

Studies conducted

There have been advances in how injuries are optimally managed, or ideally, prevented, in high-quality, systematic studies on the impacts and nature of physical injuries on athletes. The most common injuries in those studies are limb injuries and head injuries. In the psychological well-being and the mental health of elite-level athletes, there is comparatively less research, but there is a growing interest, according to Baron SH, Reardon CL, and Baron DA, Reardon CL.

With twenty-six retired NFL athletes, who went through a magnetic resonance imaging technique identified as diffusion tensor imaging scanning, a study was conducted in 2013 by Cullum, Didehbani, and Strain. It was reported by them that some specific brain areas of the left superior longitudinal fasciculus, right frontal aslant tract, forceps minor and right uncinate fasciculus negatively correlated ($P < 0.01$) with total BDI-II scores (Cullum, et al., 2013). With 95 percent specificity, and 100 percent sensitivity, fractional anisotropy maps, which reflect myelination, axonal diameter, and fiber density, in white matter of the forceps minor differentiated non-depressed from depressed athletes. It was concluded by the authors that diffusion tensor imaging a potential biomarker predictor of the symptoms of depression (Cullum, et al., 2013).

A high rate of cognitive deficits compared with those of a control group, and a 23.5 percent prevalence of depression was found by Hard and his colleagues in their study as they measured depression and cognitive impairment in a sample of 34 retired NFL players. In comparison with those who are in a healthy control group, depression and cognitive deficits appear to be more prevalent in retired NFL players, as per their conclusion (Hard, et al., 2010). There is also some evidence to suggest that a concussion might have the same effect as other injuries on the mental health, even though the relationship between depression and concussion

might be significant. In order to examine the differences between the emotional responses in athletes who had an anterior cruciate (ACL) injury compared with a concussion, a study was conducted by Mainwaring, Bisschop and Hutchison in 2010. They came to a conclusion that athletes with concussion were not that heavily affected but athletes who suffered from ACL injuries had more severe levels of depression and a much longer duration of depression (Mainwaring, et al., 2010). According to them, intervention and screening must be the focus on athletes who suffer from concussions and ACL injuries, and that a higher level of emotional disturbance comes from ACL injuries. Concussion might or might not be an increased risk factor for depression over other types of sports-related injuries and that there is an increased risk of maladaptive psychological response to various types of injuries, even though the sample size for their study was a small one (Mainwaring, et al., 2010).

One more recent depression and college athlete prevalence study was conducted by Boan-Lenzo and Proctor in 2010. Among a group of 21 non-athlete male college students, and 31 Division I male baseball players who suffered from some sort of injuries, depression and anxiety levels were investigated by this study (Proctor and Boan-Lenzo, 2010). Comparing the results of both, it was concluded by them that fewer depression and anxiety symptoms were reported by athletes who suffered from injuries in comparison with those who did not play at all. Even though, a high level of depression was reported by the non-athletes, more than half of them met the criteria for a possible diagnosis of clinical depression. Roh, Rockhill-Levine, Appaneal, and Perna conducted a study in 2010 to assess the issue of sleeping disorders and overeating among athletes who suffered from injuries during football matches. The study was conducted on 45 athletes and each one of them was interviewed one by one. The results showed that thirty of

them were suffering from overeating issues due to stress and depression and the other fifteen had sleeping disorders (Roh, et al., 2009).

Theme 1 - Post-injury feelings of depression and anxiety and how to overcome them

