

Injury as an occupational hazard in professional rugby union: A qualitative analysis of interviews with ex-professional rugby players

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ABSTRACT

The focus of this study was to interview retired professional rugby union players (≤ 10 years since retirement) to discuss their careers in the game of rugby union. These interviews explored their experiences of being a professional rugby player, with respect to physical injury, concussion incidence and concussion management. In addition, the aims were to ascertain how retired rugby players retrospectively viewed physical injury, concussion incidences in their careers, and the effects that professional rugby had on their physical and mental health while playing and in retirement. Twenty-three retired ex-professional rugby players were interviewed, 61% had represented their countries at full international test level rugby. Two major themes were identified, 1) the realities of being a professional rugby player, 2) concussion and physical injury as an occupational hazard in the professional game. These were further divided into categories and subcategories. The interviews highlighted that players saw themselves as commodities and were motivated by many factors, including financial reward. Players openly stated that they accepted injury and concussion incidences as an occupational hazard of professional rugby. Many of the players admitted to having both undiagnosed and undisclosed concussions. Changing the perception of how concussion is disclosed and using this to influence future generations may be a practical means to guide athlete and coach education in collision sports.

1. Introduction

Rugby union has been a professional sport since 1995 when the International Rugby Football Union Board (now World Rugby) permitted players to be paid to play (Hill et al., 2018). Up to this time, the game was considered an amateur sport, meaning that payments or ‘material benefit’ to players were not permitted. Professionalism in sport has a notable cost, for example, it has been reported that salaries for marquee professional players in the United Kingdom and Ireland during the 2018-2019 season were more than £600K (NZ\$1.1M) (Esportif Intelligence, 2018-19). Finance from private sources in addition to lucrative broadcast incentives means that professionalism has changed the game permanently (Nauright & Collins, 2017). With the increase in the monetary value in the game, there are notable financial pressures for players, coaches, and club owners (Nauright & Collins, 2017).

Rugby players are highly trained professional athletes that are required to be in peak physical condition to meet the rigorous

demands of the game. Since the introduction of professionalism, players have evolved anthropometrically into larger and more powerful athletes (Quarrie & Hopkins, 2007), inherent in these physical changes are an increased injury risk that is an ever-present threat to the modern player (Williams et al., 2017). Since 1995, rugby players currently see elite rugby as a legitimate career path, and it has been speculated that modern players accept injury risk as being an occupational hazard of participating in collision sports (Malcolm, 2009).

In comparison to amateur players, the injury risk trend is higher in players in the professional game (Yeomans et al., 2018). When looking at physical injury and concussion incidence rates in professional players, the Professional Rugby Injury Surveillance Project report from the UK (2017-18 season) recorded an incidence rate of 17.9 head injuries per 1000 hours of match play (England Professional Rugby Injury Surveillance Project Steering Group, 2018). This equates to 16% of all players experiencing at least one concussion, with 39% of players

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returning to play within seven days of the injury. Although there is evidence to suggest that there is sufficient knowledge and awareness regarding concussion symptoms and treatment among playing population (Kraak et al., 2019), it has been suggested that there is considerable underreporting of concussion in the game (Clacy et al., 2019).

Many professional rugby players are highly competitive individuals who may choose to disregard their personal health in pursuit of achieving success at the highest levels of the sport (Block et al., 2016). This can manifest in athletes choosing not to disclose their concussion symptoms, as they may experience an internal or external pressure to maintain a silence regarding concussion (Mathema et al., 2016). In this respect, physical injury and concussion can be viewed as an occupational hazard as it almost inevitable that a concussion or repeat concussions will happen to a rugby player during their playing careers (Eagle et al., 2020).

The focus of this qualitative research was to explore the undisclosed realities and lived experience of being a rugby player in the professional era. Central to this research was to ascertain how retired rugby players retrospectively viewed injury in their playing careers. With a focus on the effects that professional rugby had on their physical and mental health. Furthermore, these interviews assessed their perception of concussion and what knowledge they had about the potential long-term effects of the physical injury.

