older. Severe injury is defined as an injury which results in at least 3 weeks away from play. We excluded interventions among children and adolescents due to significant differences in psychological intervention strategies employed to youth and adult population related to developmental differences.

2.3. Types of interventions

We included studies that evaluated the effectiveness of psychological interventions with the aims of reducing post-injury psychological consequences (including symptoms related to depression, anxiety, and generalized psychological distress) and/or improving psychological coping (including reducing re-injury anxiety) among injured athletes. We defined psychological interventions as those that utilized psychological strategies including imagery, goal-setting, relaxation, and other common techniques that were implemented during the post-injury rehabilitation period.

We also excluded studies that did not include interventions that directly intervened with injured athletes’ psychological consequences or the psychological coping process. This exclusion included programs that taught athletic trainers and/or other professionals to use psychological techniques with injured athletes but did not evaluate the effect of the intervention specific to outcomes in injured athletes.

2.4. Types of outcome measures

We included studies that reported any of the following outcome measures:

1. Reduction in psychological consequences including decreased anxiety and feelings of devastation, restlessness, and dispiritedness;
2. Increase in psychological coping including improved mood, self-efficacy, and psychological flexibility;
3. Reduction in re-injury anxiety.

2.5. Search methods of identification of studies

We conducted comprehensive electronic searches and searched the following electronic databases:

- Academic Search Elite
- ERIC
- Health Source: Nursing/Academic Edition
- PubMed
- PsychINFO

We searched these databases, with a restriction to English language. The initial searches were based on the following keywords:

1. Psychological recovery AND athletic injury or sports injury;
2. Psychological factors AND athletic injury or sports injury;
3. Psycholog* AND sports injury rehabilitation or athletic injury rehabilitation.

A total of 991 relevant articles were identified through these search terms. We excluded articles that were published...
prior to the year 2000 (n = 311) and conducted second round searches among the remaining 680 articles using the following 10 search terms: “intervention”, “interv*”, “cognitive therapy”, “behavior* therapy”, “relaxation”, “goal-setting”, “guided imagery”, “acceptance”, “commitment”, “ACT” (acceptance and commitment therapy). A total of 157 relevant articles remained after the second round search. We reviewed the titles and abstracts of the 157 articles and further excluded 128 studies that did not report the study population of interest or the outcome of interest. All three authors reviewed the remaining 29 articles for relevance and the agreement was reached to exclude 22 articles that did not meet the study inclusion criteria based on the type of participants, intervention, or outcome measures. Thus, the remaining seven articles that met the study inclusion criteria regarding the type of participants, intervention, and outcome measures were included (Fig. 1). For the purposes of this review, two publications, which reported the findings of a single study, are treated as one study.

3. Results

3.1. Types of studies

The seven included articles published on six studies were evenly divided between three research designs (Table 1). Two studies (33%) included RCTs. Evans and Hardy included an in-depth qualitative follow-up after completion of the initial RCT. Two studies used before and after study designs. Two studies were case study designs. Two studies (33%) were conducted in Australia and one study (17%) in each the USA, England, Wales, and Sweden.

3.2. Types of participants

All six studies included competitive athletes as study participants and two studies also included recreational level athletes. All studies included adult participants with one study also including 17-year-old minors. Participants in the studies ranged from age 17 to 50. Four studies (66%) recruited men and women approximately evenly, while two additional studies (33%) recruited many more male participants than female participants. Three studies (50%) recruited only athletes with anterior cruciate ligament (ACL) injuries. Three studies (50%) recruited athletes with any long-term injury. Knee injuries, including ACL injuries, were the most common injury. Other injuries included in these studies were neck, shoulder, leg, and/or foot injuries. All six studies recruited participants who played a variety of sports with football (soccer) as the most common sport played, followed by basketball, rugby, skiing, and tennis.

3.3. Types of interventions

Three studies (50%) included multiple intervention techniques. In Johnson, participants in the intervention group received three brief psychological intervention sessions focusing on stress management, goal-setting, and relaxation/guided imagery, respectively. Each session lasted 15–25 min. The control group received regular rehabilitation programs with no form of psychological intervention.

