

# **Depression Symptom Severity within Recovery Periods from Athlete Injury Compared to Athlete Illness**

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## **Abstract**

Previous research has shown that negative psychological effects can appear following a sport-related injury. Research has also found that illness threatens athletes' health and well-being, as well as causing an interruption of serious training or withdrawal from competition. The purpose of this research was to analyze the difference in depression symptom severity within recovery periods from athlete injury compared to athlete illness. Participants ( $N = 56$ ) included collegiate athletes who reflected on their recovery periods from their worst injury and worst illness within their athletic career through a self-report survey. Results showed that participants felt significantly more severe depressive symptoms during their recovery from their worst injury and spent significantly more weeks recovering from that injury. Coaches and athletic trainers should use these results as motivation to increase the amount of mental health resources available to athletes during recovery periods.

Mental health is becoming a more commonly discussed and researched topic. Due to an increase in the understanding of mental health as a whole, there has also been an increase in the awareness of mental health issues in society. One of those mental health issues that has been raising a great amount of attention recently is depression. Depression is one of the most disabling

mental disorders worldwide, mainly due to depressive symptoms having the potential to become chronic and recurrent while drastically impairing social functioning (Kupfer, 1991; Mossakowski, 2011). With depression being so prevalent and commonly talked about, the symptoms that often appear with depression are becoming more recognizable. Some physical symptoms of depression include gastrointestinal problems, sleep disturbances, headaches, appetite changes, fatigue, and aches and pains (Greden, 2003). Depression also causes a decrease in the ability to regulate emotions, accept and tolerate negative emotions, and adaptively modify emotions (Berking et al., 2014). The Diagnostic and Statistical Manual for Mental Disorders, 5<sup>th</sup> edition (DSM-5) also states that symptoms like depressed mood, diminished pleasure, significant weight loss or gain, reduction of physical movement, fatigue, feelings of worthlessness and guilt, diminished ability to concentrate, and recurrent thoughts of death can also lead to a diagnosis of depression (American Psychiatric Association, 2013). With these symptoms affecting aspects of everyday life, depression can easily become destructive to the mental health of individuals affected by it.

Although almost anyone can be affected by depression, there are certain groups where depression is more prevalent. Depression affects almost 25% of young adults by the age of 24 years old, making young adults the highest incidence rate of any adult age-group (Kessler & Walters, 1988; Klerman, 1988; Klerman & Weissman, 1989). With that younger adult age-group including collegiate athletes, there are thousands of athletes with depression that are competing at the college level (Powers et al., 2020; Rao & Hong, 2016; Wolanin et al., 2015). Previous studies have reported prevalence rates of depression among college athletes from as low as 15.6% to as high as 21% (Wolanin et al., 2015). Due to such high prevalence rates, depression is now known as the most common and widespread mental health issue within athletes (Doherty et

al., 2016). There are certain factors that put athletes at a higher risk for such a widespread mental health disorder. In fact, increased stress placed on student-athletes and their high-risk behaviors, such as extensive training periods and high-impact competitions, are significantly associated with depression (Etzel et al., 2006; Trojian, 2016). This increased stress that puts athletes at risk for depression can be caused by events like athlete injury.

Almost 90% of student-athletes sustain at least one sport-related injury within their athletic career (Sullivan et al., 2022). These sport-related injuries can have a profound negative effect on athletes' mental health (Garver et al., 2021; Sullivan et al., 2022). Athletes with injuries often experience negative psychological reactions, such as sadness, feelings of guilt and helplessness, fear of reinjury, frustration, feelings of isolation, and loss of athletic identity (Moesch et al., 2020). Most importantly, depression is very common among athletes following sport injury (Appaneal et al., 2009; Moesch et al., 2020; Roiger et al., 2015; Sullivan et al., 2022; Wayment & Huffman, 2020). Regardless of the type of injury, depressive symptoms and emotional disturbances are found to be present (Roiger et al., 2015). Research has also shown that athletes often experience elevated depressive symptoms in the early weeks of injury or right after diagnosis (Moesch et al., 2020; Wayment & Huffman, 2020). This could be due to the initial realization that the athlete may have to take time away from their sport and refrain from participation in their sport-related activities. Athlete injury can cause a large amount of unexpected stress and strain on athletes. However, it is not the only factor that leads to a higher risk of depression during their athletic careers.

