

The Emotional Effect of Multiple Season Ending Injuries in Collegiate Athletes

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## **Chapter 1: Introduction**

Injuries can take a psychological toll on collegiate athletes, including increased negative factors in stress, depression and disordered eating (Putukian, 2017). However, just as negative psychological factors can affect an athlete's return to play process, positive psychological factors can arise through the experiences of injuries (Ardern, Feller, Taylor & Webster, 2012). Examples of positive psychological factors include finding motivation and confidence (Arden et al., 2012). Finding and understanding these positive and negative psychological factors can be important for healthcare practitioners in helping collegiate athletes to not be mentally exhausted through rehabilitation.

As a collegiate athlete, the risk of injury can occur with any sport. Injury prevention programs were effective in lowering the risk of injury but cannot prevent the occurrence of all injuries. If there was an injury prevention program that was highly effective to avoid athletic injuries, collegiate athletes would no longer experience injuries and rehabilitation. This was not saying that injury prevention programs were not effective, but they do not prevent injuries completely (Nessler, Denney, & Sampley, 2017). Even with programs that were popularly researched, such as the Anterior Cruciate Ligament (ACL) tear prevention programs, the highest percentage of effectiveness of the program reaches 52% for female athletes and 80% for male athletes (Nessler et al, 2017).

Through an epidemiological study conducted by Yang, Tibbetts, Covassin, Cheng, Nayar, and Heiden (2012), 63.1% of Division 1 collegiate in the Big 10 conference athletes reported to have either an acute or chronic injury from the years 2005 to 2008. Kerr, Marshall, Dompier, Corlette, Klossner, and Gilchrist (2015) also found that 6% of the 478,869 college athletes nationwide had a current acute or chronic injury in the year 2015. Chronic injuries were defined

as overuse injuries, and acute injuries were defined as immediate one-time traumatic injuries (Yang, Tibbetts, Covassin, Cheng, Nayar, & Heiden, 2012). Researchers found it their duty to find correlations in how injury experiences affect mental health, as so many athletes sustain injuries.

In Kroshus' (2016) cross-sectional study, a link between physical health and mental health was found. Kroshus (2016) found evidence that depression, disordered eating and alcohol abuse caused a risk of physical injury. In addition, the study included that the roles can be reversed, in that physical injuries can cause mental health issues (Kroshus, 2016). National Collegiate Athletic Association (NCAA) reported similar information that collegiate athletes have sadness, isolation, irritation, lack of motivation, anger, frustration, changes in appetite, sleep disturbance, and disengagement when experiencing an injury (Putukian, 2017). Past literature has researched athletes' experiences to injury and recovery, to understand their emotional responses.

Non-specific to the type of injuries, athletes' experiences have been researched in the past through paradigms in phenomenological qualitative research. Phenomenology relates to the phenomena of experience into descriptive meanings (McNarry, Allen-Collinson, & Evans, 2018). Grindstaff, Wrisberg, and Ross (2010) interviewed collegiate athletes with injuries that kept them out for at least 30 days. They found themes of how athletes coped during their rehabilitation processes. And, how athletes found new perspectives on life and their sport (Grindstaff, Wrisberg, & Ross 2010). Further research dove into interviewing collegiate athletes that experienced longer rehabilitation and recovery processes in season ending injuries, to gather different emotional and psychological responses (Thomas, 2016).

A season ending injury would be considered as a minimum of 3 months of being out of play (Udry, Gould, Bridges & Beck, 1997). Qualitative research was found on athletes with season ending injuries, such as Thomas's (2016) dissertation, to find common themes of "changes in routine", "transitions in sport participation", "barriers", and "supports". Udry, Gould, Bridges, and Beck's (1997) phenomenological research interviewed 21 elite skiers with season ending injuries, to find 136 raw data themes condensed into four dimensions in psychological reactions and four dimensions in beneficial factors. Udry's et al. (1997) research, paved the way into the first set of qualitative research on season ending injuries. The four dimensions of psychological reactions were "injury-relevant information processing/awareness", "emotional upheaval/reactive behavior", "positive outlook", "coping attempts", and "other" (Udry et al., 1997). Other was described as unique responses such as the participants stating that they heal fast (Udry et al., 1997). The four dimensions of beneficial factors were "personal growth", "psychologically-based performance enhancements", "physical-technical development", and "none". None was identified as skiers' reaction to no benefits from their rehabilitation process (Udry et al., 1997).

Although there is past research on season ending injuries, there is little qualitative research on collegiate athletes experiencing two or more season ending injuries within their collegiate careers. Therefore, it is important to find any repetition or changes in coping mechanisms and emotional support that can help healthcare providers understand the collegiate athletes' experiences of experiencing multiple seasons of sustaining injuries and not competing in their sport. This will allow healthcare providers to provide better help and support for athletes, who sustained multiple season ending injuries.

## Chapter 2: Literature Review

As the need to understand the perspectives of collegiate athletes' season ending injuries, the literature review will begin with an overview of mental health of the general population. The literature review will then transition to mental health topics in collegiate athletes, collegiate athletes' psychological responses to injuries, coping mechanisms, and collegiate athlete' experiences of season ending injuries.

### Mental Health

Mental health awareness and education came a long way from its first introduction of its understanding back in the 19<sup>th</sup> century, when American Psychiatric Association was founded (Blain, Barton, & Musto, 1979). In the 19<sup>th</sup> century, mental health disorders were considered to be a controversial topic, as little was known about illness concerning the mind (Blain, Barton et al., 1979). However, that controversy has now changed for the better, according to the 2019 State of Mental Health in America. The 2019 State of Mental Health in America have reported that 18.07% of all Americans have some sort of mental health condition (Howley, 2019). An increased number of Americans diagnosed with some sort of mental health disorder showed the increased need in understanding and accepting mental health illnesses. However, what is the actual meaning of mental health?

World Health Organization (WHO) defined mental health as a state of well-being that the individual was able to realize one's own abilities, coping with normal stressors, work productively and fruitfully, and able to make a contribution to one's own community (Galderisi, Heinz, Kastrup, Beezhold, & Sartorius, 2015). In the *Diagnostic and Statistical Manual 5<sup>th</sup>* edition (*DSM-5*), the American Psychiatric Association was able to state that this manual viewed mental health as an understanding of treating mental disorders scientifically with further research

(APA, 2013 p. 5). The manual's definition of mental disorder was defined as, "... a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning," (APA, 2013 p. 20).