This type of depression is onset by an injury, and it is mostly the athletes who suffer from it. All sports are pertained in this condition, and any sex or age is affected. Particularly in athletes, who are not diagnosed with clinical depression, post-injury depression is frequently overlooked (Proctor and Boan-Lenzo, 2010). It is thought and believed by some people that the athlete will take some time and will be fine in a few days as he or she is going through the process of dealing with the injury. In order to look for help at the right time, it is really important for athletes, who has sustained an injury, to be aware of the depression signs. Having an awareness about these signs is also necessary for friends, coaches, teammates, parents, and other people who might be around the athlete (Proctor and Boan-Lenzo, 2010). It is hard for an athlete to admit that they have a problem, majority of the time. They might feel that they are letting their teammates down, their team is getting heavily affected, or they might feel like a complete failure. However, the athletes who were interviewed by Boan-Lenzo and Proctor in their study of 2010 gave their answers (Proctor and Boan-Lenzo, 2010). Among a group of 21 non-athlete male college students, and 31 Division I male baseball players who suffered from some sort of injuries, depression and anxiety levels were investigated by this study. Comparing the results of both, it was concluded by them that fewer depression and anxiety symptoms were reported by athletes who suffered from injuries in comparison with those who did not play at all. Both Boan-Lenzo and Proctor provided a few instructions to the athletes on how they can recover. Even though, a high level of depression was reported by the non-athletes, more than half of them met the criteria for a possible diagnosis of clinical depression (Proctor and Boan-Lenzo, 2010).

For athletes, mastering new skills and achieving their set target goals gives them self-satisfaction and enjoyment, and their sport can be a major boost for their self-esteem. To deal with the stress of everyday life, sport can be used by them in a constructive way (Proctor and Boan-Lenzo, 2010). For instance, an athlete could be bored at home on an off day, and might just go at a ground and play some baseball with his mates. Another example can be of a cyclist, when the road opens up without a care in the world, and he or she jumps on the bike, and there is a satisfying sense of release, which is a physical outlet for stress (Proctor and Boan-Lenzo, 2010). The baseball players who were interviewed by Boan-Lenzo and Proctor in their study had spent a substantial amount of their time on surrounding themselves with like-minded individuals, doing hard-core training, and competing. "I am an athlete" is how others see these athletes and how these athletes see themselves (Proctor and Boan-Lenzo, 2010). A significant psychological toll on the athlete can be taken when the injury raises its ugly head. There are feelings of jealousy because the athlete cannot join his teammates for a good amount of time, and that the feelings of not knowing what to do with yourself replace the training sessions with the friends. It is a very common feeling to lose one's identity when athletes suffer a bad injury (Proctor and Boan-Lenzo, 2010). The athletes who were interviewed by Boan-Lenzo and Proctor were suffering from psychological factors like tension, fear of re-injury, isolation, anger, frustration, but depression and anxiety were common in all of them. As an athlete, the path to re-injury or full recovery might be defined by how he or she deals with the injury. According to Boan-Lenzo and Proctor, symptoms and signs for poor adjustment to athletic injury include the fear of returning to sport, rapid mood swings, a guilt about letting the team down, exaggerated bragging about some small accomplishments, denial, confusion and anger, being afraid or making statements about never recovering or returning to the sport, withdrawal from significant people in their life,

dwelling on minor setbacks and complaints, repeatedly returning to the sport too early and therefore, a re-injury, and an obsession with the question, “when can I return?” (Proctor and Boan-Lenzo, 2010). Some of the other symptoms and signs to consider are lack of confidence, increased anxiety, identity loss, personality change, a lack of effort in everyday life, and very bad mood swings (Proctor and Boan-Lenzo, 2010).

It was stated by Boan-Lenzo and Proctor that the coaches of the injured players should ensure that the injured ones are included in the activities of the team, and not just made to sit at home and suffer from depression (Proctor and Boan-Lenzo, 2010). It could be helping with lifts or recruits, team-boding activities, team meetings, and huddles during the course of a game. Until and unless the doctor says otherwise, some work on areas that are not injured can be done by injured athletes. When the coaches of the baseball teams will check on the rehabilitation process of the injured athletes, it will mean a lot to them. It was also stated by Boan-Lenzo and Proctor that parents should play an important part in helping the injury athlete stay away from any anxiety and depression. So, the focus of the parents should be on the recovery of the athlete and they should stay positive (Hard, et al., 2010). For an injured athlete to not suffer from depression and anxiety, parents should discuss their progress daily, and should help their child with the rehab program. If they leave the athletes alone, and he or she has no one to support during his or her recovery, they might have a feeling of loneliness and this will lead to anxiety and depression (Hard, et al., 2010). By ensuring that the injury athlete is included in activities outside of the sport such as team hanging outs, movies, dinners, and team conversations, a supporting the athlete in his or her recovery process by encouraging them with their rehab, an important part can be played by good teammates, according to Hard and his colleagues (Hard, et al., 2010).