While analyzing the health and wellness of athletes during training and major competitions, research more commonly focuses on the effects of injury rather than the effects of illness (Schwellnus et al., 2013). Yet, being less commonly studied does not mean that it has a

less severe effect on athlete mental health. Although athletes have higher levels of physical function, psychological function, and perceived health, constant competition and training in athletics poses considerable risks of illness (Perna et al., 2003; Timpka et al., 2014). Illness threatens athletes' health and well-being and often leads to interruption of training and withdrawal from competition (Gallagher et al., 2017; Snyders et al., 2022). As talked about before with athlete injury, this withdrawal from competition and team activities can lead to negative psychological effects. One of the most impactful moments of illness that happened within the last century – COVID-19 – is a prime example of the negative effects that illness can have on the mental health of athletes. A specific study analyzing South Africans during the COVID-19 pandemic reported that over half of the athletes felt depressed and struggled to stay motivated to exercise, meaning that the COVID-19 crisis may have had a significant impact on the psychological well-being of college athletes (Garver et al., 2021).

With illness having such a strong impact on athletes' mental health, it is important that athletes find the proper treatment to prevent issues like depression. However, athletes may not always seek medical attention or present as patients due to the fear of being told that they may have to take time away from their sport (Gallagher et al., 2017). Lack of treatment can often create even more issues for athletes, potentially leading to prolonged periods of limited participation in their sport.

Because athletes are at such a high risk for injury and viral infection (Perna et al., 2003), illness and injury can often be difficult to avoid and are usually unexpected. Injuries and illnesses impact the ability of the athlete to train and perform. These interruptions often affect their preparations for and availability to take part in competitions, which in turn limits success (Palmer-Green et al., 2013). Most athletes set goals for themselves to achieve throughout their

participation in their sport. However, injury and illness can delay these goals due to limiting their participation in their sport. Psychological studies have found that disappointment or regret about an unattained goal is associated with depression (Lecci et al., 1994). Because a vast majority of athletes' time is spent preparing to compete rather than actually competing, injury and illness risk is expected to be higher during training periods than competition periods only (Edouard et al., 2014). Injury and illness are both common occurrences that collegiate athletes face within their career, especially during training periods. However, depending on the severity and extensiveness of the injury or illness, athletes may feel more depressed during the recovery process of one instance over the other. This can be due to contributing factors such as the length of time they spent recovering and the severity of the injury or illness.

In the current research, depression in athletes is a common research topic. Specifically, most research related to this topic has analyzed the presence and effects of depression during recovery periods from injury or illness (Appaneal et al., 2009; Moesch et al., 2020). Previous research has also looked at mental health during recovery periods from specific injuries, such as concussions or musculoskeletal injuries (Roiger et al., 2015). There has also been prior research that has looked at the risks and mental health effects associated with athletes during their recovery from illness specifically (Schwellnus et al., 2013). However, a direct comparison of severity of depression symptoms during recovery time periods between athlete injury and athlete illness has not been researched prior to this study. Therefore, that direct comparison will occur in my current study. To my knowledge, no previous research has specifically analyzed the comparison of severity levels of depression symptoms between athlete injury and athlete illness during recovery. The results of my current study would be important to discover to gain an understanding of the difference in severity levels of depressive symptoms after athlete injury and

illness. With this knowledge, modifications and necessary adaptations could be made to mental health resources available to athletes during these difficult times in their athletic careers. In order to achieve this specific comparison between injury and illness depressive symptoms throughout recovery, a variety of college athletes were sampled using a self-report survey. Using this survey, athletes were able to reflect on their recovery periods from their worst injury and worst illness and describe the severity of their depressive symptoms.

Based on these sampling methods, I hypothesized that participants would report more severe depressive symptoms during recovery from physical injury compared to during recovery from illness. Often, injury requires a longer period of time to recover from compared to illness. Recovery from illness usually happens with the use of a medication and can often only take a week to fully recover from. On the other hand, most injuries take over a week to recover from. Some injuries also require surgery or extensive therapy that can often last for months or even up to a year. Therefore, I predicted that these longer recovery schedules stemming from injury will lead to more severe depressive symptoms due to the athlete being unable to participate in their sport for a longer period of time. I also hypothesized that athletes are more likely to report that they have never fully recovered from their injury. I have made this prediction because most individuals are able to fully recover from most illnesses, but some injuries can have a lasting impact.