In a recent article from WHO, the organization explained that people who cannot manage their own thoughts and emotional behaviors were classified to have mental health disorders (WHO, 2019). WHO further explained that people who were at a risk or classified to have a mental disorder; cannot manage their own thoughts in social, cultural, environmental, and working factors (WHO, 2019). The common mental disorders that people face were depression, bipolar disorder, dementia, and schizophrenia (WHO, 2019). Affecting 264 million people globally, depression was the most common mental disorder that was characterized by sadness, feelings of guilt or low self-worth, no appetite, fatigue, and poor concentration (WHO, 2019).

Mental health disorders have become more prioritized in research and treatment as they were the leading factors to suicide (National Alliance of Mental Illness, 2019). Suicide is the 10<sup>th</sup> leading cause of deaths in America (National Alliance of Mental Illness, 2019). Today, effective treatments for mental health disorders usually are medication or psychological/psychiatric help from licensed professionals (WHO, 2019).

### **Mental Health in Athletes**

This portion of the literature review will focus on athletes experiencing or having mental health disorders that occur with sports. The level of athletes included in this part of the literature review were youth level, all divisions of college, and professional level.

As an athlete, surrounding pressure to perform and achieve high skills, affects the mental health (Carr & Davidson, 2017). This pressure increased with studying for school, worrying

about playing and starting time, and keeping up with strength and rehabilitation when in pain or sustaining an injury (Carr & Davidson, 2017). Athletes may be familiar with the term, “mental toughness” because coaches differentiated athletes with similar physical skill and preferred those who were able to overcome any emotion to win championships (Barnhouse, 2019). The National Collegiate Athletic Association (NCAA) released a similar article that highlights coaches’ expectations of “mental toughness” as a stigma that negatively affects student athletes’ mental stability (Carr & Davidson, 2017). This allowed athletes to grow deeper into their mental health disorders, as they were bottled up emotionally (Barnhouse, 2019). Athletes further faced this struggle in being hesitant in asking for psychological help. However, in recent times, athletes were able to come more and more public with their mental health disorders. Athletes would follow the trends and footsteps of other athletes who came out in public and showed support systems as available and accessible (Barnhouse, 2019).

To follow athletes who spoke out with mental health, the NCAA publicized and collected reports from multiple schools that explained sports medicine teams were evolving with mental health support. One way that sports medicine teams evolved into this trend, was hiring licensed psychologists and adding them to their healthcare teams (Carr & Davidson, 2017). When mental health was not highlighted as an issue, athletes can face common mental health disorders such as stress, anxiety and depression (Carr & Davidson, 2017).

Stress can affect athletes without them noticing. Over-training was one of the heavier stressors that an athlete can experience. In this context, over-training pertained more towards the athletes constantly surrounding themselves around their sports and practices, the weight room, and with coaches (Angeli, Minetto, Dovio, & Paccotti, 2004).



In addition, over-training the mind and body could lead to having constant stress when trying to reach a certain strength or skill to perform at a higher level. Angeli, Minetto, Dovio, and Paccotti's (2004) systematic review found past research to explain having chronic stress as either "affective spectrum disorder" or dysfunctional spectrum syndrome". These pathologies were explained further as an actual physiological response to an over-release of the cortisol hormone. An excessive release of cortisol can negatively affect the body's ability to properly heal and cause further symptoms of fatigue and pain (Angeli et al., 2004). Kroshus' (2016) systematic review found correlations in mental health and physical health. Kroshus (2016) found that increased cortisone levels can over-produce inflammatory cytokines. Inflammatory cytokines can slow down the healing process of the body, leading to fatigue (Kroshus, 2016). Stress was not the only factor to negative physical changes, as anxiety can affect the body's ability to heal properly.

Anxiety was defined as the elevated levels of arousal or worry when the athletes' level of performance was threatened (Rice, Purcell, Silva, Mawren, McGorry, & Paker, 2016). In Rice's et al. (2016) systematic review, eight quantitative survey studies were found that elite, European football players and swimming athletes experienced anxiety when having to deal with their performance in their sports (Rice et al., 2016). The negative connotation of this study was that the athletes constantly worried about aiming for perfection. The athletes would also rely on negative coping mechanisms such as drugs and alcohol. These negative coping mechanisms can tie to symptoms of sadness or depression (Yang's et al., 2007).

The American Psychiatric Association defines depression as a serious and common medical illness that negatively affects the way you think or act (Parekh, 2017). In Yang, Peek-Asa, Corlette, Cheng, and Foster's (2007) quantitative survey research, they found that 228

collegiate athletes to fully participate in a survey to find if they had self-reported and clinically reported depression. NCAA Division I athletic participants that were included in this study were both genders and multiple ethnicity in teams of football, wrestling, baseball, gymnastics, golf, tennis, basketball, track & field, cross country, golf, rowing and field hockey (Yang's et al., 2007).

A Center for Epidemiological Studies Depression Scale (CESD) scale and a pain visual analogous scale were both used in the Yang's et al., (2007) survey. Out of the 228 collegiate athletes that participated in the research, 4 percent were found to be clinically reported to have depression and 6.2 percent had a score of 16 on the CESD scale (Yang's et al., 2007). Which, a score of at least 16 meant that the participants have symptoms of depression (Yang's et al., 2007). In addition, 3.1 percent had a 27 or higher on the CESD scale (Yang's et al., 2007). With the growing awareness in mental health illnesses among athletes, more research was produced to understand and find that sport injuries were the one of the primary reasons of mental health issues among athletes.

### **Collegiate Athletes' Psychological Responses and Experience to Injury**

Injury experiences can cause mental health disorders, increase symptoms in mental health disorders, cause more injuries, or could shed new positive psychological responses such as motivation and confidence (Arden, Taylor, Feller, & Webster, 2012). The definition of a sport injury was a loss or abnormality in the bodily structure or function that results in an inactivity of the sport (Timpka, Jacobsson, Bickenback, Finch, and Ekberg, 2014). How athletes psychologically handle an injury was important to understand as it can negatively or positively affect the rehabilitation process (Grindstaff et al., 2010). Stress models were created to help show the importance of mental health to injuries.