Theme 2 – Sleeping disorders in injured athletes, their effects and how can they be avoided

Athletes of all ages and experience levels are affected by insufficient sleep, and more so, when they are sitting out due to injuries. Several studies have been conducted and one of them was by Roh, Rockhill-Levine, Appaneal, and Perna who wanted to assess the issue of sleeping disorders and overeating among athletes who suffered from injuries during football matches. A study on concussion was conducted by Hard and his colleagues (Roh, et al., 2009). The more well-known side of the bidirectional-concussion relationship is the impact of concussions on the sleep of the athletes. The structures that are present in the deeper areas of the brain originate sleep and these areas can often be damaged if sport athletes suffer from concussion. Sleep disorders will be experienced by 30 to 70 percent of concussed athletes and this does not come as a surprise (Mainwaring, et al., 2010). As most of the restoration of the brain takes place during sleep, increased sleep and excessive sleepiness, both healing mechanisms, are experienced by the concussed athletes in the acute stages post-concussion. As the chances of the athlete experiencing prolonged symptoms are decreased, and sleep restores the brain's electrochemical balance as adequate sleep is very important for a good and quick recovery (Mainwaring, et al., 2010). Athletes, who suffer from concussion, complained in the conducted studies about variable sleep with "catch up" nights and sleep deficits. In the past few years, keeping the injured athlete aware for a number of hours or have someone wake them after every one hour was a common advice which was given immediately following a head injury (Mainwaring, et al., 2010). The concept was that the signs of serious brain damage in the athlete such as loss of consciousness or seizure might be missed by those who were caring for the injured athlete, which includes his or her teammates, coaches, doctors, and parents (Mainwaring, et al., 2010).

Nonetheless, this advice is a myth, according to Hard and his colleagues. Athletes who suffer from concussion should be allowed to sleep and must be watched over for two to five hours (Roh, et al., 2009). However, they should be sent to the emergency room if their symptoms are aggravated. Getting proper sleep should be the main priority as the concussed athlete's recovery time can be improved by it. Quite often, sleep disorders arise in post-concussion syndrome which includes sleep apnea, narcolepsy, hypersomnia, restless legs syndrome, and insomnia (Mainwaring, et al., 2010). The athletes who suffer from sleeping disorders are mostly the ones who are not getting the opportunity to play or have suffered a bad injury. They feel that they are letting the team down and that the team really needs them (Mainwaring, et al., 2010). When they are out injured, and the team goes through a string of losses, they might well blame it on themselves. Moreover, the athletes are also hurt that they are unable to play due to an injury because playing the sport regularly is every player's passion. As a result, staying away from the game gets very tough for some athletes (Mainwaring, et al., 2010). All these reasons lead to lack of sleep at night this in turn, can lead to poor health. Some of the athletes in the conducted studies stated that it takes ages for them to sleep at night when they are injured. On the other hand, due to stress and anxiety, and not getting to play the sport they are so passionate about, injured athletes also start to overeat (Mainwaring, et al., 2010). Roh, Rockhill-Levine, Appaneal, and Perna conducted a study in 2010 to assess the issue of sleeping disorders and overeating among athletes who suffered from injuries during football matches. The study was conducted on 45 athletes and each one of them was interviewed one by one. The results showed that thirty of them were suffering from overeating issues due to stress and depression and the other fifteen had sleeping disorders (Roh, et al., 2009).

