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# Psychological Responses Prior to a Strenuous Task Involving an Injured Joint

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## INTRODUCTION

Injuries are an inherent risk of sport participation. In the United States, more than 380,000 student-athletes participate in sports with a national championship sanctioned by the NCAA (Hootman, Dick & Agel, 2007). Roughly 68% of these athletes experience an athletic injury at some point within their college careers and over half of these injuries are to the lower extremity (Hootman, Dick & Agel, 2007). While the physical effects of an injury are primarily considered, psychological effects are also at play in athletic injury. These psychological effects have received less empirical attention. Despite successful physical recovery from an injury, athletes may not be fully recovered psychologically (Quinn & Fallon, 2008). When athletes resume sport participation before psychologically recovering, the risk of re-injury or additional injuries increases, which, in turn, negatively affects athletic performance (Quinn & Fallon, 2008). Two psychological variables related to psychological recovery include confidence and fear (Magyar & Duda, 2000; Walker & Heaney, 2013). Athletes must re-establish confidence in their ability to resume sport participation after an injury. Further, an athlete may feel reluctance to perform skills in which the site of the injury would need to be used, therefore affecting subsequent performance. Fear of re-injury can negatively affect athletes' performance by undermining an athlete's confidence in obtaining pre-injury sport performance (Arden, Taylor, Feller & Webster, 2012). Finally, the severity of an injury may influence psychological recovery during rehabilitation.

## PURPOSE & HYPOTHESES

The purpose of the study was to determine how psychological responses to injury change throughout the rehabilitation process. Athletes' sport resumption confidence, fear of re-injury, and injury perception were examined in relation to performing a strenuous isokinetic dynamometer task on an injured joint (e.g., knee, ankle).

Several hypotheses were forwarded:

1. Injured athletes will have the lowest sport resumption confidence and healthy athletes will have the highest sport resumption confidence (Arden et al., 2013).
2. Healthy athletes will have the lowest fear of re-injury and injured athletes will have the highest fear of re-injury (Arden et al., 2012; Houston et al., 2014).
3. Healthy athletes will have the most positive perceptions of their injury and injured athletes will have the least positive perceptions of their injury (Arden et al., 2013).

## METHODS

### Participants:

Division II athletes ( $N=21$ ; 62% female) voluntarily completed a self-report questionnaire. Three groups of athletes were studied: healthy ( $n=9$ ), injured ( $n=6$ ), and rehabilitated ( $n=6$ ). Participants ranged in age from 18-28 years ( $M=20.43$ ,  $SD=2.50$ ). Participants described themselves as Hispanic ( $n=9$ ; 42.9%), Caucasian ( $n=6$ ; 28.6%) or African American ( $n=6$ ; 28.6%). The participants were generally spread across the grade levels represented on a college campus (i.e., 42.9% freshman, 14.3% sophomores, 14.3% juniors, 28.6% seniors).

### Procedures and Measures:

After obtaining appropriate informed consent documents, all subjects were told they would be completing a maximal isokinetic contraction task on the lower extremity that had been injured before completing the survey. Only healthy and rehabilitated athletes actually performed the task at the completion of the survey. The survey contained demographic items, and the following previously validated and reliable measures:

**Sport Resumption Confidence.** Trait Sport Confidence Inventory (TSCI; Vealey et al., 1998); 13 items; "Compare your confidence in your ability to concentrate well enough to be successful to the most confident athlete you know."; (1) low to (9) high;  $\alpha=.95$ ).

**Fear of Re-Injury.** Tampa Scale for Kinesiophobia-11 (TSK-11; Kori et al., 1998); 3 items; "I am afraid that I might injure myself"; (1) strongly disagree to (5) strongly agree;  $\alpha=.73$ ).

## METHODS, continued

**Perception of Injury.** Injury Perception Questionnaire-Revised (IPQ-R; Smith et al., 1990); 22 items; "My injury is a serious condition."; (0) no injury, (1) strongly disagree to (5) strongly agree;  $\alpha=.97$ ).

**Task Confidence.** Adaptation of the Modified State Sport-Confidence Inventory (M-SSCI; Vealey, 1986); 1 item; "How confident do you feel in your ability to execute the task successfully?"; (1) low to (9) high.

At the completion of the survey, the athletes in the healthy and rehabilitated groups completed a maximal isokinetic dynamometer task. Performance data was not utilized for the purposes of this study.

## RESULTS

ANOVA was utilized to compare the healthy, injured, and rehabilitated groups on the study variables (confidence, fear, and injury perception). When necessary, appropriate *post hoc* test were used to make pairwise comparisons for differences between the three experimental groups. The experimentwise error rate ( $\alpha=.05$ ) was maintained throughout all *post-hoc* tests.

Healthy athletes reported the highest confidence and lowest fear across groups. Additionally, injured athletes reported the lowest confidence and highest fear across groups. There were no group differences found with regard to injury perception.

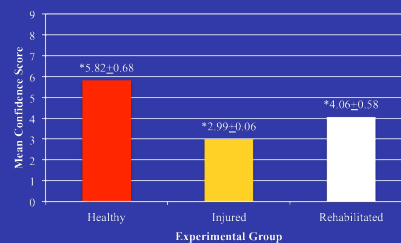


Figure 1a. Sport Resumption Confidence Main Effect

The three groups differed significantly ( $*p<.01$ ) from each other with regard to sport resumption confidence.

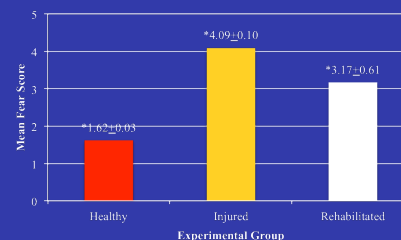


Figure 1b. Fear of Re-Injury Main Effect

The three groups differed significantly ( $*p<.05$ ) from each other with regard to fear of re-injury.

## RESULTS, continued

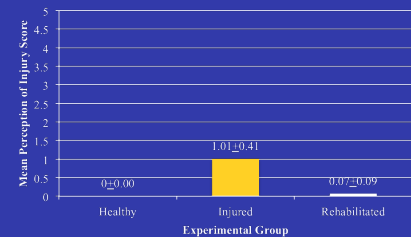


Figure 1c. Injury Perception Main Effect

There were no significant differences between groups with regard to injury perception.

## CONCLUSIONS

This study examined changes in psychological factors related to injury in athletes across the rehabilitation process. Currently injured athletes reported the lowest confidence and highest fear of re-injury across the groups, while healthy athletes reported the highest confidence and lowest fear of re-injury across the groups. These findings were consistent with previous research examining sport resumption confidence and fear of re-injury of injured athletes (Arden et al., 2013; Houston et al., 2014).

There were no significant differences between groups with regard to injury perception. While contrary to our hypotheses, Lu & Yawen (2013) established that the presence of social support may positively influence athletes' rehabilitation. The participants in our study all reported high perceptions social support, regardless of experimental group, which may have impacted the nonsignificant finding regarding injury perception.

Collectively these findings offer a unique look into sport resumption confidence, fear of re-injury, and injury perception in athletes as no known study has examined how these factors may change between healthy, injured, and rehabilitated athletes. Future research should continue to examine the role of social support, as well as other known psychological correlates in the injury rehabilitation process. Longitudinal work is also necessary in order to gain a complete picture of these relationships.

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