Weiss-Bjornstal, Smith, Shaffer, and Morrey (1998) were the forerunners in the creation of stress models, creating the Integrated Model of Response to Sport Injury (Weise-Bjornstal, Smith, Shaffer, & Morrey, 1998). Weiss-Bjornstal's et al. (1988) research was created from the qualitative research done by Anderson and Williams in 1988 (Weise-Bjornstal et al., 1998). This new dynamic model showed how personal and situational stressors would affect the recovery outcome (Weise-Bjornstal et al., 1998).

Personal factors included injury characteristics, demographics, physical factors, and individual differences (Weise-Bjornstal et al., 1998). Injury characteristics included the severity, type, history, cause, and recovery status. While, the individual differences included personality, motivation, pain tolerance, athletic identity, self-perceptions, psychological skills, stressors history, and states of moods (Weise-Bjornstal et al., 1998). Situational factors included social, sport and environmental components (Weise-Bjornstal et al., 1998). Sport factors can be more explained as the time in season, playing stats, game versus practice, intensity of the level of competition, and status of scholarship (Weise-Bjornstal et al., 1998).

Personal and situational factors would affect cognitive appraisals (Weise-Bjornstal et al., 1998). Cognitive appraisals would then activate emotional responses to influence behavioral responses (Weise-Bjornstal et al., 1998). Emotional responses examples were fear, tension, grief, frustration, and positive outlook (Weise-Bjornstal et al., 1998). Behavioral responses examples were adherence to rehab, effort and intensity, malingering, risk taking and the use of psychological skills (Weise-Bjornstal et al., 1998). Finally, the behavioral responses would cause a likelihood of a sports injury (Weise-Bjornstal et al., 1998).

Around the same time as the Integrated Model of Response to Sport Injury model was created, Pederson and Gordon created a five-stage grief reaction to injury that included factors in

denial, anger, bargaining, depression and acceptance or reorganization in 1986 (Weise-Bjornstal et al., 1998). Rose and Jevne found a different approach to responses to injury through stages. Rose and Jevne's qualitative research in 1993 found a four-phase model that included stages of: getting injured, acknowledging the injury, dealing with the impact of the injury, and achieving a physical psychosocial outcome (Weise-Bjornstal et al., 1998). Rose and Jevne summarized these phases as the process of learning the lessons of an injury. After the injury models were created, researchers were able to conduct studies on athletes' perspectives and emotional experiences to their injuries (Weise-Bjornstal et al., 1998).

Arden et al., (2012) conducted a systematic quantitative study to find any psychological factors that were linked with the recovery process when returning back into the sport. Out of the eleven studies that included 983 athletes; psychological responses of autonomy, competence, relatedness and additional factors were found (Arden et al., 2012). Autonomy as a category was explained to have positive connotations of motivation, self-esteem and autonomy through satisfaction (Arden et al., 2012). Competence was explained to have positive and negative connotations of confidence, perception of negative influences, risk appraisal, injury severity, satisfaction, emotions, moods, and psychological readiness to return to sport (Arden et al., 2012). Relatedness was identified as a single positive factor of reflecting on oneself when returning to injury (Arden et al., 2012). In addition, athletes' coping mechanisms and personality factors were found in the study. But these factors did not relate to the outcomes in the return to play processes (Arden et al., 2012). Although quantitative studies outlined psychological factors that were found through direct responses of athletes, qualitative studies would be more appropriate to examine collegiate athletes' lived experiences and responses on their injuries (Sparkes & Smith, 2014).

Grindstaff et al., (2010), conducted a phenomenological qualitative research on collegiate athletes' experience of their definition of sports injury. They used a phenomenological approach to give direct description of the collegiate athletes' experiences. Five total Division I athletes from a university in the southeastern part of the United States were collected for the phenomenological study (Grindstaff et al., 2010). The participants sports were; men's football, women's basketball, women's rowing, and women's softball. The criteria required in the study was that the collegiate athletes' injuries had to be severe enough to be out of practice and competition for at least 30 days (Grindstaff et al., 2010). Three separate interviews were conducted in this study (Grindstaff et al., 2010). The first interview started 7 days post-injury. The second and third interviews were conducted 15 to 20 days of post-injury. The first interview lasted 45 to 60 minutes. The second and third interviews lasted 30 to 45 minutes (Grindstaff et al., 2010).

Using previous research, Grindstaff's et al. (2010) used an open question, interview guideline that started with the athletes' background as Division 1 athletes. Then, the interview guideline asked questions about the athletes' injured Division 1 experiences. The second and third interviews focused on asking the collegiate athletes if they had anything else to comment on, being an injured Division I athlete (Grindstaff et al., 2010). Through the interviews, themes were analyzed and found, consistent to the Integrated Model of Response to Sport Injury (Grindstaff et al., 2010). The themes were perspective, emotion, relationships and coping with supporting sub-themes (Grindstaff et al., 2010).

Grindstaff's et al. (2010) wanted to connect their research primarily on the Integrated Model of Response to Sports injury because they wanted to focus on the collegiate athletes' meanings of their injuries. Grindstaff's et al. (2010) future research implication includes

interviewing a wider range of athletes in different sports to provide more situations in the athletes' experiences to injuries. Grindstaff et al. (2010) concluded their research highlighting coping mechanisms as the primary theme that was most talked about in their study (Grindstaff et al., 2010).

### **Coping Mechanisms**

Coping mechanisms were explained as ways athletes find sources to help them manage their injuries (Grindstaff et al., 2010). Past literature found coping mechanisms primarily as support systems, personal goals, and emotional thoughts and actions.

Gould, Udry, Bridges and Beck (1997) interviewed 21 skiers with season ending injuries to find support as one of the themes of coping mechanism. They dedicated a whole research based on coping mechanisms found through the 21 skiers interviewed (Gould et al., 1997). As one of their major themes, they found that support systems were explained as finding emotional and physical help from people and medical staff that were close with the athletes (Gould, Udry, Bridges, & Beck, 1997). Family, friends, coaches and teammates were highlighted as the people closest to the athletes (Gould et al., 1997).

