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Confidence and Anxiety When Returning to Play Post-Injury

The present study focused on an athlete returning to play post-injury, specifically the athlete's level of confidence and anxiety when returning to play. We wanted to look at those levels in regards to the intensity of the injury, their sport, and their gender. This study is important to the field of sports psychology as it relates to an athlete's mental state when returning to their sport. Confidence and anxiety are extremely important when it comes to an athlete's performance. If an athlete has a lot of anxiety returning to play, then that could be a sign they are not ready and could re-injure themselves. If there are ways that these levels can be maintained, it could be very beneficial to athletes when they are returning to their sport or activity after an injury.

After researching a lot on confidence and anxiety levels in athletes, we discovered many different ideas and approaches to the topic. Our study differed from prior studies because we looked at the severity of the injury. In other words, we had a variety of answers regarding if surgery was needed, if a cast or brace was used, as well as if the injury occurred while in-season or in the off-season. We will be looking at the collegiate age range, as well as both male and female athletes across all different sports. In this field, it is already known that confidence, anxiety, worry, and many other factors play a large role in an athlete's rehabilitation and return to play (Gkikopoulos et al., 2020, Ardern et al., 2012). Athletes can be hesitant when it comes to returning back to their competition level post-injury and the feeling of fear has a lot to do with that. Thus, it is important to assess the athlete's levels of confidence, fear, and anxiety prior to their return to play, as well as methods to decrease the levels of anxiety and fear.

As stated above, many studies have examined how confidence, anxiety, and worry play a large role in an athlete's rehabilitation and return to play. One such study by Arden et al. (2011) researched fear and re-injury, but specifically looked at those who returned after ACL surgery. They specifically looked at 209 athletes (both male and female) across all sports. Researchers had them complete a questionnaire and discovered that the level they returned at had a lot to do with how much fear they had returning to their sport. For example, those who returned at a lower level of play compared to their pre-injury level experienced more fear about re-injury (Arden et al., 2011). Although this study specifically looked at ACL injuries in all ages who played either recreational or competitive sports, we will be focusing more on the collegiate level and a variety of injuries, mild to severe. We are wondering if athletes who did not have surgery as part of their rehabilitation had similar levels of anxiety and fear when returning to play. Similarly, another article involved fear of injury and how it can lead to poor rehabilitation outcomes (Hsu et al., 2017). This article was a clinical review of articles ranging from 1999 to 2016. Researchers discovered that if an athlete has fear during the rehabilitation process, the athlete could develop further injuries since they could be compensating or be hesitant to return to their sport. It concluded that there are different types of intervention being trialed with orthopedic patients. They hoped that with more research the fear of re-injury could be decreased in athletes so they could return to their sport with full confidence and less worry. Likewise, Ohji et al. (2021) looked at knee injuries and returning to play. They used an open ended questionnaire and with that, discovered that the fear comes about in certain movements, such as quick responses to an opponent, jumping, cutting, and athletic movements (Ohji et al., 2021). Hsu et al. (2017) and Ohji et al. (2021) are insufficient as they mostly only focus on knee injuries, whereas we want to look at any injury, ranging from a mild to major.

A different study researched levels of anxiety and mood within gymnasts (Kolt et al., 1994). Their participants consisted of 115 total gymnasts (83 female, 32 male) within the age range of 13 to 20 years old. Gymnasts filled out the Profile of Mood States-Bipolar Form, the Competitive State Anxiety Inventory, as well as self-reporting about their injuries. With this, researchers discovered that gymnasts with recurring injuries scored higher on both questionnaires (Kolt et al., 1994). This is useful as it demonstrates that anxiety does play a role in an athlete's recovery and rehabilitation. Like many of the other studies, this study looked at only one sport, whereas we will look at a variety and a higher age group.

Another study pertained to worry, confidence, and attention (Christakou et al., 2020). It looked at if those three factors could predict a re-injury. Participants completed three self-report questionnaires: The Causes of Re-Injury Worry Questionnaire, Sport Confidence Questionnaire of Rehabilitated Athletes Returning to Competition, and the Attention Questionnaire of Rehabilitated Athletes Returning to Competition. They were completed at the beginning, middle, and toward the end of the competitive season. They found that worry, confidence, and attention can be predictors of re-injury at the beginning and middle of an athlete's competitive season (Christakou et al., 2020). This study was insufficient, as it only used male participants, ranging from 18-40 years old who played either handball, water polo, or basketball. This study will look specifically at collegiate athletes in the majority of college sports. It will also look at male athletes, but female athletes as well. We will not be looking at attention levels, but more worry and confidence.