2. Methods

2.1. Study Design

For the purposes of this study, a reflexive thematic analysis was implemented (Braun & Clarke, 2013). A semi-structured individual-interview design was developed to interview retired professional players who had played rugby union to ascertain their physical injury experiences, concussion experiences and concussion knowledge. The interview questions were designed to elicit responses on their playing background that would determine their opinions to physical injury and concussion experience. Participants were sought from various countries and hemispheres to get broad comprehensive perspectives.

2.2. Ethics and Procedures

Ethical approval, according to The Declaration of Helsinki, was granted to this study via the Research Sub-Committee of Academic Council of Galway Mayo Institute of Technology (GMIT; RSC_AC_23062020). The initial cohort of participants were identified via the lead researcher by issuing an invitation alongside a participant information sheet, to participate in the study. The preliminary discussions were an opportunity for participants to discuss the aims of the study and how the information would be confidentially managed. Each participant provided informed consent before their interview. Data were collected during interviews ranging from 25 to 70 minutes in duration. It was established that all information would be treated confidentially and anonymised for the purposes of the study.

2.3. Participant Characteristics

The participants ($n = 23$) had retired from professional rugby union within the last 10 years at the time the data were collected. The mean age of the players interviewed was 35.5 ± 4.7 years (range 29 to 43 years old). From the cohort of players ($n = 23$), 14 had represented their countries at full international test level rugby (61%). The following nations were represented; Ireland ($n = 17$), England ($n = 1$), Scotland ($n = 3$) and Australia ($n = 2$). The average career span was 9.3 ± 2.7 years and the average age at the time of retirement from professional rugby was 30.8 ± 2.9 years. The playing positions when separated into ‘forwards’ and ‘backs’ were 70% and 30% respectively. Within these two divisions, the following breakdown occurred in the ‘forwards’ division: front row ($n = 6$), second row ($n = 2$) and backrow ($n = 8$). Within the ‘backs’ the distribution per population was as follows, winger ($n = 2$), centers ($n = 3$) and scrum half ($n = 2$).

2.4. Sampling and Eligibility Criteria

An exponential non-discriminative snowball sampling method was utilised whereby the first participant recruited to the sample group provided multiple referrals (Biernacki & Waldorf, 1981). Participants were informed that they did not have to provide any other potential participants. In many instances, participants provided referrals to other ex-players who were interviewed for this research. The semi-structured interviews allowed a standardised sequence of responses across the participants. This enabled the researchers to identify common themes and/or responses from the participants.

2.5. Data Collection and Data Analysis

The responses to the semi-structured interview questions were used to gather evidence regarding their personal awareness of physical injury and concussion whilst they were actively playing professionally. Additional questions were used to establish any perceived impact on their physical and mental health. This study sought to add the ‘player’s perspective’ to the information that national sporting organisations are providing in relation to concussion management and associated symptoms (acute and chronic). These data will provide research aimed at informing current and future players who participate in collision sports about the associated risk of concussion in the short and long term.

Data were analysed thematically according to the reflexive thematic analysis approach developed by Braun and Clarke (2006, 2013) following an update to their original thematic analysis approach. A critical realist framework was utilised to identify and make sense of the players’ descriptions of their experiences in professional rugby (Braun & Clarke, 2013).

2.6. Transcription

After each interview, every participant was given time to review their interview and offer comments on their personal recording. The audio recordings of the interviews were transcribed verbatim by the lead researcher (ED). These transcripts were cross checked for accuracy against the original audio recordings to edit the

transcripts. This involved an initial familiarisation with the content of each transcript by reading and re-reading each transcript to ensure the questions and responses correlated with the audio files of the interviews, this was completed on 4 separate occasions per interviewee. All corrections to transcripts were finally cross checked for trustworthiness by an independent researcher (LR). All efforts were made by the research team to ensure quality in relation to clarity in the transcription, manuscript organization, with accuracy in the final manuscript drafts.