Thomas's (2016) dissertation on 3 collegiate athletes' season ending injuries, found similar themes in support from friends, family, coaches and teammates as physical help. Physical help was categorized as ways of transportation and help of daily living tasks when out of surgery (Thomas, 2016). On top of physical help, both Gould et al., (1997) and Thomas's (2016) research found that teammates were crucial in emotionally helping the injured athletes push through the rehabilitation process.

In addition to who comprised of the athletes' support systems, medical staff were included as they were the first wave of people seen by the athletes when recovering and

rehabilitating. Thomas' (2016) dissertation included the medical staff to be physical therapists, athletic trainers, and physicians. Thomas (2016) explained that the doctors and athletic trainers were highlighted as physical or emotional support during the collegiate athletes' rehabilitation process. Gould's et al. (1997) found that the skiers' physical therapists and athletic trainers pushed them to complete their exercises in rehabilitation, supported them through the rehabilitation process emotionally, and provided an accessible resource that provided high-quality rehabilitation programs. Gould's et al. (1997) research study would further explain "personal goals" as a major coping theme.

Gould's et al., (1997) qualitative research described the theme "personal goals" as motivation and determination in finding purpose to push through rehabilitation as a competitive instinct (Gould et al., 1997). The skiers would even consider rehabilitation and coming back from an injury as another competitive activity (Gould et al., 1997). These athletes would basically have a switch in their brain to focus on the rehabilitation when it began, or when they entered the gym (Gould et al., 1997). Gould et al. (1997) also found that the skiers had a period of time in self-reflection before rehabilitation to channel motivational thoughts (Gould et al., 1997). Gould et al. (1997) would then carry onto explaining "managing emotions" as another coping theme.

In Gould's et al., (1997) qualitative study, they found how the skiers managed emotions of not participating in sports through different actions. One of those actions was that the skiers isolated themselves from other skiers and medical staff during rehabilitation, to not reflect on not being able to compete (Gould et al., 1997). Another action, but more positive, was found when the skiers would either self-reflect or express their emotions with people closest to the athletes (Gould et al., 1997). Which this was similar to the support systems that the athletes leaned

towards, as mentioned above. The skiers found themselves in more of a relief in expressing their emotional concerns or pain to another person (Gould et al., 1997). Now, what were the themes found in past qualitative research on athletes with season ending injuries?

### **Collegiate Athletes' Experiences in Season Ending Injuries**

Three qualitative studies on elite and collegiate athletes' experiences on season ending injuries were found. The primary themes found were tied to psychological reactions and benefits of season ending injuries, routine and habit changes among athletes, and how season ending injuries affected their long-term injury rehabilitation.

Udry et al., (1997) were one of the first qualitative researchers to study athletes' experiences on their season-ending injuries. Twenty-one United States (US) alpine and freestyle ski team members were conducted in this study from the years 1990 to 1994. The skiers were contacted and met the criteria to be able to participate in the study. The criteria were that the skiers had to sustain a season ending injury during ski season and be out of play for at least 3 months because due to the injury. The gap between the interview and the injury sustained was at 4 years or less, due to the limited number of participants. Descriptive phenomenology was used in this study. Descriptive phenomenology relates to the phenomena of experience into descriptive meanings (McNarry et al., 2018).

Because Udry, Gould, Bridges and Beck were the first to conduct a season ending injury research among athletes, they had to draw out their own questionnaires from past research and personal clinical experiences. The research that they found focused primarily on models of injury response, and qualitative approaches to interviews (Udry et al., 1997). Through their findings, they were able to produce an interview guideline that removed bias in the questioning and obtaining answers from the participants. Udry et al. (1997) first tested their interview



guideline through pilot interviews. The pilot interviews were conducted on elite athletes with season ending injuries (Udry et al., 1997). The pilot interviews included questions of background information, immediate and long term reactions to injury, specific sources of stress and roadblocks with rehabilitation and recovery, thought processes that facilitate recovery, coping strategies when dealing with injury-related stress, relationships with others in the times of the injury recovery processes, and recommendations to other athletes (Udry et al., 1997). After the pilot interviews were done and the interview guideline was set, the researchers were able to conduct semi structured interviews on the skiers with season ending injuries that lasted 60 to 90 minutes (Udry et al., 1997). The interviews were conducted and tape-recorded by the same interviewer. At the end of the interviews, athletes were told that they could add any other information that was not included in the interviews (Udry et al., 1997).

Through the findings of Udry's et al. (1997) phenomenological research, 136 raw data themes categorized in 4 dimensions were found through the reaction of being injured (Udry et al., 1997). These dimensions were: "injury relevant information processing/awareness", "emotional upheaval/reactive behavior", "positive outlook/coping attempts", and "other" (Udry et al., 1997). In addition, 81 raw data themes from positive outlooks of season ending injuries were categorized into 4 dimensions of "personal growth", "psychologically-based performance enhancements", "physical-technical development", and "none" (Udry et al., 1997). "None was identified as no benefits were shown through some of the skiers' rehabilitation process (Udry et al., 1997).

Key findings in Udry's et al. (1997) research were finding the different coping mechanisms and how the season ending injuries allowed for personal growth for the skiers (Udry

et al., 1997). Coping mechanisms included finding motivation and determination in competing again. Skiers found personal growth in taking care of their bodies (Udry et al., 1997).

For further research, Udry, Gould, Bridges and Beck would like to explore if secondary emotions that came before an injury had an impact on the reaction to season ending injuries. They found long-term benefits within the research but would like to know as well if outside emotions or secondary emotions affected long-term benefits. They would like to further implement these research directions into their questions (Udry et al., 1997).

Thomas' (2016) dissertation was the second qualitative study found on athletes with season ending injuries. Thomas (2016) used a bracketing phenomenological approach with cross-case analysis on the collegiate athletes' experiences with season ending injuries. A bracketing phenomenological approach was used to prevent her from showing any personalities during the conducted interviews with the collegiate athletes (Thomas, 2016). The purpose of using cross-case analysis was to increase generalizability to ensure that the processes and events were not totally idiosyncratic (Thomas, 2016). Thomas' (2016) approach to the qualitative research was to help occupational therapists understand collegiate athletes' occupation (their sport or work lifestyle) change when experiencing a long-term rehabilitation injury.