After reading about levels of fear of re-injury, we looked at how to reduce those levels. One article observed that imagery can have an effect on the levels of fear an athlete has (Rodriguez et al., 2019). They compared four other studies that had already been done (Cupal et

al., 2001; Lebon et al., 2012; Maddison et al., 2012; Wilczynska et al., 2015). Maddison et al. concluded that imagery assisted in reducing stress levels and improved healing. Lebon et al. noticed that motor imagery helped to create greater muscle activation. Cupal et al. combined relaxation and imagery techniques, which helped to also reduce anxiety levels about re-injury. Lastly, Wilczynska et al. added imagery in with their patients' rehabilitation, which helped in reducing pain, as well as swelling. Overall after reviewing these four studies, Rodriguez et al. discovered that imagery can be very helpful for reducing the level of fear in athletes post-injury. As most of these studies related to ACL or knee injuries, it is still extremely helpful to think about athletes in rehabilitation. If imagery is implemented, there is a good chance that their anxiety and fear levels could be lessened, giving them more confidence to perform their sport at their previous, pre-injury, level. Similar to the past studies, Rodriguez et al. (2019) mostly observed those coming back from a knee injury, but our present study observed a range of injuries and sports.

As for the current study, we hope to look specifically at injuries that required surgery and those that did not. This study will consist of emailing each team at a division one college. If they have been injured and are back to play, they will fill out our two surveys, which measured their anxiety and confidence levels for their return to play. We will then analyze the data produced from the surveys. This study will allow us to answer questions regarding the levels of anxiety in athletes, specifically male and female collegiate athletes. Confidence and anxiety play a huge role in an athlete's mind when they are returning to play post-injury (e.g., citation). If we can see how the levels vary depending on severity, it could then help future researchers discover ways to control those levels. It is hypothesized that those who had surgery will have higher levels of anxiety and less confidence when returning to play than those who did not have surgery. It is also

hypothesized that among genders, female athletes will have more anxiety, while male athletes will have more confidence.

Methods

Participants

Twenty (8 males, 12 females) Division 1 collegiate athletes participated from a variety of sports (football, soccer, lacrosse, swimming). We specifically looked at the collegiate setting as it has a lot of other stressors, as well as scholarships and the impact they have on the athlete's career/experience. We used any Division 1 Collegiate Athlete that endured an injury and returned to play. The age range of the participants ranged from 18-22 years old, with an average age of 20.1. We looked at both genders to observe if there was a difference between the two when it came to confidence and anxiety. We reviewed this specific age group because these are the ages when a student is in college. We particularly looked at collegiate athletes of all sports, so we capped it at the usual college age.

Materials

For this study, a survey and questionnaires were sent out. The beginning of the survey was mostly about their demographics, such as age, sport, and, how long they were out of their sport for, and the type of injury. In addition to the type of injury, we asked about the severity (surgery or no surgery), if they needed walking assistance (crutches), and if they needed a brace or a cast. The first questionnaire participants filled out was the [ACL-RSI](#) (Webster et al., 2008) questionnaire. In the ACL-RSI survey, we made slight changes in the wording, mostly making it more general, rather than injury specific. This survey specifically measured the levels of anxiety, confidence, and fear of returning to play. It consisted of twelve questions and participants were asked to rate each question on a scale of 0-100. The scale changed depending on the questions.

For example, some questions used 0 as all of the time, whereas some used 0 as extremely likely. An example of a question was “Are you nervous about returning to your sport?”, with the rating being 0 (extremely nervous) to 100 (not nervous at all). The ACL-RSI questionnaire includes 5 questions on emotional well-being, 5 questions on confidence in physical performance, and 2 questions on the appraisal of risk (Webster et al., 2008). If the participant’s score is on the higher side, that indicated a positive psychological response. In addition, the total score was determined by adding the values of the 12 responses and then calculating a percentage.