2.7. Coding

Coding, focusing on both semantic and latent meanings was undertaken by the first author (ED) and reviewed with another author (LR). Codes included positive and negative experiences of being a professional rugby player. Theme development was led by the first author in consultation with another author (LR). Initially concussion injury management and safety in the game were scoped as potential themes. The lead researcher identified categories and subcategories for all 23 interview transcripts. During this process, the original list of identified themes were examined, and a quantity were amalgamated as subcategories to reduce the overall number of themes within the study (see Table 1). During the analytic process a flexible and open coding system was utilised to allow for open engagement with the data

2.8. Researcher Background

The research team nominated ED as the primary interviewer to collect data. This was based on his previous experience of being part of a professional rugby organisation. It was determined that the ex-professional players would be more responsive and/or more open in their interview responses when compared to other members of the research team. This approach was reinforced as it would be a male interviewer (ED) that would be conducting the interviews with male participants. This was viewed as a positive aspect with respect to the recruitment of participants for the study

3. Results

In this study, two major themes emerged: 1) The realities of being a professional rugby player; and 2) Concussion and injury as an occupational hazard in the professional game. These were further separated into categories and subsequently into subcategories (see Table 1).

3.1. Theme 1 - The realities of being a professional rugby player

3.1.1. Players as commodities & financial incentives

Comments discussing contract negotiations were central to the overall theme of players seeing themselves as commodities while they were playing professional rugby. Many of the remarks related to the fears about being injured or carrying injuries into contract negotiations, for example:

“...It's amazing how much one injury could put you on the back foot in those things (contract negotiations)”.

In tandem with physical injury or being perceived as a player who was prone to injury. Other fears were equally prevalent relating to concussion or more accurately, having to disguise concussions to maintain a contract:

“Because I was out of contract at the end of that season, and I'd had concussions.... I needed to get back and play these games.... It's a horrible predicament to find yourself in”.

Many players were reliant on their contracts as a source of income, with respect to this, certain physical dangers were expected and accepted:

“I think I'd had like 10 operations in three years;then I stopped playing because I wasn't offered another contract”.

The physical toll was constant as many contracts were linked to seasonal performance.

“You can get really good money which was hard to get at that stage.....but for me it was pretty short, I had four or five good years”.

The consequences of continued involvement meant that the dangers were perpetual, for example:

“My career came to an end because of a very bad hip injury which required a hip replacement, it's a difficult way to end your career”.

On average most players involved in these interviews were retired before the age of 31 predominantly due to physical injury or concussion frequency.

Being a fringe player (i.e., not a first-choice player) can result in playing contracts that are tenuous and bring their own level of internal or external pressures. The fringe players (n=8) interviewed for this study considered themselves as not being a core player in the team:

“I wasn't fortunate enough to be one of the bigger names. I was not guaranteed to be picked every week.... I could never relax” or “I always had to be ready..... it was mainly external pressure.....there is pressure put on you (by coaches), ‘are you OK, it's a big week for you this week’. Putting all the burden back on you (the player)”.

It is interesting to note that players felt like commodities to be traded depending on the players ability to remain injury free.

“I mean you're a commodity; that's the way it is going in the modern game. And if you know a player X is earning a couple of hundred grand a year, an' he's missing six months of the season..... because of a concussion, it's difficult for clubs to standby players financially”.

This is acerbated when financial pressures impact on the personal lives, when the future for themselves and their families were reliant on remaining free from injury:

“.....I didn't have a contract until about three weeks ago and we're moving there now, mentally it can be quite difficult sometimes”.

3.1.2. Sacrifice vs. public perception

Many players expressed opinions that were at odds with what they felt the general public perceived about professional rugby:

“You're reasonably well paid when you get to a certain level, but what you put your body through (it's) not too much” or “I had four or five good years and my head was gone, it became a chore”.

The ex-players were vocal about how much they had personally ‘sacrificed’ to become a professional player:

“It's rather time consuming, putting in your effort as a professional athlete, you know there are a lot of choices you need to make about the fallout” and “this thing (professional rugby) decides everything in your life, especially when family holidays don't coincide with school” illustrating that it was all-consuming vocation or a “24/7 kind of job”.