Purposive sampling was used to meet Thomas' (2016) inclusion and exclusion criteria of what fit collegiate athletes' season-ending injury. Purposive Sampling is when participants are specifically chosen for the research study (Thomas, 2016). Three collegiate athletes of football and cheerleading were interviewed at a university library in a quiet room for approximately thirty minutes. The participants were selected after email or phone contact through flyers posted at Eastern Kentucky University (Thomas, 2016). Pre and post-injuries semi-structured interviews that followed an interview guideline, were conducted in a closed room. Participants were asked

to sign a time log of the interviews conducted of the pre and post-injuries. Interviews averaged 30 minutes in time. Participants were given a copy of their signed consent forms and time logs (Thomas, 2016). Through the interviews Thomas (2016) found themes of “changes in routine”, “transitions in sport participation”, “barriers”, and “supports”.

Key findings in Thomas’ (2016) dissertation were the environmental barriers that collegiate athletes faced in changes in routine. The collegiate athletes had to request transportation from others because of the inability to drive. And, the athletes scheduled their days ahead because walking to class took longer due to injuries.

For further research, Thomas would like to research athletes in different regions of the United States (US) to see if athletes’ experiences would be the same. Thomas would like to see as well if the athletes’ responses would differ in different sports. Only one female was conducted in this research. So, more female participants needed to be interviewed. Or, male and female participants need to be researched separately in future research (Thomas, 2016).

Hale’s (2008) dissertation was the third qualitative research found on elite athletes with season ending injuries. Hale’s (2008) dissertation researched the experiences of athletes rehabilitating from their season ending injuries with short-term cognitive interventions. Hale (2008) used this study to see if the athletes’ responses have connection to perceived values of psychological interventions in connections to the case study narratives about the participants. Participants were recruited through contacting sport organizations, coaches involved with the organizations and healthcare practitioners (Hale, 2008). Hale was able to gather 6 participants before study, but three withdrew from the study. One participant moved overseas, and the other two found the study to be too overwhelming. The participants had to meet the criteria of being sub-elite or elite level athletes in their sports and were expected to have 9 months of

rehabilitation after surgery (Hale, 2008). Doctors and allied health professionals that take care of the athletes, had to provide evidence that the athletes required at least 9 months of rehabilitation (Hale, 2008). Two males and one female were part of the study. Their ages ranged from 18 to 43 (Hale, 2008).

All consent was obtained through telephone contact, and before the interview (Hale, 2008). Interviews lasted 45 to 90 minutes in the interviewer's home-office or home, and were audio taped (Hale, 2008). The participants were interviewed four times; after the event of the injury or surgery, and then every three months after (Hale, 2008). The researcher met with the participants on a regular basis of every two to four weeks just as a routine check-up as well. The routine check-ups were to provide cognitive behavioral and psychoeducational interventions for the long rehabilitation process. The techniques of these interventions were gathered through past research (Hale, 2008).

Through four interviews among three athletes, four board themes of affect, coping, social support and psychological interventions were found that were compared to integrated models of injury rehabilitation. Affect in this study was described as a result of abrupt exits from sport such as injury (Hale, 2008). Psychological interventions were described as psycho-educational and cognitive behavioral that can include relaxation seeking to help the individual to physically and mentally remain calm and relaxed (Hale, 2008). Hale was able to find that the interventions guided the participants to ease through the rehabilitation and recovery processes.

For future research, Hale recommended three suggestions. One was adding psychometric tests, or quality of life tests and other outcome measures like range of motion and strength at the time of the interview (Hale, 2008). Hale explains that this would add in another component into the research, to better understand the long-term rehabilitation process (Hale, 2008). The second

recommendation was potentially interviewing participants' family members, friends and other important people in their lives, to understand more about the participants' support group (Hale, 2008). The last recommendation was suggesting that each participant should be assigned to a specific psychological intervention, with further research of specific interventions (Hale, 2008). This would find which psychological intervention will be the most useful in specific aspects and times of the participants' rehabilitation process (Hale, 2008).

Past research has included qualitative research on season ending injuries among collegiate athletes, but not many has been conducted. In addition, there is little qualitative research on collegiate athletes experiencing two or more season ending injuries within their collegiate careers. Therefore, it is key to find any new changes or similar repetitions in coping mechanisms and emotional support. The emotional support came come from people that are closest to the athletes, or from their healthcare providers that was listed above. This allows healthcare providers to help understand collegiate athletes' experiencing multiple years of sustaining injuries that keeps the athletes out of their sport.

### **Chapter 3: Methods**

#### **Research Design**

The purpose of this qualitative study was to examine the experiences of collegiate athletes with multiple season ending injuries in their collegiate career. In order to obtain the most emotional response from the interviewees, a one-on-one semi-structured interview with an interview guideline was created and used from past literature (Thomas, 2016). In qualitative research, semi-structured interviews were commonly used to have a guideline of interview questions without asking the questions in order, rather what question would be best asked next

judging by the response the interviewee gives (Sparks & Smith, 2014). Interviews lasted 30 to 45 minutes.

### **Participants**

Five Division I collegiate athletes in the San Francisco Bay Area were served as participants in this study. An Institutional Review Board (IRB) approval was first obtained when gathering the participants through snowball sampling (Sparks & Smith, 2014). Snowball sampling is the recruiting process of contacting known collegiate athletes and athletic trainers to refer to the possible participants' email contact to the primary researcher (Sparks & Smith, 2014). The email sent to the participants included a brief introduction of the study.

All five participants met the two inclusion criteria in order to participate in this study. The inclusion criteria were: one; a Division 1 collegiate athlete that had two or more season ending injuries in their collegiate career, and two; the injuries were fully rehabilitated. A season ending injury would be considered as a minimum of three months of being out of play based on past literature (Udry, Gould, Bridges & Beck, 1997).