Evans and Hardy had three intervention levels. Participants were randomly assigned to one of three groups: goal-setting intervention, social support control, and control group. Participants were matched according to physiotherapist, injury type, rehabilitation stage, sport, level of participation, and gender. Participants assigned to the goal-setting intervention met with a sports psychologist for 60–105 min four to five times over a 5-week period, in order to set process and outcome goals based upon the participants’ specific situations. During each session, progress toward goals was reviewed and served as the basis for the next set of goals. Participants in the social support control group met with a sports psychologist four to five times over a 5-week period for 40–60 min. During each

Fig. 1. Flowchart of article selection process. *Search terms included: interv* or cognitive therapy or behavior* therapy or relaxation or goal-setting or imagery or guided imagery or acceptance or commitment or ACT* (acceptance and commitment therapy).
# Table 1
Characteristics and core component of included intervention studies.

<table>
<thead>
<tr>
<th>Studies</th>
<th>Methods</th>
<th>Participants</th>
<th>Interventions</th>
<th>Outcomes</th>
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<tbody>
<tr>
<td>Johnson (2000)</td>
<td>Modified 2-group, pretreatment and post-treatment (repeated measure)</td>
<td>Fifty-eight competitive-level athletes (52 men and 6 women) with an age of 23.7±4.3 years (mean ± SD) who suffered traumatic and severe injuries while training and/or during competition that prevented them from engaging in sport for a minimum of 5 weeks.</td>
<td>Treatment group: Fourteen participants received a formal intervention performed by a sport psychologist in stress management and cognitive control, goal-setting skills, and relaxation/guided imagery during their traditional sports medicine physiotherapy treatment on three different occasions lasting in duration from 15 to 25 min. Control group: Forty-four participants engaged in regular sports medicine physiotherapy treatment directed by a physiotherapist and did not receive any form of psychological intervention.</td>
<td>Mood adjective checklist: six bipolar mood dimensions. Patient’s self-rating questionnaire: self-reported readiness to return to sport. Psychosocial risk factors and sport injury: psychological risk factors including goal setting, stress, mood, coping strategies.</td>
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<td>Cupal &amp; Brewer (2001)</td>
<td>Randomized controlled clinical trial</td>
<td>Thirty competitive and recreational athletes (16 men and 14 women) ranging in age from 18 to 50 years (28.2 ± 8.2, mean ± SD) who underwent arthroscopic reconstructive ACL surgery, had no evidence of any other acute lower extremity trauma, and expected to engage in postsurgical rehabilitation for at least 6 months.</td>
<td>Treatment group: Ten participants engaged in 10 individual sessions of relaxation and guided imagery in addition to the normal course of physical therapy, beginning 2 weeks post-surgery. Sessions were spaced 2 weeks apart over a 6-month period. Placebo group: Ten participants engaged in sessions receiving attention, encouragement, and support from a sports medicine clinician in addition to the normal course of physical therapy. Control group: Ten participants engaged in just the normal course of physical therapy.</td>
<td>Self-reported knee strength, level of re-injury anxiety, and level of pain.</td>
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<td>Rock &amp; Jones (2002)</td>
<td>Case studies</td>
<td>Three participants (2 males and 1 female) ages 31, 35, and 40 who identified as an athlete and underwent ACL surgery due to athletic injury.</td>
<td>Treatment group: Participants received counseling-skills interventions at 3 days, 2, 4, 6, 8, and 10 weeks post-surgery. Counseling-skills intervention sessions lasted between 40- to 60-min and were centered upon the integrative-skills model of counseling which is a skills-based and flexible model. Skills such as reflection, paraphrasing, and summarizing were implemented in order to develop rapport and establish empathy, acceptance, and genuineness.</td>
<td>Mood, perceived rehabilitation, pain ratings, and social support.</td>
</tr>
<tr>
<td>Evans &amp; Hardy (2002)</td>
<td>Single blind randomized control trial; Qualitative follow-up</td>
<td>Thirty-nine injured athletes (33 males, 6 females; age 17–39 years) who had missed at least 5 weeks of training and/or competition.</td>
<td>Experimental goal-setting intervention group: Participants met with a sport psychologist for 60–105 min every 7–10 days for 5 weeks. Sessions developed and provided feedback on goals with daily diary completion related to goal progress. Social support control group: Participants met with a sports psychologist for 40–60 min every 7–10 days for 5 weeks. During the session, the psychologist acted as a social support including emotional and listening support with daily</td>
<td>Rehabilitation adherence: measured by self-reported &amp; physiotherapist estimated rehabilitation activities. Sports injury rehabilitation beliefs survey: self-reported self-efficacy and treatment efficacy. Psychological response to sport injury inventions: devastation, dispirited, feeling cheated, restlessness, and reorganization.</td>
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session, the sports psychologist provided social support consistent with the type of social support provided in the goal-setting group. Participants in the control group received a telephone call every 10 days for 5–10 min. Participants completed a training log with the frequency and nature of rehabilitation activities.