Another aspect that many participants stated was how they continued to play while experiencing concussive symptoms. For example, one participant stated that:

“I saw a noticeable decline in my performance because of them (concussions), a notable decline in my health, my mental health, my physical health I was drinking a lot more, I was taking painkillers”.

This manifested as a willingness to compete while being physically injured and declaring themselves fit to play while physically injured:

“But like if a coach asked me could I play the following week (while injured)? I think I did!”.

The physical impact of the game was exhibited in a more subtle manner during their careers:

“You see guys who are getting physically sick after games” and when they reflected on their careers post retirement “not being able to come down the stairs in the morning without using handrails is nice, you're not constantly stiff and sore”.

Life as a professional rugby player came at a notable personal cost to themselves and those around them:

“...and I just felt you end up giving an awful lot to the sport and my whole life was almost dominated by it” or “talking to people who have played this sport or are involved in this sport and underestimate what it is, and how aggressive and physical it is”.

There was an underlying sense that retirement was closure on a meaningful part of their lives. This was reflected in how they spoke about their overall rugby career:

“It is just like an extension to your school days, because it's almost like you go in and get to have a good time with your school mates every day, and even better still, you're getting paid for it”.

Nearing the end of their careers provided higher levels of self-awareness for many of the participants:

“You have a certain amount of credit in the bank (as an established professional player) but, as I said, it's amazing how that goes quickly if you get a long-term injury”.

Nearing the end of their careers, if they made decisions to seek a contract with different clubs or play in lower leagues, there was a sense of delaying the inevitability of retirement from the game:

“So, I tore my bicep about two weeks (before a contract renewal); I wouldn't say that was the final nail in the coffin, but it definitely gave me further cause for consideration to hang up the boots or not.”

The decision to retire and remove themselves from the professional rugby fraternity was also difficult as:

“Over the space of a few years, where it was, if I'm being honest with myself, it was like delaying the inevitable kind of in a way”.

3.2. Theme 2 - Concussion and injury as an occupational hazard

A second theme that emerged during the interviews were that concussion and physical injury were accepted as an occupational hazard. During the interviews, there was a sense of accepted inevitability of physical injury risk and concussion risk from all players interviewed.

3.2.1. Accepted risk of a career in professional rugby

Rugby has inherent risks, and it was clear that many players have been positively conditioned to this cultural aspect of the game; and in many cases this conditioning began at an early age. For example:

“I fell in love rugby around 9-10 years of age” or “you know you play the game because you love it”.

This fraternal culture was reinforced during their careers in terms of viewing professional clubs as an extension of ‘school days’. As a consequence, a cultural narrative emerged which acted as enabler to connect successive generations of rugby players:

“The wealth of experience and knowledge that I come into as a young man, that was unbelievable, and I don't think you realize it when you're doing it at the time”.

This culture pertained to players not wanting to let fellow players down or the club as illustrated by:

“If you were able to stand up and play on, tackle the fellow in front of you..... you're not concussed enough to go off like. It kind of goes back to the point, that unless you're asleep on the field, and can't actually stand up, you're staying on, and you play on was the attitude”.

An interesting point is how prevalent a self-correcting / self-policing environment was created with the playing groups of which they were members:

“But that's not just from the coaches, that's just from your peers, your older players, because that's what they used to do. You just suck it up (play injured or concussed) and get on with it”.

Supporting the ethos of playing through injury and being dismissive of concussion; players commented on whether they had ‘official’ or ‘unofficial’ diagnosis. In many instances, comments related to this were highly dismissive, either by the language used or the casual manner that concussion was discussed:

“I may have gotten an undiagnosed one, where I got a bang in the head and then two weeks later, played (another game), that's why I don't have any memory of it”.