Theme 3 - Overeating issues in injured athletes, and their effects

By causing electrolyte disturbance, excessive loss of fat and lean mass, low energy availability, and dehydration, the data of the survey conducted by the researchers suggests that there is a negative effect on physical fitness and sports performance (Roh, et al., 2009). When athletes get injured and are set to spend a lengthy spell on the side-lines, they can start to overeat due to stress and anxiety. This anxiety and stress is the result of the injury as they are thinking how they could have avoided the injury. In addition, as the injured athletes have no other option but to stay at home, they can develop negative habits and one of them is overeating (Roh, et al., 2009). Eating disorders are often connected with significant health complications and an increased risk of death is carried by them. Eating disorders have a negative effect on the psychosocial functioning, along with the physical manifestations. There are two types of eating disorders that injured athletes could go through; binge eating and emotional eating (Roh, et al., 2009). Moving on to a box of chocolates after consuming a half gallon of ice cream can be an example of binge eating, and having a large bowl of ice cream after a tough day and not getting to play the sport can lead to emotional eating. According to Roh, Rockhill-Levine, Appaneal, and Perna, as well as the athletes who answered them, these two type of disorders are the result of lack of sleep, emotional stress, anxiety and depression (Roh, et al., 2009). Binge eating disorders can last for a longer period of time and can be reoccurring. Injured athletes with a binge eating disorders are highly likely to recover late and not on the given timeline. The performance of the athletes can also be heavily affected if the athletes gain weight due to overeating. The movement capacity, balance, endurance, and coordination can be limited due to additional fat in the body (Roh, et al., 2009). A physical barrier to joint movement in a complete range of motion can be formed by mass, and excessive body fat and mass can negatively affect the joint range of motion.

Athletes should maintain the standard levels of body composition as per the demands of the sport. So it is important for all injured athletes to maintain their mental health, not start to overeat and consequently affect their health (Roh, et al., 2009).

Roh, Rockhill-Levine, Appaneal, and Perna suggested several ways in which the injured athletes could avoid overeating. As athletes have to run a lot on the fields, they grow accustomed to eating only those things that suits them, and are not nailed down, in order to not gain any weight (Roh, et al., 2009). According to the researchers, there is always a room to cut out a few empty calories here and there if the athletes take a look at their diet. As they might be suffering from stress and anxiety due to no participation in sports activities, they might be snacking just to improve their mood. Not buying the junk they snack in the first place is the first step to success, and the coaches and the families of the injured athletes should be aware of this (Roh, et al., 2009). In addition, the injured athletes should be maintaining a proper diet when they are spending time at home and recovering from the injury. A diet plan should be made by them or it could be provided by the coach. Moreover, the injured athletes can maintain their weight by a few exercise that do not take much energy, like taking a walk in the part or cycling at a slow pace if it's possible (Roh, et al., 2009). As there is no predictable reaction or sequence, how athletes, who suffer an injury, respond to it, might be different. The response to injury starts from the time of the injury through to the post-injury phase and then rehabilitation and eventually, with return to activity. The injured athletes are able to return to pre-injury levels of performance in majority of the cases, but the same cannot be said about the athletes who start overeating, as per the study of Roh, Rockhill-Levine, Appaneal, and Perna. The coach and the family must be aware and ready to address this issue as the injured athlete's career might be on the line (Roh, et al., 2009). For the decision of letting the athlete return to play, the physician of the team is

ultimately responsible, and a significant component of this decision is addressing the psychological issues of the injured athlete. Understanding the fact that emotional reactions to injury are normal for every athlete, is important for team physicians, athletic trainers, administrators, coaches, and most importantly, for the injured athletes (Mainwaring, et al., 2010). Nonetheless, problematic reactions are those where the severity of symptoms seems excessive, or they worsen or do not resolve over the course of time. As the injured athletes might develop a habit of overeating due to stress and anxiety, it is really important for their team physicians, athletic trainers and coaches to support them. This support could come in various forms and one example is that the athletes can continuously be involved in the team meetings, and discussions, and as a result, staying part of the team (Mainwaring, et al., 2010). If the injured athlete is completely ignored and made to sit and recover at home, he or she might develop negative habits and one of them is overeating. It could also include encouraging the injured athlete to look for help and try not to “tough their way through” situations that include mental health factors (Mainwaring, et al., 2010).