Of the 30 participants in Cupal and Brewer’s study, 10 were assigned to a treatment, placebo, and control group respectively. Participants in the treatment group received 10 individual relaxation and guided imagery sessions, occurring every 2 weeks, in addition to their regular physical therapy treatment. The intervention focused on reframing participants’ perception by encouraging positive coping, and using imagery modalities to encourage vivid mental imagery. Participants in the placebo group received support and attention from a clinician and were advised to spend time everyday visualizing a peaceful scene in addition to regular physical therapy, while control group participants received only regular physical therapy with no additional intervention.

Rock and Jones, Mankad and Gordon, and Mahoney and Hanrahan each implemented a single type of intervention technique among injured athletes. Rock and Jones conducted a series of case studies in the United Kingdom among three competitive athletes who had ACL damage but no history of surgical treatment. The participants received a microcounseling skills intervention initially 3 days after surgery, and then every other week thereafter. The intervention provided active listening, reflection, paraphrasing, and summarization in order to build rapport and develop an empathic, accepting, and genuine environment.

Mankad and Gordon conducted a written disclosure intervention among injured athletes on 3 consecutive days 3 months after surgery. Participants were instructed to think about the injury experience and to write for 20 min about their negative injury-related thoughts, emotions, and feelings. The intervention provided injured athletes the opportunity to reflect on the injury experience and related emotions which increased the perceived sense of control.

Mahoney and Hanrahan completed a case series in Australia with four competitive athletes who experienced ACL injuries. Following reconstructive knee surgery, participants attended weekly individual education sessions for 4 weeks. During each session, a different component of ACT was introduced including: cognitive defusion, mindfulness, acceptance, and values. The sessions were standardized so each participant was exposed to the same material.

### 3.4. Types of outcomes

Four (66%) studies measured participants’ negative psychological consequences related to injury including mood.
disturbance, devastation, restlessness, and feelings of being cheated. 36—40 Five (83%) studies measured participants’ abilities to psychologically cope with injury and rehabilitation, including psychological flexibility, mood, self-efficacy, mindfulness, and perceived social support. 36—41 Two (33%) studies measured participants’ re-injury anxiety. 35,41 Re-injury anxiety is defined broadly as concern about injury upon return to regular physical activity.

3.5. Effects of interventions

3.5.1. Negative psychological consequences

Four reviewed studies focused on reduction of negative psychological consequences. 36—40 In a RCT conducted by Evans and Hardy, 36,77 enrolled seriously injured recreational and competitive athletes in Wales who were randomly assigned to one of three groups: goal-setting intervention, social support control, and control group. Results showed that while all three groups experienced decreased dispirited feelings defined as the loss of motivation and apathy at the end of the study, no significant differences were found between the three groups for dispirited feelings.

Following completion of the RCT, three participants from each of the intervention groups and the control group (total of nine participants), were further purposefully selected to complete a semi-structured interview lasting 50—105 min. Results revealed all participants in all three groups experienced periods of positive emotions alternating with periods of depression and frustration.

The Evans and Hardy results 36,37 are consistent with findings from Johnson’s study, 38 which showed no significant differences in feelings of stress and worry after injury between intervention and control group. However, in contrast to Evans and Hardy 36,37 and Johnson, 38 the findings from Rock and Jones 40 and Mankad and Gordon 39 included in this review support the role of psychological interventions in decreasing negative consequences associated with sport injury. The results from Rock and Jones 40 and Mankad and Gordon 39 revealed participants experienced decreased mood disturbance and fewer negative feelings and emotions related to injury following intervention. Following Rock and Jones’ 40 microcounseling skills intervention, setbacks in rehabilitation progress still resulted in increases in mood disturbance but the intervention reduced the severity of the mood disturbance. Mankad and Gordon 39 also found that after engaging in written disclosure, athletes reported decreased feelings of being cheated, devastated, restlessness, tension, emptiness, and difficulty accepting the injury as well as fewer exhibited avoidance behaviors.