Some players comments were illuminating in relation to direct knowledge of how concussions occur:

“I've no doubt there's been times where I failed under pressure and blacked out.....and within a couple of seconds you're like 'oh geez', it means that's a concussion”.

It's likely that these comments remain the prevalent view towards concussion as rugby is seen as confrontational and demurring from this within a squad context is not acceptable:

“Guys put pressure on themselves to keep playing and toughen up and you know that is rugby for sure”.

The retired players were vocal about what needs to change in the context of the culture of the game:

“I think people are going in the right direction, like the whole culture around it (concussion) has changed, I would have remembered years ago, you could have staggered (from concussion), and then it was played in front of the (player)meeting as a bit of a gag like, laughing”.

Players are cognisant that change needs to be implemented beyond a superficial level as:

“There needs to be a change, and I think it needs to be cultural change; you stop accepting that this (playing while concussed) needs to be part of it.....getting back on a field that is not necessary. But yeah, the difference between bravado and being an idiot, really”.

The primary focus of these cultural changes is for the wellbeing of the players. More clearly stated in an alternative manner is how player safety is managed with ongoing revisions to the game and the laws of the game:

“The kind of culture that we need is to make this game as safe as possible, it's never going to be safe like every time, but you kind of have to have the emphasis that we're doing our best to make it safer”.

Further comments related to these types of changes may be expressed with increased reporting rates and improved concussion recognition protocols:

“I think why concussion is more prevalent now. It's because, we're actually recognizing it with a lower bar than what would have happened 15-20 years ago or more”.

Within these comments, there was a consistent expression of frustration around the injury, namely that it's not a visible injury like a musculoskeletal injury and therefore subject to an undefined recovery time:

“The frustration with concussion is that it's just unnerving and frustrating, you don't know where the finish line is, so if I ruptured my ACL, I know I'm probably out for about 9 months, give or take a month or two, but with concussion you just don't know, and that's what I find so frustrating about the actual injury”.

Alternatively, some players expressed added frustrations as to how professional players were cleared to return to play much quicker than their equivalent amateur players. This type of ‘fast track’ recovery for professionals remains an anomaly with the professional game:

“A guy can get knocked out on a Saturday and if he starts his RTP (return to play) on a Sunday with no symptoms, then he can play again the following Saturday and I don't think that that's right. Like if a guy has visibly lost consciousness or has come close to losing consciousness, I don't see how it's acceptable that he's back on the field seven days later”.

The participants accepted that they had a ‘job’ where they got compensated for financially. This was expressed as a proud fulfilment of a long-held ambition using terms such as being ‘fortunate’, ‘lucky’ or that it was a ‘dream’ career since boyhood. For example:

“I've been very lucky with rugby, it's been extremely good to me” or “I got exposed to good coaching as I was growing up, that's why I love the game and I was lucky enough that I could make a living from it as well”.

Based on these comments and how ingrained rugby culture is in these players, it is understood that the profession has accepted occupational hazards:

“I think it (professional rugby) will just continue to be an occupational hazard and people just have to accept that”.

It was repeatedly stated that players accepted these hazards when they signed contracts to play professionally:

“I think if you sign on the line (contract) to get paid to play rugby. It's your choice and you have to face the consequences”.

As a result, they accepted injury risk and concussion in the short term, along with possible consequences for their long-term health:

“But like call a spade a spade, if you're messing with someone's brain, you'd stop” or “what else can we do to reduce it (concussion)? It's going to happen. It's a contact sport and it's (the game) unpredictable”.