The age of the participants ranged from 19 to 24 years old, with the average age of 21 (Appendix B). There were two male participants (40%), and three female participants (60%). The average participation of collegiate sports years was three. To protect the athletes' identity, the athletes' gender remains anonymous to the sports played. The sports that the athletes participated in were football (n=1), volleyball (n=2), baseball (n=1), and soccer (n=1). The football athlete had bilateral pectoral major tears in separate years. The volleyball players had a long-term rehabilitative ankle sprain/abdominal strain, an Anterior Cruciate Ligament (ACL) tear, and a meniscus tear/hip trochanteric bursitis. The baseball player had an Ulnar Collateral Ligament (UCL) tear with a re-injury the second year. The soccer player had bilateral bone

spurs on the feet and a combination of disc bulge and pars fractures on the lumber and sacrum spine. The average amount of season ending injuries sustained were 2 years.

### **Setting**

Each interview was conducted in a closed office in the kinesiology building at San Jose State University. The setting of the interview was conducted in a closed office to have the athletes recreate a calm atmosphere with privacy. The office door was closed to retrieve clear audio data from the audio recorder (Sparks & Smith, 2014). All interviews were conducted by me, the primary researcher.

### **Rapport Establishment and Confidentiality**

Each participant was informed details of the study through the email before the study and again before the interview. Each athlete was asked their preferred availability to conduct the interview in the closed office at San Jose State University. Participants were given the best desired time slots for the interview, with their availability explaining that the interviews would last around 30 to 45 minutes (Sparks & Smith, 2014). Phone numbers were then retrieved to have a quicker follow-up, especially on the day of the interview.

On the day of the interview, the collegiate athletes were contacted to confirm the interview time and place. Before the interview began, the athletes were made sure that their identity remained anonymous in the data transcription by referring to their identity as letters (Appendix B). A verbal consent was retrieved from each athlete, highlighting the interview and research details. The athletes were made sure that they felt comfortable and to ask the primary researcher any questions or concerns that came with the interview. The athletes were told to be honest and open as much as possible to emphasize their responses (Sparks & Smith, 2014). The interviews first started with a background question describing the participants' sport and the

length of playing time (Udry et al., 1997). The background question was used to recreate memories of the participant's collegiate career (McNarry et al., 2019).

After the interviews were done, the participants were thanked for their time and effort in sharing their information with me. The participants were told to look out for a follow-up email to add or delete any feedback from the interviews (Sparks & Smith, 2014).

### **Data Collection**

The data was collected through an IRB approved audio recorder, Zoom, with side notes taken (Sparks & Smith, 2014). The side notes were used more for me to write any outstanding emotions or body language shown. The participants were first asked if they were comfortable with an audio recorder. Each interview was semi-structured with the use of an interview guideline (Appendix A). Similar questions and guidelines were used through Thomas's (2016) dissertation. Probe questions were asked for clarity and more in-depth detail of the responses from the participants (Sparks & Smith, 2014).

At the end of each interview, the participants were asked if there was any other information that the participants wanted to add or delete from the recordings. All the data from the recordings were then transcribed per verbatim in a closed qualitative research lab to protect any data leakage (Sparks & Smith, 2014). All audio data was deleted after transcription. The interview process ended when data saturation was achieved (Sparks & Smith, 2014).

### **Data Analysis**

Themes from the transcription were coded using thematic analysis (Braun, Clark, & Weate, 2016). This technique is an identification process of themes from the transcribed data. To code the transcription, the transcripts were read several times to be familiarized with the interviews and then taken apart and put back together to find meaningful details (Creswell,



2016). Twenty codes of data were found and clustered together to find five themes through thematic analysis (Appendix C). To provide rich rigor, past literature was first used to help determine and understand matching codes and themes (Tracy, 2010). An academic advisor also peer reviewed through the transcripts and provided feedback on the preliminary themes (Tracy, 2010). Themes were then concluded to be of lifestyle changes, stress and frustration, depression and isolation, motivation, and support systems.

### **Chapter 4: Results and Discussion**

Five major themes were arrived at through thematic analysis (Creswell, 2018), including: 1) lifestyle changes; 2) stress and frustration; 3) depression and isolation, 4) motivation; and 5) support systems. Participants are identified by their sport via abbreviations.

#### **Lifestyle Changes**

A theme that was prominent in the participants' data was the participants' lifestyles changes. These lifestyle changes included anything from first time experiencing an injury to not being able to perform daily tasks. Participant S stated:

Because some days I would feel good, some days if I slept wrong, it would just ruin. I couldn't do daily things. So, it was an up and down roller coaster.

Thomas (2016) found a similar theme in Thomas' dissertation in relation to changes in routine. Participants in Thomas's dissertation had to change clothes that were easier to wear and needed extra time to get out of bed because of their braces. Constant adjustment in routine and body function, can have a wear on the mind that most participants are not used to. Participant B also stated:

Oh, my ankle. That was like for me that was like mentally and physically so hard.

Because I was figuring out my body. Because like, that was the first time I ever, I was

kind of like my coaches, my coaches were bringing, like awareness of me how I needed to take care of my body.

Grindstaff's et al. (2010) phenomenological research explained that in their theme of "accepting lifestyle adjustments", participants had to adjust to difficulty of sleeping and limited mobility as a result of participants' injuries. Participant S explained:

So, with my foot surgery, I noticed a big difference in my movement. Like my feet were constantly tight and I would always have to get treatment on my feet. And, I felt like I wasn't as agile as I was. Or, adaptable. I was quick to say quick, especially with my position. And, as for my back, I tried to come back in Spring. And there was a feeling for me like, I cannot move the same that I used to.

Participant S felt this adjustment firsthand when noticing such changes when injured. It was interesting to see how participants change their lifestyle habits and routines due to discomfort and pain, rather than inability to perform daily tasks normally.

### **Stress and Frustration**

A common theme that the participants expressed during their second or more, rehabilitation process was this feeling of stress and mentally exhaustion from constantly rehabbing. The routine of constantly rehabbing and not being able to play their sport was frustrating to them. Participant F stated:

Like rehab was tough, I mean terrible. Because, you have to wake up early and it's just like walking in the training room and it's the same thing over and over again. And it's, you have to be really patient, which is also really hard. It's tedious doing rehab every day.