3.5.2. Psychological coping

Five studies reported on increases to positive psychological coping including psychological flexibility, mood, self-efficacy, mindfulness, and perceived social support. 36—41 Johnson 38 conducted a RCT among 58 Swedish national competitive level athletes who sustained traumatic and severe sport injuries that required, on average, 12.4 weeks of rehabilitation prior to returning to play. Results showed that athletes in the intervention group (n = 14) reported significantly better mood scores compared with athletes in the control group (n = 44), including increased feelings of pleasure, social orientation, and security. Athletes in the intervention group also reported feeling more prepared for competition at the end of rehabilitation when compared to athletes in the control group.

Increased psychological coping skills following psychological intervention is consistent with the results from four other studies reviewed. 36,37,39—41 Social support and support seeking behaviors increased in participants who completed psychological intervention. Evans and Hardy 37 found participants who received a goal-setting intervention or a social support intervention had higher levels of perceived social support. Following a written disclosure intervention, confidence and general enjoyment increased 39 and participants reported an increased ability to accept their situation and injury-related emotions after completing an educational ACT intervention. 41 However, Johnson 38 found no differences between the participants in the intervention and control groups with regard to positive feelings toward rehabilitation or feelings of stress/worry.

3.5.3. Re-injury anxiety

Cupal and Brewer 35 conducted a RCT among 30 recreational and competitive athletes in the USA who had undergone ACL reconstructive surgery, but experienced no other lower extremity trauma, and were expected to take part in rehabilitation for at least 6 months. Results showed a significant decrease in re-injury anxiety among participants who received a relaxation and guided imagery intervention compared to participants in the placebo and control groups. Participants in the intervention group also reported lower perceived pain compared to the placebo and control groups. 35 However, this finding was not consistent with the results of Mahoney and Hanrahan’s 41 investigation, which found re-injury anxiety was not altered in participants after engaging in a brief ACT educational intervention.