## **Method**

### **Participants**

The participants were recruited for participation by reaching out to members of a variety of athletic teams at a small, private, midwestern university in the United States through text

message or email. Participants were presented with an initial recruitment message stating details about the study and asked for their participation. Some participants also received survey participation requests from their professor. Participants ( $N = 56$ ) were 75% female, 23% male, and 2% preferred not to say. The average age of participants was 20 years old ( $SD = 1.38$ ), with most participants being in their freshman (38%) year at the university (sophomore 23%, junior 21%, senior 16%, graduate student 2%). The ethnic breakdown of participants included 64% White, 14% Black or African American, 2% Native American or Alaskan Native, 4% Asian or Asian American, 11% Hispanic or Latino, 2% Native Hawaiian or other Pacific Islander, and 4% other. Participants included current athletes on the football, beach volleyball, bowling, cheerleading, dance, golf, lacrosse, soccer, softball, track and field, volleyball, water polo, ice hockey, lacrosse, and basketball teams.

## **Materials and Procedures**

After confirmed consent, the survey began with a small demographic section. Participants were then presented with instructions asking them to read depressive symptom scale statements derived from the validated and reliable Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995). Good reliability has been shown by previous research for this scale and all of its subscales, including the depression subscale used in this survey (Moya et al., 2022). The DASS-21 has also been found to effectively measure depression within a variety of samples and has demonstrated good internal consistency (Ali et al., 2021). The DASS-21 depressive scale statements that participants read included, “I couldn’t seem to experience any positive feeling at all, I found it difficult to work up the initiative to do things, I felt that I had nothing to look forward to, I felt down-hearted and blue, I was unable to become enthusiastic about anything, I felt I wasn’t worth much as a person, and I felt that life was meaningless”. Once the participants

read these depressive scale statements, they were asked to reflect on their recovery period from their worst injury and report how much each of the statements applied to them during that time. Participants were able to report how much each statement applied to them by selecting from the following options: *Did not apply to me at all, applied to me to some degree or some of the time, applied to me to a considerable degree or a good part of time, or applied to me very much or most of the time.*

Since this study is also looking at depressive symptoms during recovery from illness, participants were then presented with those same statements and asked to reflect on their recovery period from their worst illness they have experienced within their athletic career. They reported how much each of those statements applied to them during that recovery from illness using the same scale they previously used while evaluating injury recovery. With participants reflecting on recovery from both their worst injury and illness using the same statements, a comparison of severity was able to be made. Participants also stated how long it took for them to recover from their specific injury and illness. They answered this question by selecting an option from *1 week, 2 weeks, 3 weeks, 4 weeks, 5 weeks, 6 weeks, 7 weeks, or 8+ weeks.* Finally, participants reflected on if they felt they have ever fully recovered from their specific injury or illness that they previously responded to the depressive scale symptoms about. For this question, participants answered by selecting from: *yes, no, or partially.* Once participants completed the survey, they were provided with a debriefing page including contact information for any concerns or questions.

## **Results**

The purpose of this research was to examine the difference in severity of depressive symptoms during recovery from participants' worst injury compared to the recovery from the



participants' worst illness experienced within their athletic career. In order to test the main hypothesis, a paired-samples *t* test compared the average responses to the depressive symptom severity scale in the cases of the worst injury and worst illness reflection. The results indicated that participants felt significantly more severe depressive symptoms while recovering from their worst injury ( $M = 0.84, SD = 0.57$ ) compared to recovering from their worst illness ( $M = 0.59, SD = 0.54$ ) within their athletic career  $t(54) = 3.18, p = .002$ . A paired-samples *t* test also evaluated if athletes spend a significant amount of more time recovering from injury compared to illness. Results show that participants spent a significantly greater amount of weeks on average recovering from their worst athletic injury ( $M = 5.25, SD = 2.75$ ) compared to their worst illness ( $M = 2.16, SD = 1.81$ ) within their athletic career  $t(55) = 8.48, p < .001$ . More participants also tended to feel that they never fully recovered from their worst injury compared to fully recovering from their worst illness. When reflecting on recovery from their worst injury within their athletic career, about 52% of participants stated that they felt that they have fully recovered, 30% of participants stated that they felt that they have partially recovered, and 18% of participants felt that they have never fully recovered. When reflecting on recovery from their worst illness within their athletic career, around 87% of participants felt that they have fully recovered, 7% of participants felt that they have partially recovered, and 6% of participants felt that they have never fully recovered.

