

The Lived Experience of an In-Season Concussion Amongst NCAA Division I Student-Athletes

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ABSTRACT

International Journal of Exercise Science 7(1) : 62-74, 2014. The clinical presentation and recovery from a sports-related concussion has been well-documented in the sports medicine literature; however, the post-injury experience of the injured individual has been largely unexplored. Therefore, the purpose of this study was to examine collegiate student-athletes' lived experiences of an in-season concussion. Four NCAA Division I student-athletes who suffered an in-season concussion were interviewed utilizing an existential phenomenological approach to capture the lived experience of the injury. Five major themes developed from the participants' experiences: 1) symptoms and emotional response to injury, 2) experiences of concussion testing, 3) fear of failing to meet teammate expectations, 4) support from friends and family, and 5) effect on school. These results provide documented evidence of multiple clinical concerns and anecdotal reports of student-athletes unwillingness to report concussion symptoms, potential dishonesty in reporting post-injury symptoms, negative effects on academic performance, challenges of concussion assessment, and the need to monitor student-athletes activity levels outside athletics. The results of this study can help sports medicine clinicians improve their understanding of the injured student-athlete's perceptions following an in-season concussion.

KEY WORDS: Concussion, individual experience, recovery

INTRODUCTION

There are an estimated 1.6 – 3.8 million sports related concussions occurring annually which has been described as a public health concern (29, 37). Recent years have seen a heightened public awareness of sports-related concussions through numerous high profile television shows and specials, stories in multiple newspapers, congressional hearings and recent passage of concussion management laws in 49 states (1, 7, 12, 14, 16, 31, 46-49). Despite both the prevalence of concussions and the

substantial media attention, concussions are still largely misunderstood (12, 17, 28, 36, 40, 44). Unlike a fracture which is often casted or a post-surgical scar, there is no visual evidence of a concussion which has led to athletes often complaining of it being an "invisible injury" (15, 21).

The last decade has seen substantial growth in the scientific understanding of sports-related concussions and their potential long-term complications (25, 26, 35, 50). Indeed, the common concussion presentation and symptom duration as well

as impairments in postural control, cognitive and neuropsychological performance has been well documented (25, 26, 35, 50). Typically, based on current clinical assessment protocols, it is generally accepted that 80 – 90% of collegiate student-athlete will “recover” from a concussion within 7 – 10 days and would then follow a 7 day graduated return to protocol over the next week resulting in the individual being restricted from full participation for 2 – 3 weeks (35). During this timeframe, the post-concussion individuals will likely experience increased depression and fatigue as well as reduced vigor (27, 32). Current recommendations, despite limited supporting empirical evidence, will also include physical and cognitive rest for the individual during this time frame (23, 35, 38, 45). This combination of increased symptoms, being withheld from practice and competition, restrictions in cognitive and physical exertion, and requirements to compete missed academic work substantially alters the life experiences of the individual; however, this aspect of concussion management has received limited attention in the literature.

The culture of competitive athletics encourages individuals to continue to participating despite the presence of an injury or illness and to return to participation as quickly as possible post-injury (40). Further, the response and support of friends, family, and teammates may also influence the individual’s perception of a concussion as well as their expected recovery time (15, 18, 51). Indeed, over a quarter of youth rugby players reported that their teammates should play through a concussion if it was an important game and a common reason athletes do not

report concussions is a fear of letting their teammates down (34, 51). Many coaches and student-athletes unfortunately subscribe to numerous misconceptions; including poor symptom recognition, believing loss of consciousness is required for a concussion to have occurred, and allowing premature return to participation following a concussion (17, 22, 28, 36, 44). Further, coaches often downplay “bell-ringers” or “ding” as a separate and less severe injury than a concussion (17). These misconceptions and attitudes predispose student-athletes to increased risk of additional complications or injury (e.g., increased concussion symptoms, repeat concussion, and second impact syndrome) following a concussion (6, 9). Finally, the attitudes of coaches and teammates may underlie the student-athletes unwillingness to report suspected concussions, impact their personal experience of concussion, and contribute to the complaint that concussions are an invisible injury (15).