In Hale's (2008) dissertation, Hale found a similar theme in "affect", in explaining that athletes have advanced affective response when being injured. This included having these responses strongly towards rehabilitation whether they may be positive or negative (Hale, 2018). Meaning, that the overall response to how the athletes handle their injuries may affect them during their rehabilitation. Participant F did express feelings of frustration and shock when finding about a second season ending injury. This negativity can very well translate to a negative mindset leading into rehabilitation. This negativity also allowed the athletes to not have positivism when rehabbing, but instead thinking of rehabilitation as a task that is long and stressful. Just as Wiese-Bjornstal, Smith, Shaffer, and Morrey (1998) explained in their stress process model that port injuries occur from stressors that elicits cognitive appraisals, that would then influence emotional and behavioral responses. Participant V showed similar emotional response by stating:

Just rehab in general, I just don't like it. It's not fun. So, I guess just motivation. Like sometimes you lose sight in the process. You lose sight of what you are really rehabbing for.

Just as much as participants feel stressed and frustrated with the extensive rehabilitation process, some participants felt frustrated with the feeling of the "unknown", on how effective treatments and rehabilitation processes can be for them. Participant P explained:

I couldn't do very many leg workouts. Because the trainers and the doctors didn't want me to. So, that was frustrating. Which, I didn't understand why. Maybe I didn't ask the question. But they never really explained to me either. Like why I couldn't do leg press. So, that was frustrating. Like I didn't know why.

Participant P was frustrated on how ambiguous the rehabilitation program was. And, how left out he was in the rehabilitation details. It is important for healthcare providers to understand that repetition in rehabilitation exercises may not be the best interest for these athletes to be engaged in rehabilitation. Also providing good communication can help athletes have less confusion that can lead to frustration.

### **Depression and Isolation**

As explained above, experiencing an injury was shocking and painful emotionally and physically to the participants. Experiencing a new physical pain emotionally drained some of the participants. Especially, when collegiate athletes have to go through another year without play. Participant V stated:

My freshman year I was bummed. But when you come in as a freshman as a D1 athlete, like you don't know what you are getting yourself into. No matter how much people try to tell you. That you just don't know what you are getting yourself into. I was bummed, but I can't say I was nearly as bummed the second time that I found out.

Although participants were not clinically diagnosed to have depression, participants showed signs of emotional behavior. Udry et al. (1997) found a common theme in emotional upheaval/reactive behavior. These researchers found that around 90 percent of the athletes interviewed expressed behaviors of anger, frustration and sadness when reacting to their season ending injuries (Udry, Gould, Bridges, & Beck 2017). It was possible that these behaviors can first stem from negative thoughts. Participant S explained:

And, it was just a very uncomfortable injury that I sustained. I lost a lot of sleep on it. And, it impacted me emotionally too because there would be times where I wanted to give up.

Udry, Gould, Bridges, and Beck (1997) found this emotional response to injury, carried onto the athletes' recovery processes. Even so that athletes may isolate themselves from their team and their sports. Participant F went on to say:

Uhm, I wish that I was more involved in the team. While, I was doing rehab. I kind of felt like so out of it. Out of the team. Not to mention, like, because of how hard it was being hurt again and not feeling like a part of the team.

Isolation was a common experience among the participants. Where the athletes described not playing meant not being a part of their teams. Isolation could potentially just be another coping mechanism that was explained in Udry's et al. (1997) qualitative research. However, Udry et al. (1997) explained isolation with negative connotations, where they found that isolation was geared towards moving away from people that athletes didn't like or didn't want to work with.

### **Motivation**

Motivation could be an example of coping systems to regain positivism through emotional experiences (Grindstaff et al., 2010). Motivation and support systems were highlighted as separate themes rather than the general theme of coping because each theme had a different set of responses from the athletes that helped them to come back from the second or third season ending injury. The participants usually found motivation in returning to play and motivation in their teammates and family. Examples included from participant F:

My biggest motivation was just; one I love to play football. Like I couldn't imagine not playing. I know it will happen one day. But, a lot of people were telling me that you should go to a different school. Just study, just do this. Like you will have a way better

life. I don't want to do that. I just want to keep playing. Just because I love football. I love my team and I love the school.

This type of motivation is similar to Grindstaff's et al. (2010) theme of "using sport psychology" during the athletes' injury experiences. The participants used self-coping strategies in the motivation to play again, self-realization/reflection, goal setting and the motivation through others (family, coaches, & friends); to help with the rehabilitation of their injuries. Participant F thought of the ultimate goal of wanting to get back on the field to be able to help his teammates be a better football team. Gould, Udry, Bridges, and Beck's (1997) qualitative research used "determination/motivation" as a coping theme that showed their study of skiers as the inner desire to compete again.

Goal setting was one of the motivational factors that was common among the participants, as participant B explained:

When I was seven, and throughout this time being in sports for so long. I was able to like, see what's open in the world. What's basically, like, what are the opportunities and I just kind of made it to myself like, like a goal of like where I wanted to be. Well I wanted, I just wanted to experience, like I want to use volleyball to travel, make money, stuff like that, you know. So, I kind of like made a decision on my own to follow that goal.

Whereas participant S had a self-realization in life outside of sports that was a similar theme from Grindstaff's et al. (2010) qualitative research of "higher meaning" to learn and move onto a better life. Participant S stated:

The two options that I am looking into right now is stem cell research and getting injected with stems cells in my back. And, the other one was, my trainer told me that this guy had

the same injury as me. Like not the same, but had a herniated disc. And he had multiple stress fractures that were more acute. But he had instead of a spinal fusion, he had a titanium disc replace the actual herniated disc. I actually reached out to him to understand his process. He really goes in depth of the process, the recovery, and now he is able to work out without pain. And he could do anything that he wants like snowboarding, wakeboarding. All pretty extreme sports that I do as well. Like I'm at a point where I can't do that anymore. So, that is something that I am looking forward to in the future. And, seeing if those are the options for me. Because I want to be able to still have fun.

Participant S realized that the chance to do normal daily tasks was more important than risking the participant's health in competing in the participant's sport. It is common that the athletes looked to be positive in gearing for the future.