The second questionnaire in the survey was the [Psychological Readiness to Return to Sport Scale](#) (Glazer et al., 2009). It specifically looks at the athlete’s confidence prior to returning to play. This questionnaire is based on a 0-100 scale and the participant is to rank how they feel based on the question and the 0-100 ranking. An example of one of the questions asked is “My confidence to play without pain is...”. The Psychological Readiness to Return to Sport Scale is also on a scale of 0-100 (0 being not confident at all, 50 being moderate confidence, and 100 being completely confident). The score was determined by taking the total number of the 5 questions asked and dividing by 10. Scores between 50 and 60 demonstrate that the athlete is ready to return from a physiological standpoint. Any score under 50 suggests that the athlete may not be ready and should take more time to recover.

Procedures

The first step to this study was to email the coaches of each sport at Merrimack College. We asked permission to email their athletes and ask about their injury history. Once the coach answered and gave their permission, we emailed the athletes of that team the survey and a brief description of the study. If the coach does not answer the initial email within 2 weeks, we will proceed with emailing their athletes. The athletes first completed the demographics portion of the

survey. Then, they completed the ACL-RSI and lastly the Psychological Readiness to Return Scale. After the data is collected, we will review and look at the responses to the survey.

Results

As for our results, we predicted that athletes who had surgery would have more anxiety and less confidence when returning to play compared to athletes who did not have surgery. We also expected to find that the female athletes had less confidence than male athletes. The first analysis looked specifically at fear and anxiety in those who had surgery vs. no surgery. Participants who had surgery ($M = 2.88$, $SD = 3.271$) did not feel more fearful of re-injuring themselves by playing their sport than those who did not have surgery ($M = 4.27$, $SD = 3.608$), $t(17) = -0.866$, $p = 0.398$. However, participants who had surgery ($M = 3.00$, $SD = 3.117$) did feel significantly more nervous about playing their sport than those who did not have surgery ($M = 6.00$, $SD = 2.608$), $t(17) = -2.283$, $p = 0.036$. For confidence and surgery, there was no significant difference between confidence levels of those who had surgery ($M = 40.163$, $SD = 12.712$) and those who did not have surgery ($M = 43.350$, $SD = 10.04$), $t(16) = 0.002$, $p = 0.560$. Though not significant, female participants' scores on the Psychological Readiness to Return to Sport Scale (Glazer et al., 2009) ($M = 37.3$, $SD = 12.096$) were slightly less confident than male participants ($M = 46.188$, $SD = 8.67$), $t(17) = -1.768$, $p = 0.095$, when returning to play. There was no significant difference in fear of re-injury between those athletes who had a brace ($M = 3.08$, $SD = 3.397$) and those who did not have a brace ($M = 5.71$, $SD = 3.302$), $t(17) = 1.645$, $p = 0.118$. There was no significant difference in anxiety between those athletes who had a brace ($M = 4.92$, $SD = 3.08$) and those who did not have a brace ($M = 4.43$, $SD = 3.047$). There was no significant difference in confidence levels of those who had a brace ($M = 39.57$, $SD = 8.12$) and those who did not have a brace ($M = 40.64$, $SD = 14.78$). There was also no

significant difference in fear of re-injury found between athletes who needed walking assistance/crutches ($M = 3.36$, $SD = 3.202$) and those who did not need walking assistance ($M = 4.56$, $SD = 3.909$), $t(18) = 0.750$, $p = 0.463$. There was no significant difference in anxiety between those who needed walking assistance ($M = 3.64$, $SD = 3.319$) and those who did not need walking assistance ($M = 5.67$, $SD = 3.00$), $t(18) = 0.326$, $p = 0.159$. As for confidence, there was no significant difference in those who needed walking assistance ($M = 44.98$, $SD = 9.557$) and those who did not need walking assistance ($M = 36.667$, $SD = 12.278$), $t(17) = 0.331$, $p = 0.116$.

Discussion

Upon completion of our study, we predicted that those who had surgery would have higher levels of anxiety and less confidence when returning to play than those who did not have surgery. We also predicted that among genders, female athletes would have more anxiety, while male athletes would have more confidence. We believed the severity of the injury would play a huge role in the levels of fear, confidence, and anxiety. We concluded that there was no significant difference between male and female athletes when looking at the levels of fear, confidence, and anxiety. There was also no difference regarding the level of confidence and anxiety when looking at the severity of the injury. We did conclude that those who had surgery had a higher level of fear of re-injury than those who did not have surgery.