The clinical presentation and recovery from a sports-related concussion has been well-documented in the literature; (35) however, the perceptions of the injured student-athlete are largely unexplored. Therefore, the purpose of this study was to examine collegiate student-athletes’ lived experiences of an in-season concussion. The understanding of the student-athletes perspective of a concussion may further sports medicine clinicians’ understanding of the stressors experienced by the individual and may be useful in targeting appropriate accommodations or referrals.

METHODS

Participants

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Table 1. Participants characteristics. The demographic characteristics of each participant and the concussion injury description. Time lost refers to the number of days until the individual returned to full unrestricted athletic participation. All participants were retrospectively classified as Grade II concussions based on the Cantu Revised Scale [5].

Participant Number	Pseudonym	Sport	Time Lost	Concussion History	Mechanism of Injury	Self-Report
1	Jack	Football	10 Days	0	Blocking on a running play	Identified by the athletic training staff.
2	George	Football	7 Days	1	Tackling during kickoff coverage	No. Concussion identified post-game
3	Sally	Tennis	11 Days	1	Hit in the head with a tennis racquet during practice.	No. Concussion identified post-practice
4	Lisa	Swim	19 Days	1	Dropped a barbell on her head during strength and conditioning session.	Yes. Reported at time of injury.

Four NCAA Division I student-athletes who suffered a concussion during the 2011-2012 academic year participated in this study. (Table 1) The inclusion criteria included suffering a concussion while participating as an NCAA Division I intercollegiate student-athlete, the concussion was diagnosed by the team physician, the participant had complete baseline data available, and completed the institution specific return-to-participation protocol which closely follows the 3rd International Consensus Statement recommendations (35). The exclusion criteria included a previous concussion within the current athletic season, a repeat concussion prior to participation in the study, and other injury at the time of the participation. Pseudonyms were used for their names to protect their identity: Participant 1 is referred to as Jack,

Participant 2 as George, Participant 3 as Sally, and Participant 4 as Lisa. All participants provided written informed consent prior to participating in the study as approved by the Institutional Review Board.

Protocol

This study used an existential phenomenological approach, which is useful in capturing the essence of an individual's experience of a phenomenon, and is free from outside biases and pre-judgment (11, 39). The potential participants were recruited from the intercollegiate athletic department of the host institution and interviews occurred 4 - 5 months post-concussion, a timeframe consistent with previous existential phenomenological studies (4, 8). The a-priori decision to delay the interviews was

made to provide the participant time to reflect upon the lived experience of the concussion. All participants had recovered from their concussions as defined by: 1) self-report symptom free, 2) achieved baseline values on all clinical tests including computerized neuropsychological testing, and 3) complete unrestricted return to participation in their sport.

The interviews took place in a quiet and private laboratory setting, outside of the Intercollegiate Athletics department, with only the primary investigator (PI) and participant present. The interview began with a single open-ended statement to facilitate the participant's exploration of their experience in relation to a concussion (13). The following statement was presented to each participant: "When you think about your most recent concussion, what can you tell me about it?" and, consistent with the existential phenomenological approach, follow-up probing questions were derived from the participant's responses. For example, if a participant discussed their interactions with their teammates following the injury, the PI followed up, "Can you go into more detail on that". This allowed the PI to ascertain further information while not leading the participant; thus, reducing potential investigator bias. The interviews lasted 26 minutes on average. Prior to each interview, the participants were reminded the interview would be recorded to ensure accuracy of the transcripts and they would be allowed to review the transcripts for accuracy. These member checks occurred approximately one to two weeks following the interview and all participants reported that the transcripts were accurate representations of the interview.