Table 1: Results of thematic analysis of retired professional male rugby players perceptions of physical injury and concussion as an occupational hazard (n = 23)

Themes	Categories	Subcategories	Sample Quote
1. The realities of being a professional rugby player	Players as commodities	Pressure around contract negotiations	"Just every injury came at the wrong time...it's amazing how much one injury could put you on the back foot in those things (contract negotiations)" (P6)
		Dangers of professional rugby	"I had neck surgery in 2014. Bilateral stenosis, which is bone growth of both the discs on the C6-C7... I'll get pain in my arms or maybe loss of sensation and it can get quite cramped up a times." (P9)
		Being a fringe player	"I was not guaranteed to be picked every week.... dreading the team announcement on Tuesday...I could never relax" (P25)
	Financial incentives	Rugby as a business	And it's difficult because it's a business and you know if you're not pulling your weight and your and you're making good money, it's you're going to be on the chopping block." (P12)
		Physical Impact	"You know not being able to down the stairs in the morning without using the handrails is a nice thing, (P6)
		Public perception	"I was retired less than a week and I was back working out in an oil refinery." (P13)
	Sacrifice vs. public perception	Self-awareness	"...that's fine when you're, you know you're a teenager, early 20s and but when you're in your prime and then you're in a position again, I wasn't prepared to do it again." (P22)
		Culture of the game	"Remember, being in the changing rooms and I'd come after 20 minutes, and I was in my tracksuit after the game and being like what happened, and they were laughing at me." (P5)
		Dismissive of concussion	"...on Tuesday or Wednesday before I thought 'I might be concussed here'. It's actually quite subtle... there wasn't a big distinction between maybe being concussed and may just a really rough game." (P21)
2. Concussion and injury as an occupational hazard	Accepted risk of a career in professional rugby	Cultural changes in the game	"I think it needs to be cultural change; you stop accepting that this needs to be part of it...getting back on a field that is not necessary. But yeah, the difference between bravado and being an idiot, really." (P16)
		Unquantifiable nature of concussion	The frustration with concussion thing that is just unnerving and frustrating about it is, you don't know where the finish line is, so if I ruptured my ACL, I know I'm probably out for about 9 months, give or take a month or two, but with concussion you just don't know and that's what I find so frustrating the actual injury." (P14)
		Accepting the consequences of playing pro rugby	So, I think if you sign on the line to get paid to play rugby. It's your choice and you have to face consequences I think." (P10)

4. Discussion

The primary aim of this study was to clarify the realities and the lived experience of professional rugby from the perspective of ex-professional rugby players. The interviews highlighted that players saw themselves as commodities and were motivated by many factors, including financial reward, adulation of the spectators and latent pressures from coaches or fellow peers. Many players described it as a ‘brotherhood’ or similarly compared it to ‘school days’. In this context, professional rugby provides an unusual dynamic where fellow professionals that are your teammates; can concurrently be direct competition for starting positions or contracts. For example, when teammates got injured, it presented an opportunity to fellow squad members for a starting position.

Intertwined with this dynamic is that the realities of the game are far removed from the public perception. The participants alluded to a misunderstanding of realities associated with professional rugby by the public. The general public didn’t see the personal sacrifices, the physical pain or the struggles associated with retaining a contract. These perceptions present a difficult position to rationalise, but it can be partially explained by the veracity that rugby is a highly competitive and lucrative business (Nauright & Collins, 2017).

The Irish Rugby Football Union at the end of the 2018/19 season reported an income surplus of €27.9M (NZ\$45.2M) in its consolidated financial statement (The Irish Rugby Football Union, 2019). Financial consequences give rise to increased pressures that are transmitted to coaches, directors of rugby, support staff and eventually to the players. Players are valuable assets to the club as they aim to bring success in a sporting sense on the field of play and in a commercial manner off the field of play. The ex-professional players suggested that disclosures of injury or accumulating a series of injuries may be seen in a negative light by the coaching staff or club owners. In this study, many players were fearful of not having contracts renewed because of a current injury (concussion or otherwise) or being perceived as injury prone.

These conditions manifested in players accumulating additional stresses because of fear of being injured around contract negotiations and consequently, at risk of losing their contract. The concept of playing while hurt was supported by important others (i.e., coaches and peers) in many instances. This added additional status for the player when they played while injured, and in effect legitimized any of the short-, or long-term health risks associated with their decisions (Roderick et al., 2000). Other concerns highlighted by the participants were that certain players were treated as ‘commodities’ due to the highly competitive and pressurised environment. In many instances, players chose not to disclose their concussions to medical staff due to a lack of concussion knowledge and fear of pressures around disclosure that can occur in other sports organisations (Baker et al., 2013). Some participants in this study employed this strategy to retain a contract as their injury status could have directly affected their livelihood, and in these instances, many players opted for silence.