### **Support Systems**

A common theme that the participants expressed in helping them cope with their injuries, was the support systems that they had. The participants especially showed gratitude to friends, family, coaches and sports medicine team members in their event of injury and rehabilitation process during their second or more season ending injuries. For the participants to find social support as a coping mechanism, was common to Gould et al. (1997) past research on coping mechanisms. The participants leaned towards others to reduce their stress from others.

Participant P stated:

Well I mean, especially last year when I was on track to come back and finish playing, like the guys were saying like we need you back man. Blah, blah, blah, we need you. We got to make it to playoffs, we need you. And that kind of thing. Just like, always, I

would say when I got hurt too, I became a bigger supporter of them than they were of me.

Support was one of Thomas's (2016) themes that highlighted teammates, friends, parents, athletic trainers, doctors, and coaches. Support systems do not need to extend to all these great lengths, but close relationships that impact these participants when experiencing the multiple season ending injuries. In fact, participant V stated:

One of my roommates, that is also my teammate, helped me a lot after surgery. Like coming back from home. After being sick. My teammates help take care of me a lot. My teammate cooked me dinners and stuff. My other teammate has been an emotional outlet for me. That teammate has always been really, really good. We talk a lot. That teammate is one of my best friends here. And another teammate. That teammate is going through the same process as me. It's just a different injury. Like going through rehab together with that teammate, being able to talk about returning to sport. All of that stuff, like that's how that teammate has been really, really good. Doing the whole thing, so that I am not alone.

Participant V found that the teammate went out of their way to make sure the participant was taken cared of emotionally and physically. Support Systems can go a long way in an athlete's rehabilitation and recovery process. Athletes found comfort in expressing their emotions to close relationships.

## **Chapter 5: Conclusions**

From past literature, most qualitative research and quantitative research were focused on athletes' psychological reaction or experience on injuries and season ending injuries. As an athletic trainer and healthcare provider, it was important for me to understand psychological



factors and experiences a collegiate athlete may experience when having to go through, yet another, season ending injury when rehabbing these athletes. In the athletic training major's curriculum, psychology is not a core course (Biviano, 2010). Thus, we lean on our clinical experiences to help athletes with mental health issues that affect rehabilitation.

Limitations of this qualitative research included only obtaining current collegiate athletes who just recently experienced their second or more season ending injury, which gives less time to reflect on their injury experience. The area of participants collected was a restriction as well. Where, living in a different part of the country can contribute to different lifestyles and environmental barriers. Future research should include collegiate athletes in different parts of the United States to acquire different reflective responses. In addition, future research should examine how coaches might contribute to athletes' positive mindsets during extended periods of injury.

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## **APPENDIX A**

### **INTERVIEW GUIDE**

#### **Background Questions**

1. What collegiate sport did you play and for how many years did you play at that level?
  - a. What does a being a collegiate athlete mean to you? (Can ask what sport in the question)
2. What season ending injuries did you sustain in your collegiate athletic career?
  - a. At what point in your career did these injuries happen?
  - b. Did it happen in-season or out of season?
  - c. How did these injuries occur?
    - i. How did you feel that this timing affected your initial response to the injury?
    - ii. How do you feel that this timing affected the recovery/rehabilitation process?

#### **Questions of Experiences of Two or More Season Ending Injuries**

3. What difficulties did you face during the course of rehabilitation and return to play over the course of your first recovery?
  - a. What do you think would have made this process less difficult?
  - b. Is there something you would have done differently during this time?
4. What difficulties did you face during the rehabilitation and return to play process over the course of your second (or third) recovery?
  - a. In what way were the second or third injuries more challenging to manage emotionally than the first?
  - b. How did the rehab process take an emotional toll on you?
  - c. Did you feel like your social status changed because of the injury? If so, how? If not, why?
5. How do you feel like the recovery processes of the injuries differed?
6. What support system did you have, if any, during your return to play process?
  - a. Did you feel that there was enough support? Why or why not?
  - b. How did your teammates help you through this process? Coaches? Family? Friends?
7. What was your motivation in coming back to play after a second or third year of a season ending injury?
  - a. If you chose not to, how did you come to that decision?
  - b. Who, if anyone, helped you make these decisions?
8. Is there anything else you'd like to add about your experiences of having multiple season ending injuries?

**APPENDIX B**  
**PARTICIPANT DEMOGRAPHICS**

Participant:	Sport	Age	Season Ending Injuries	Years of College Athletic Career Enlisted
F	Football	21	Right & Left Pectoral Major Tears	3
S	Soccer	19	Bilateral Foot Bone Spurs & Disc Bulge/L5-S1 Pars Fracture	2 (Medically Retired)
V	Volleyball	22	Ankle Sprain Grade 3/Abdominal Strain Grade 2 & Anterior Collateral Ligament Tear	4
B	Volleyball	19	Meniscus Tear/Hip Trochanteric Bursitis & Lateral Distal Femur Fracture	2
P	Baseball	22	UCL Tear (Reinjury for Second Year)	4

Lifestyle Changes	Stress and Frustration	Depression and Isolation	Motivation	Support System
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<ul style="list-style-type: none"> <li>● First time injured and adjusting to injury</li> <li>● First time rehabbing</li> <li>● Adjusting body movements due to pain</li> <li>● Can't do daily things</li> </ul>	<ul style="list-style-type: none"> <li>● Exhaustion of rehabilitation</li> <li>● Boring and repetitive rehabilitation</li> <li>● Uncertainty of rehabilitation, treatment and injury</li> <li>● Frustration in pain</li> </ul>	<ul style="list-style-type: none"> <li>● Isolated from team</li> <li>● Emotional response to injury</li> <li>● Negative thoughts</li> <li>● Envious of teammates &amp; others</li> </ul>	<ul style="list-style-type: none"> <li>● The chance to play again</li> <li>● Self-realization/reflection</li> <li>● Goal setting</li> <li>● Motivation through others (family, coaches and friends)</li> </ul>	<ul style="list-style-type: none"> <li>● Former and past teammates</li> <li>● Family &amp; friends</li> <li>● Coaches</li> <li>● Sports medicine team (athletic trainers, physical therapists, physicians)</li> </ul>
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## APPENDIX C

## CODING CHART