Statistical Analysis

The responses were analyzed by first approaching the interviews, followed by focusing the data, phenomenological reduction, and releasing meanings (13, 41). First, interviews were transcribed verbatim by an outside source and then reviewed by the research team and participants to ensure accuracy. The data was then bracketed to expose the PI's biases during analysis. This process involved locating key phrases that spoke directly to the experience and interpreting these phrases with caution, ensuring the interpretation was not biased towards the PI's direct experience with concussions. During phenomenological reduction, the irrelevant or repetitive utterances (e.g., "um", "ah") were eliminated. To analyze the transcripts and identify the meanings of the experience, each interview was read several times by the PI and any thoughts or ideas that were repeated consistently by the participants were coded with a word to describe them. From these coded words, larger themes were formed to help summarize the experience. Triangulation was used in this study to maintain validity, whereby the PI shared the transcripts with two other members of the research team. These two members of the research team then completed the same analysis process, indicating coded words and themes where applicable. Peer debriefing was conducted by members of the research team who were not involved in the original data analysis process, thus allowing for an outside perspective.

RESULTS

Five major themes developed from the four participants' experiences: 1) symptoms and emotional response to injury, 2) experiences

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of concussion testing, 3) fear of failing to meet teammate expectations, 4) support from friends and family, and 5) effect on school.

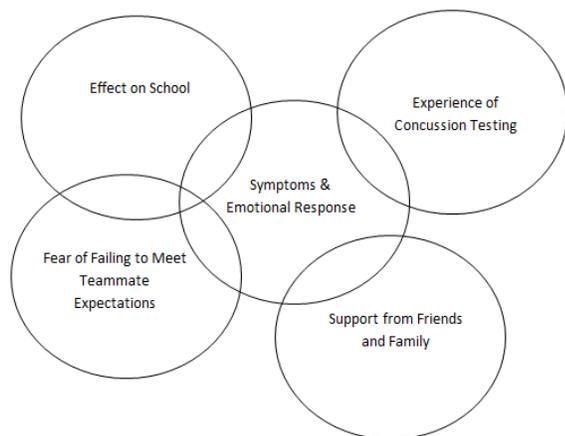


Figure 1. Venn Diagram of the themes which emerged from the interviews.

In agreement with previous findings, participants' symptom description and emotional response to their injuries was part of their lived experience (24, 27, 32). All four participants discussed experiencing typical concussion symptoms including headaches at least once in their interviews. In addition to experiencing headaches, Jack and George indicated they experienced multiple symptoms, including nausea, lightheadedness, and a lack of awareness. Sally also noted anxiety and irritability, but no nausea: "I was nervous and I didn't know why they were asking me all these things and I was so irritated with these things, which was probably another sign I had a concussion..."

Lisa described having a loss of consciousness (the only participant to experience this) and what appeared to be post-traumatic amnesia immediately following her injury. She stated:

"Well, I got hit in the head because I dropped a weight on it and then I was out for like two seconds, and then I got taken to the sports room [athletic training room] downstairs and then they asked me a load of questions—I really don't remember much of that...I didn't really know about this until I got told afterwards—my friend said that they'd say my name over again and I wasn't responding and then I started responding. So that's when they said I was out for a bit—because my friend just watched me do it and she'd realized what I'd done"

Symptom severity was also noted with all participants:

"The pain was intense. On a scale of one to ten, it had to be a 20...It's just so intense and it happened so fast that you don't have time to react, get your body prepared for it, prepare it for some sort of impact. So when you're not prepared for stuff and it hits you all the sudden, you don't know how to react to it. Your body don't know how to react to it...It was pretty painful. A scream headache - from dead on, that whole weekend I had a scream headache." (Jack)

"...it was so much pressure towards my forehead and it just felt it was all over - my whole brain felt like it was about to explode" (Sally)

Later in the interview, Jack also commented, "Just the feeling, the feeling of not knowing where you are and the, the pain, just the pain that comes all the sudden, one minute you're fine and the next minute, you feel like you're on a stretcher, it's a terrible feeling." In contrast, George focused more on his recovery of symptoms and how he improved each day.