Many of the participants were dismissive about concussion, it was an afterthought and not deemed a severe injury. It was interesting to hear how many participants admitted that they had experienced an ‘official’ or ‘unofficial’ concussion diagnosis.

This awareness of ‘official’ or ‘unofficial’ diagnosis was intrinsically linked to disclosure or non-disclosure of a concussion (Ruston et al., 2019). A salient point connected to this categorisation (i.e., official, or unofficial) was how obvious a concussion was to medical teams, or whether the incident was captured on live TV during coverage of matches.

It was evident that most of the participants interviewed did not fully consider the cumulative effects of concussions or sub-concussive impacts (Pearce, 2016). They may not have been aware of the cumulative effect of impacts on their brain health due to a misunderstanding of what is deemed to be a concussion.

This is common in other sports like soccer, where players may have a moderate knowledge about concussion yet continue to demonstrate unsafe behaviour (Williams et al., 2016). Most of the participants were candid about the gaps in their concussion knowledge. Some were unclear about the mechanism of concussion and were equally unclear about recovery times associated with concussion. It appeared that the most inconvenient aspect of being concussed, was the absence of defined timescale for recovery and how intangible the injury remains. They could fully understand and accept a recovery period associated with a musculoskeletal injury. However, concussions were invisible, therefore very difficult to define and quantify, that often led to frustration at not being able to compete (Moreau et al., 2014).

The participants used the word ‘sacrifice’ during the interviews with reference to the commitment it took to be an elite athlete (Fletcher et al., 2012). This phenomenon is not unique to elite rugby, as it is common in other sports relating to issues around social expectations and personal identity outside of professional sport (McEwen et al., 2018). The sacrifices required to be a professional rugby player were hidden from the public domain and this duality is conveyed in the language used to describe professional rugby players. In the public consciousness, elite rugby players are described as ‘heroes’ or ‘warriors’ where winning is everything (Douglas & Carless, 2014). The same aspect was evident in this research where it was family members who saw the true constraints of being an elite athlete (Burlot et al., 2018). The realities of professional rugby included concussion risk and being uncertain of employment at the end of any given season. These risks were compounded by the ever-present level of physical danger, as the participants repeatedly stated that there are ongoing exposures to physical risk. These risks are common during the game as it is a collision sport, however, these incidents can occur during training sessions and in competitive fixtures due to the dynamic nature of the game (Fraas et al., 2014).

4.1. Limitations

At the outset of this study, it was envisaged that interviews would be conducted with elite female rugby players however this did not occur. Research into female players and their experiences of concussion is an area that warrants further research. This research included players who had retired in the past ten years and may not be reflective of current practice.

It is also worth acknowledging that the team involved in this research are all coming from a background in sport and therefore the interpretation of the findings is through the lens of those with

an understanding and previous experience of working in professional rugby.

4.2. Implications

A number of implications can be drawn from this study. In professional sports terms, rugby remains a relatively young sport, which can be influenced and shaped to create a safer sport. Changing the perception of how concussion is disclosed could have important positive consequences for medical staff and may be a practical means to guide athlete education and the cultural narrative in collision sports. Players must see concussion as an injury and not be dismissive of it. This may require cultural changes in sporting organisations that can be driven by coaches, medical staff, and support staff.

4.3. Conclusion

The players interviewed do seem to accept concussion as an occupational hazard of playing rugby. Players viewed themselves as commodities who needed to be 'good value' for the business (of rugby) and were dismissive of the long-term implications of repeat concussions. Given the increasing awareness of the potential impact of concussion on cognitive health it is imperative that rugby is safe at all levels (professional and amateur) and remains a viable option for future players whether this is a full contact sport or non-contact version of the game.

Conflict of Interest

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