## **Discussion**

I hypothesized that athletes would report more severe symptoms on average when reflecting on their recovery from their worst injury compared to their recovery from their worst illness. The results from my study supported this hypothesis. Participants did report experiencing significantly more severe depressive symptoms during their recovery from their worst injury

compared to their worst illness. I also hypothesized that participants would report that they spent more time recovering from their worst injury compared to their worst illness. The results from this study also supported this hypothesis due to participants reporting spending more weeks on average recovering from their worst injury compared to recovering from their worst illness during their athletic career. My hypothesis also predicted that majority of participants would feel that they never fully recovered from their injury compared to their illness. My results did not fully support this hypothesis because they show that only about 18% of participants felt that they never fully recovered from their worst injury in their athletic career, whereas around 5% of participants felt that they have never fully recovered from their worst illness.

These findings were consistent with previous research in that sport-related injuries can have a profound negative effect on athletes' mental health (Garver et al., 2021; Sullivan et al., 2022). From my study, there was a clear indication that athletes are experiencing depressive symptoms following a sport-related injury. Findings from my study were also consistent with previous research in the aspect of the negative effects of illness on athletes. Illness threatens athletes' health and well-being and often leads to interruption of training and withdrawal from competition (Gallagher et al., 2017; Snyders et al., 2022). My results showed that athletes spent an average of two weeks recovering from illness within their athletic career. Therefore, it is evident that athletes are having to spend time away from their sport and experiencing an interruption of quality training time.

One of the most important strengths of my study is the validity in my statistical conclusions. I have avoided committing statistical error by using the correct statistical analysis for the within-subject design and sample size. Therefore, I was able to ensure that my significant results were appropriate for the size of my sample. This design allowed me to strengthen my

statistical power by sampling the same participants for each part of my study, rather than evaluating two different groups. The subscale that I used was also specifically designed to measure depression symptom levels. This depression subscale is one of the three subscales that make up the validated and reliable DASS-21. Therefore, I can be sure that this scale used in my survey is directly measuring depression symptoms. I was also able to avoid experimenter bias by refraining from stating my hypothesis or predicted results within my survey. This strength ensured that participants were not persuaded to complete the survey in a way that would fulfill my expectations for my results.

Although there were some significant strengths associated with my study, there were also some limitations to consider. One major limitation for my study was the limited participants that were involved. In order to participate in the study, participants had to be current athletes at a one specific small, private, university in southern Illinois. Therefore, I cannot confirm that these results are generalizable to student-athletes at other universities. My sample was also confined to a limited setting. Participants consisted of only collegiate athletes. Therefore, my results were also not generalizable to athletes in other settings, such as at the high school or professional level.

Since depression is such a widespread topic in the world of athletics, it would be interesting to see this type of comparison take place in the setting of high school athletics. Sport-related injuries and illnesses are not limited to collegiate athletes, so it is reasonable to assume that high school athletes could also be experiencing depressive symptoms during their recovery periods. Another direction for future research in this area could include a comparison of severity of depressive symptoms during recovery from a variety of different sport-related injuries. Different injuries can have different impacts on an athlete's mental health. Therefore, evaluating

which types of injuries are causing the most severe depressive symptoms in athletes could be a useful direction to take in the future.

In conclusion, my study provides evidence that athletes are facing serious mental health issues within their athletic careers. With that, athletes are having to spend extended periods of time recovering from either injury or illness, which has the potential to extend the time that students are dealing with the negative psychological effects. Since my results show that athletes are significantly more depressed during their recovery from injury compared to illness, there is a strong possibility that more resources need to be implemented within the world of athletics. Athlete mental health is commonly talked about, but the resources available for athletes to reach out to when they are in need is a weaker subject. Therefore, I hope that the results found in this study encourages those who work with athletes in the real-world to take extra steps towards promoting healthy outlets for athletes struggling with mental health issues, especially following a serious injury or illness.

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