Sally spoke more on making sure she was honest and detailed in describing the severity of her symptoms to the athletic trainer. It is interesting to note that Sally did mention that if she knew she had to be completely symptom free before returning to play, she would have been dishonest in her ratings of headache and light sensitivity:

"Every day I would go in there and they would say, we would do the zero to five [six] and I was just giving honest answers thinking if I was just getting better than I would be able to practice—not knowing that everything had to be a zero before I could practice again. So then they'd be like, "How's your headache?" And I'd be like, "Like a two." And they'd be like, "How sensitive are you to light?" I'd be like, "One," so it didn't matter if it was not a whole lot, it had to be zero and it's probably good that they didn't tell me because I probably would have just been like, "Zero, zero, zero," all the way down." In terms of emotional response; embarrassment, anger, frustration, and anxiety were all experienced by the participants. Sally explained how embarrassed she was about how she received her concussion. She remarked, "It was super embarrassing...I'd been training really hard for [the tournament] and then I just, hit myself in the face with a racket. It was just so embarrassing." She also focused on how mad and upset she was at having a concussion and with the fact she could no longer travel to a tournament. Similarly, Lisa mentioned crying frequently in her recount of her experiences. Instead of frustration, Jack described feelings of anxiety, "Just the feeling, the feeling of not knowing where you are and the, the pain, just the pain that comes all the sudden, one minute you're fine and the next minute,

you feel like you're on a stretcher, it's a terrible feeling."

George's frustration stemmed from not being able to participate. He commented that "it was hard to feel injured I had nothing to show for it." Similar feelings of frustration occurred for Sally, especially in considering her strong desire to compete. Other sources of frustration were evident in Lisa's experience. Like George, she mentions frustrations over not being able to work out. Lisa also experienced frustration with her teammates, which was not experienced by the other participants:

"I wanted to hit [my teammates] really hard, like, tell them what I was really going through but then I knew it wouldn't really get me anywhere and then, I just decided that I'd show them when I got back in the pool so I did."

Lisa's frustration was further by persistent symptoms which were exacerbated by exercise (performed on her own against the athletic trainer's recommendation):

"Well, I did the elliptical and while and I was doing it I'd feel okay and then I'd get back down poolside, because, after I'd do it, I'd go and watch everyone and I'd get back down to poolside and then like my head would just start pounding, like really pounding. Then I'd like have to sit on the floor and just hold my head. And I felt like if I held it, it really felt like I was holding my head together and then, I would take pain killers and it'd just go away. That was like my first week, it kept doing that."

Jack, George, and Sally were in denial at different points during their experiences. Jack expressed this immediate feeling by

saying, “I thought I was fine but the athletic trainer seen that I wasn’t and he pulled me out and it just was, just weird, just a weird feeling.” George expressed his denial in a similar fashion saying, “At the time, I told him I was fine and then I remember hearing him keep on coming there checking on me and then that’s how I knew I was in bad shape”. Sally expressed similar feelings of denial at least 6 times during her interview.

A period of realization of the severity of the concussion was experienced at different times for the participants. George and Jack demonstrated a more immediate acceptance of the situation, focusing on their realization that the athletic trainers had held them out for a reason. In Sally’s case, the realization did not occur until she was told she would not travel. For Lisa, acceptance came following an accident she had on her bicycle, which occurred after her concussion and after she was told not to participate in any physical activity. She explained:

“I kind of realized I had actually hurt myself and that even though I got told I couldn’t— that was, when I crashed, I realized I needed to actually listen to the [athletic] trainers and when they say, ‘Don’t do exercise,’ they mean it, because they’re not stupid. Like, that was what made me realize I needed to listen. Because before then, my athletic trainer said, ‘Don’t, whatever you do, cycle,’ and I was like, ‘I’ll be fine,’ and I did it and then I crashed.”

Participants described a general feeling of anxiety when performing the tests, in addition to commenting on how difficult the tests were:

“I knew I was not doing as well as I needed to be.” (*Sally* – during the recovery phase)

“I did really bad. I did really, really bad. My reaction time went up like a second; it was crazy...” (*George* – acute post-injury)

“Even during the [computerized neuropsychological] test, I was nervous and I was alone in the room but I knew that I needed to be doing these questions right and I had a feeling that I was missing them so...” (*Lisa* – during the recovery phase)

“They would name so many words or whatever and then I would have to name back in the same order as many as I could remember and I was like, this was so ridiculous, because I thought it was so hard...I knew I was getting them wrong because there was lists like a few of the numbers and first they would be easy, it would be like four numbers and so I would easily repeat those four backwards and then they would just keep adding numbers on and so the more I would try to remember what the first couple numbers were, I’d already forgotten—and I wasn’t even listening at that point, to the last couple of numbers just being named so then I just didn’t have a shot in the dark.” (*Lisa* – acute post-injury)