4. Discussion

Psychological factors are being increasingly recognized by sports medicine professionals as important during the rehabilitation process from sport injury. 46—50 Using a comprehensive search strategy, this review of psychological techniques employed with injured athletes illustrates a significant lack of well-designed intervention studies targeting this population. Only six intervention studies specifically addressed the effectiveness of the psychological interventions in the context of psychological rehabilitation from sport injury. Our findings showed that psychological interventions utilizing guided imagery, goal setting, or relaxation are often associated with decreased negative psychological consequences, improved coping, and reduced re-injury anxiety. This review adds to the literature on psychological recovery from sports injury and has implications for future research and practice.
Guided imagery was used in two out of the six studies included in this review and was applied with injured athletes along with relaxation and other psychological techniques in order to facilitate increased concentration and vividness specific to a given task. Imagery was traditionally defined as “the process of imagining the performance of a skill with no related overt actions”. More recently, imagery has been also defined as the creation or re-creation of an experience that is under the control of the imager and may occur without the stimulus antecedents associated with the experience. The practice of imagining or visualizing an experience without physically completing the task increases the ability to mentally prepare by imagining successful completion. During an imagery intervention, injured athletes are asked to image a scenario directly or indirectly related to injury recovery. They may be prompted to imagine the process they will embark on during their injury rehabilitation including the different phases of rehabilitation, their progress during each of the phases, the emotions they may experience, as well as the successful completion and return to full sport engagement after completing the rehabilitation process. In Johnson’s study, injured athletes were taught how to mentally connect their mind with the injured body part and imagine healing taking place, as well as imagining their body functioning perfectly and performing their desired activities well. The results showed that injured athletes’ overall mood was improved after the intervention. Relaxation is another cognitive strategy that has been used to reduce stress, anxiety, and mental/physical strain in the studies reviewed. By increasing the athletes’ awareness of their physiological and psychological arousal level, relaxation techniques can help injured athletes regulate their levels of arousal for achieving optimal outcomes. Evidence showed that relaxation can reduce the feelings of depression, frustration, and anger through lowering heart rate, breathing rate, metabolic rate, and blood pressure. One useful relaxation technique often taught to athletes is engaging in deep breathing. In the Johnson and Brewer studies, injured athletes were taught to take deep diaphragmatic breaths instead of breathing simply from the lungs in order to assist in calming down and/or refocusing their attention to the immediate experience of the here-and-now. Deep breathing could also assist in the physiological shift of lowering heart rate, blood pressure, as well as salient psychological factors. Through this refocusing, injured athletes are better prepared to face the challenges of a specific task instead of merely thinking about the challenges that may cause unwanted pressure and anxieties due to the injury. In Cupal and Brewer’s study, athletes were taught to breathe deeply as a method of relaxation to help reduce anxiety and decreasing affective distress among athletes with ACL injuries. Incorporating goal setting as a technique to reduce psychological distress during the rehabilitation process was implemented in studies conducted by Johnson and Evans and Hardy. Goal setting is believed to enhance an individual’s ability to accomplish a given task by providing individuals with a sense of direction to focus their efforts, by increasing the degree of persistence, and by furthering the development and refinement of new strategies aimed to successfully completing a task. In the Johnson and Evans and Hardy studies, goal setting also led to an increase in self-efficacy and/or self-confidence as a result of accomplishing a set goal during the rehabilitation process. Other techniques such as education ACT sessions, basic microcounseling skills and written expression have been found to be effective in mitigating the post-injury psychological distress among injured athletes. ACT is a third-wave cognitive behavioral therapy (CBT) approach, which has received considerable attention and support in current literature for its usefulness and effectiveness in both clinical and sport specific settings. ACT emphasizes the importance of increasing mindfulness and psychological flexibility. As a result, injured athletes improve their “ability to connect with the present moment fully as a conscious human being and to change or persist in behavior when doing so serves valued ends”. The implementation of basic microcounseling skills (attending, active listening, empathy, and reflection) by a mental health professional has also been shown to have the effect of enhancing the psychological well-being of injured athletes during the rehabilitation process. Through the use of basic microcounseling skills, injured athletes are provided emotional and listening support, which are empirically-supported key functions of the counseling process. Similarly to engaging in verbal expression, one of the hallmark elements of “talk therapy”, written expression has also been shown to be an effective form of emotional disclosure that contributes to improving the psychological rehabilitation of injured athletes. Expressive writing allows injured athletes to construct written narratives depicting their emotional experiences as well as engage in a self-regulatory process facilitating an increased sense of control over their emotions. While the studies included in this review demonstrate growing empirical evidence of integrating psychological techniques into the rehabilitation process following sport injury, these studies are limited by small sample size, which makes it difficult to detect intervention effects due to a lack of statistical power. Furthermore, these studies often have a short follow-up time, thus the long-term effects of these interventions often are unknown. Despite these limitations, the reviewed studies demonstrated positive intervention effects specific to several aspects of psychological recovery including reducing negative psychological consequences, increasing positive coping, and decreasing re-injury anxiety. Our findings provide empirical data for future studies that examine the effects of psychological interventions. Our findings demonstrate the urgent need for additional research examining the effects of psychological interventions utilizing rigorous methodology which includes utilizing RCT or prospective study design, inclusion of a control group, consistent and improved outcome measures, accounting for potential confounders in the analysis, and increased diversity of study populations to increase generalizability.
4.2. Limitations of this review

Despite the wide research design inclusion criteria, only six interventions were included in this review. While the variations in research designs and intervention outcomes provide insight into the wide range of techniques available to sports psychologists and other professionals involved in the rehabilitation process,35–41 the limited number of studies employing each type of technique prevented further comprehensive analysis. Thus, our ability to draw a conclusion on effectiveness of psychological interventions was limited. Furthermore, this review only included intervention strategies with individual injured athletes. Many intervention strategies that target changes at interpersonal, organizational, and policy level(s) to improve outcomes of psychological rehabilitation, such as increased social support from the team or athletic trainers, or psychological counseling services at athletic department, were not included.60–64

5. Conclusion

In conclusion, the results of this review support the effectiveness of psychological intervention in reducing post-injury psychological consequences and improving psychological coping during rehabilitation. Specifically, guided imagery/relaxation was shown to be associated with improved psychological coping and reduced re-injury anxiety. Goal setting however, was not directly associated with reduction of negative psychological consequences. Other psychological techniques such as microcounseling skills, ACT, and written disclosure included in this review have demonstrated reduced negative psychological consequences, improved psychological coping, and reduced re-injury anxiety.

Many techniques discussed in this review are routinely employed by applied sport psychologists and there is an abundant amount of empirical data supporting the use of above-mentioned psychological strategies to aid in or enhance athletic performance.47–50,61–73 Research examining the effectiveness of employing the psychological intervention with injured athletes during sport injury rehabilitation is significantly lacking. Our findings highlight the importance of development, implementation and evaluation of the effectiveness of intervention strategies through research so these evidences can be utilized to assist injured athletes’ successful recovery.

References