In comparison to previous studies, Ardern et al. (2011) used a sample size of 209 athletes, both male and female, whereas we only had a sample size of 20 athletes. Ardern et al. received 88 females and 121 males. Of our 20 athletes, we received 12 female athletes and 8 male athletes. Our studies were not similar in the sample size factor. As for results, this study concluded that the timing of the surgery had a large impact on how much fear the athletes had

when returning to play. They discovered that athletes who had surgery about 3 months after the injury occurred had more fear than those who had surgery closer to their injury date (Ardern et al. 2011). We did not specifically look at this, since we focused more into the severity rather than timing. Although we discovered that those who had surgery had more fear of re-injury compared to those who did not have surgery, they discovered that the level of play the athletes returned to was also very important (Ardern et al., 2011). If an athlete returned to their level of play prior to the injury, they were less fearful compared to those who went down in the intensity level (Ardern et al., 2011). Again, we did not specifically look at the level, but it is an important factor when allowing athletes to come back to their sport.

Christakou et al. (2020) researched how worry, confidence, and attention contribute to predicting re-injury. The participants in this study consisted of 80 male participants, ranging from 18-40 years old. Our studies were not similar in the fact of sample size, as well as age and gender of participants. They concluded that the three factors of worry, confidence, and attention can assist in predicting re-injury at the beginning and the middle of the athlete's competitive season (Christakou et al. 2020). We did not particularly look into the prediction factor. Instead, we reviewed the severity and surgery aspect.

Even though we found that the severity of the injury sustained relates to the amount of fear when returning to play, there are some limitations. The pandemic took a large toll on athletics all around the world, as it led to seasons to be canceled and postponed. At Merrimack College, the athletics were extremely minimal from March 2020 until mid 2021. The COVID-19 pandemic put a halt to sports, so the athletes may not have been in the best of shape coming back into competition for the 2021 academic year. Not being in shape or being able to compete for over a year really could have thrown off the athletes. Practice can only go so far compared to real

game play, so the intensity was not as high, leading to the athletes not competing at full game intensity. Another point we thought about regarding the pandemic was how the athletes came back. For example, did their coach throw them into full game play and into movements they hadn't done in a long time, or did they ease into it? As a way to fix this limitation, we could have asked when their injury occurred, in a way to see if the lack of training and game play could have been a factor. If they were not trained, their injury could have been due to weakness and incorrect training versus game play. We also could have completed the study in a future setting, where training has been consistent and uninterrupted. We can predict that the levels of anxiety, and fear of re-injury could have been less, where confidence could have increased.

Aside from the pandemic, Merrimack College is relatively new to the Division 1 setting. Prior to 2019, Merrimack College was a Division 2 school, except for men's and women's hockey. With moving up a division comes more competition. The athletes may not have been prepared for this escalation in competition. The move into a more competitive environment proposed more demands on the athletes, such as practice time and weight room time. This could explain the fear and anxiety component of re-injury because the athletes may have not felt prepared to endure a higher level of competition. The athlete's could have felt more anxiety upon return because they did not feel strong enough from the beginning of the season, due to the increase in demands. A way to fix this limitation would be similar to the pandemic limitation in a way of more training and weight room time to assure the athletes feel prepared. They should be trained and pushed to an extent, but not overworked. If athletes were to receive more training and experience the D1 Level prior to playing, they could have more confidence when competitive play comes along. We could predict they would have less anxiety about the actual game play, which could decrease how much injury anxiety they would have.

These limitations do not limit the finding that those who had surgery had more fear of re-injury when returning to play than those who did not have surgery. Our conclusion does not mean it does not exist, but it should be looked into further. Mental health is another huge factor when looking at fear, anxiety, and confidence in a larger aspect. In general, mental health is a huge topic in the college setting in general. Along with classes, extra curriculars, jobs, and internships, these athletes practice and have games. This causes a lot of outside stress that could have an impact on their ability to perform, as well as return from an injury. Athletes could have diagnosed anxiety or other mental illnesses, which could have thrown off our results, since they may worry more than the average person. As a suggestion, athletes should be given more training and assured they are in the correct shape for their level of play. There should be lots of communication between athletes, coaches, and strength coaches as to how they are feeling and be accommodated if they are experiencing any nerves or fear about being injured or re-injury.

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