Jack, George, and Lisa each stated at least once that they did not want to let their teammates down. Jack focused on his own performance by saying: “When I step on the field, I have to—I can’t think about me anymore, I think about my teammates. I can’t let my teammates down. I can’t let my team down and the team include[s] the athletic trainers, the football players, the fans, and if I’m not at my peak

performance, I don't think I'm mentally ready"

George felt he was not fulfilling his role on the team by expressing:

"The concussion happened halfway through the game and I played the rest of it. At the end I told everybody I had it. You don't want to seem like you're soft or nothing because you're not supposed to get concussions. So I told them and then when I got on the bus, all I was thinking about was just playing next week because it was a big deal, so I was thinking about the game...I just felt like—I don't know why I felt like I was letting them down but I really did. I felt like I wasn't like performing like they were because I wasn't able to play in the game."

Finally, Lisa felt she couldn't make up her lost time in the pool, although later realizing that she wasn't as behind as she thought. She stated:

"Our next meet was four weeks away so I was thinking I was going to be three weeks behind if I had one week off. And then, I just thought that I'd let down the team because they had such high expectations for me, if I had one week off, then, I was going to be affected but I could catch up on it and then three weeks off, I was like, I have no chance of picking up where everyone else has got to, so then I was like, that's a good way of thinking. It won't make you better, you've got to do better so then I was just like, 'I'll try harder whenever I get in the pool.' And then it didn't affect my season, really. If anything, I actually kind of felt better when I got in."

Three of the participants mentioned positive support that they were receiving either from their teammates or their parents. George mentioned, "I remember, one of the linebackers, I play linebacker, we're around each other so much, we can tell when there's something off so I was sitting there and then he came up to me and asked me was I okay?" Lisa also received support from teammates: "Then my two friends looked after me and fed me that night. They all just stayed in and everyone was really supportive so it kind of helped". Sally and Lisa focused on their parents, explaining:

"Yeah, I mean, [my parents] were obviously really concerned because they're not in college with me so there was nothing they could do about it. They were listening to me, obviously and just saying, 'Hopefully, it's nothing,' but they just assumed, just went ahead and chatted with the [athletic] trainer and said that something was wrong." (Sally)

"My mom and dad called up that night, making sure I was okay even though it was like three in the morning for them. They still called up and then I felt sad and then some girls on the team came over and everyone brought me presents and flowers and cake. And then like every practice, people would come up and say, 'Hi,' and tell me I'm not missing out on anything. And then, my big [an upper classman on her team], she was really, really supportive. She was always there if I got upset, she would just come over and just sit there. Just the team and the coaches were just really, really, really nice, like they understood." (Lisa)

The final theme that developed from the student-athletes' experiences was the effect on school that the participants experienced because of their concussion. The participants did not receive any academic accommodations post injury and both George and Sally both had school negatively affected from their experience. Sally stated, "It was just, it was hard being in class, trying to take notes." George went into much more detail regarding the affect his concussion had on his schooling by saying:

"I remember being in psychology and we took our test online and I think we had a test a week or something like that so I just noticed that at the end of the season, like at the end of the school year that my test grades around that injury time went down. I was making 90s. I was making 95, 92, 86 and then my grades went to 77 or 73 or 70 and then I started making 80s and 90s again and I could tell that it was around that time like maybe—I don't know if, just like, I wasn't able to think about the questions or something like that...[Test grades were down for] about three weeks...I really felt that maybe getting a concussion really had something to do with it because, I mean, I just felt like I honestly was doing my best and then I think that those three weeks kept me from getting an 'A' in the class, so I think it kept me to like an 86 or something like that in class"

Conversely, Lisa's schoolwork was unaffected by her concussion, "I never really got any homework last semester and I did it in study hall in 20 minutes I think for the rest of the time. So when they said I don't have to be (at practice)...I had nothing else to do."

DISCUSSION

The scientific understanding and the general public's awareness of sports-related concussions has grown substantially in recent years; however, the understanding of the student-athletes lived experience of a concussion is limited. Therefore, this investigation interviewed, utilizing an existential phenomenological approach, 4 NCAA Division I student-athletes who suffered an in-season concussion to better understand their lived experience of a concussion. While the unique and individualized lived experiences of an in-season concussion were likely influenced by intrinsic (e.g., medical history, previous concussions) and extrinsic (e.g., team dynamics, family/friends influences, role of the sport in their life) physiological and psychosocial factors; the results of this study highlight major themes of the experience and provide confirmation of multiple anecdotal reports.

Following a suspected sports-related concussion, the serial tracking of patient's self-reported symptoms is typically performed using a graded symptom checklist or scale (23, 35). While there are a wide variety of scales available in the literature, they generally contain a list of common post-concussion symptoms as well as the ability to rate each symptom from "not-present" to "severe" (2, 42, 43). However, these scales do not include "pain" itself as an option; however, this was a common theme for many of the respondents. Further, while the scales provide the opportunity to rate the degree of the symptom, the concomitant frustrations and/or anger associated with the symptom, another common theme amongst respondents is not assessed. The

noted frustration was most evident when describing a concussion as an “invisible injury” and its influence on their relationship with their teammates. This theme is consistent with previous investigations (15) and suggests the individuals may struggle with the real or perceived questioning by teammates as to the severity of the injury and the need to be withheld from participation. This frustration was expressed bluntly by Lisa who indicated she wanted to hit her teammates so they would better understand what she was experiencing. The themes developed from the participant’s comments provide insight for potential additional consideration for sports-medicine clinicians when evaluating patient’s symptoms.

One challenge clinicians face when clinically evaluating a concussion or making decisions on return to participation is the lack of sensitive diagnostic or imaging technologies; rather clinicians are dependent, in part, upon the patient’s honest self-report of symptoms (35). Specifically, graded symptom checklists appear to be sensitive to the effects of a concussion and are commonplace in concussion assessments; however, two current debates center on the definition of asymptomatic and the potential for patients to be dishonest about their symptoms to hasten their return to participation (10, 43). In concussion management, asymptomatic often refers to a complete absence of all symptoms despite healthy non-concussed individuals frequently presenting with symptoms such as headache and fatigue (3). One participant, Sally, reported grading a “tiny headache” as a one which is a similar or lower score than often seen in healthy populations (3). This may led into the

second, and larger, concern related to patient honesty. Sally further stated that she did not know her return to participation was, in part, dependent on her symptom resolution and had she known she would have, “been like ‘zero, zero, zero’ all the way down (the symptom checklist)”. Based on her interview comments, it is plausible to suspect that if Sally suffered a repeat concussion she may be dishonest in her symptom reporting and or encourage a teammate to be dishonest. Similarly, George did not report his suspected concussion until after the game because, “you don’t want to seem like your soft”. An additional honesty-driven theme was related to the patient following the sports-medicine clinician’s post-injury instructions. One participant, Lisa, reported riding a bicycle, despite specific instructions to the contrary, and crashing. While she avoided further injury in the accident, the potential for further injury was certainly present. Additionally, Lisa admitted to exercising in the campus recreation center which, unlike the athletic department strength and conditioning facilities, is not monitored by the athletic department personal. Finally, Lisa reported experiencing a substantial recurrence of symptoms following this exercise, but reporting neither the symptoms nor her use of pain medication to her athletic trainer. These findings provide documented support of common anecdotal reports of student-athlete dishonesty in an effort to hasten their timeline to return and, potentially, be returned to participation while still symptomatic.

The current recommendation for acute concussion assessment is a multifactorial evaluation including self-report symptoms, cognitive, postural control, and

neuropsychological assessment (35). However, the results of this study suggest that the acute administration of these tests is potentially problematic for the injured student-athlete. Indeed, both the cognitive and neuropsychological tests were specifically identified as frustrating and overwhelming by the individuals. Conversely, a positive outcome of the acute cognitive challenge was the individuals' recognition that they performed "bad" which may have helped the individual come to the realization they were actually injured. Anecdotally, the clinical assessment of sports-related concussions is debated between performing cognitive and neuropsychological testing acutely to confirm the presence of the suspected concussion and delaying testing to allow the individual cognitive rest (35). The responses in this study provide potential support to both sides of the debate.

Cognitive and physical rest are described as the cornerstone of current concussion management protocols (45). Specifically, this recommendation encompasses reduced or limited cognitive, physical, and social activities by reducing, as much as feasible, the individuals school attendance, academic work (both in-school and homework), electronics usage, and exercise or other physical activity (35). However, the respondents in this study were not allotted any special privileges or academic accommodations following their concussion as it was not yet institutional policy. Both Sally and George clearly identified difficulties in performing their academic work in the days and weeks following the concussion with George specifically stating that his exam scores decreased by two letter grades in the three weeks following his concussion and Sally

indicating she struggled taking notes in class. This occurred despite both individuals self-reporting being symptom free and achieving baseline values on cognitive and neuropsychological testing suggesting that cognitive challenges may persist despite apparent recovery on common clinical assessments. With the dearth of empirical evidence in humans supporting cognitive rest, (19, 33, 38, 45) current "expert opinion" continues to support a policy of reducing academic workloads until the individual is symptom free (20, 23, 35). While further research on cognitive rest is clearly indicated, two respondents in this study openly identified difficulties in their academic workload suggesting sports-medicine clinicians should work closely with their institutions academic support and/or student disability centers to advocate for appropriate accommodations for student-athletes following a concussion.

A persistent challenge for sports-medicine clinicians is student-athletes failure to report potential concussion symptoms (21, 23, 30). While there are multiple reasons why the symptoms are often not reported, the unwillingness to leave a game and fear of letting down teammates is frequently cited by the student-athletes (28, 34). The respondents in this study supported those findings with Lisa stating, "I'd let down the team", George commenting, "I don't know why I felt like I was letting them down, but I really did" and Jack stated, "I can't let me teammates down". Despite this concern for letting their teammates down, several respondents reported receiving support from teammates and friends following the concussion. This ranged from the simple act of a teammate asking George is he was ok to Lisa commenting on her teammates

concern and her big (upperclassman mentor) being “really, really supportive”. Finally, most of the respondents experienced a degree of the denial which may be associated their unwillingness to report the injury. Encouragingly, all respondents indicated, after varying degrees of resistance, that were appreciative of the athletic trainer identifying the concussion and withholding them from participation to allow them time to recover. While underreporting of potential concussions remains a substantial challenge for sports medicine clinicians, it is encouraging that, for these respondents, they received support from their teammates and were eventually appreciative of their athletic trainer’s actions.

An inherent constraint of existential phenomenological research is the inability to extrapolate individual lived experiences to a larger population; however, the experiences reported in this study provide initial confirmation of the clinical experiences and anecdotal reports of sports-medicine practitioners. While 4 participants is usually regarded as a small sample size, it is within the normal range of qualitative existential phenomenological research (11). It is assumed that the participant’s responses were honest and accurate reflections of their lived experience of an in-season concussion and that they did not alter the responses to provide socially acceptable or desired answers. Future studies should expand these findings by further exploring, potentially using a mixed methods approach, both the reasons for not reporting suspected concussions as well as identifying effective mechanisms to reduce underreporting. A further existential phenomenological study should identify the lived experience of individuals who

have acknowledged not reporting, or delaying reporting, concussion related symptoms.

The results of this study suggest that a student-athletes lived experience of a sports-related concussion is unique to the individual and, as is currently recommended, the recovery and treatment protocol should remain individualized. Further, these results support the clinical concerns of sports medicine clinicians that student-athletes are willing to be dishonest about their symptoms to hasten return to participation, the patient’s activity level needs to be monitored both within and outside of the athletic facilities, and that post-concussion testing and academic coursework can be frustrating and problematic to the injured student-athlete. The lived experiences of the four NCAA Division I student-athletes in this study provide sports-medicine clinicians a framework to understand the challenges facing a recently concussed student-athlete.

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