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Anderson, D., Wilson, I., Cathcart, J., & Kerr, D. (2023). Players' and parents' perceptions of injury in elite Northern Irish schools' rugby – A qualitative study. *Physical Therapy in Sport*, 61, 172-178.
<https://doi.org/10.1016/j.ptsp.2023.04.005>

[Link to publication record in Ulster University Research Portal](#)

Published in:
Physical Therapy in Sport

Publication Status:
Published online: 31/05/2023

DOI:
[10.1016/j.ptsp.2023.04.005](https://doi.org/10.1016/j.ptsp.2023.04.005)

Document Version
Publisher's PDF, also known as Version of record

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Contents lists available at ScienceDirect

Physical Therapy in Sport

journal homepage: www.elsevier.com/ptsp

Players' and parents' perceptions of injury in elite Northern Irish schools' rugby – A qualitative study

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ARTICLE INFO

Article history:

Received 27 February 2023

Received in revised form

7 April 2023

Accepted 8 April 2023

Handling Editor: Dr L Herrington

Keywords:

Injury risk

Awareness of injury

Perception of injury

Return to play

ABSTRACT

Objectives: To explore schools' rugby players' and their parents' perceptions of injury.**Design:** A qualitative study using focus groups.**Setting:** Schools who compete in the Ulster Schools' Cup competition.**Participants:** 13 players and 9 parents.**Outcome measures:** A thematic analysis approach was used to examine players' and parents' beliefs and attitudes towards injury, return to play and injury risk.**Results:** Findings suggest schools' rugby players and their parents are aware of injury risk in the schoolboy game. They are aware of concussion injury but are less aware of musculoskeletal injury. Parents' perceptions of injury are based on their experience of their sons' injuries. Parents are unaware of return to play strategies for musculoskeletal injury.**Conclusions:** Schools' rugby players and their parents are aware of injury to some extent, however players' and parents' knowledge and understanding of injury is based on and informed by personal experience, not the evidence base. Whilst they are aware of injury, many players will seek to push their fears to the back of their mind. However, for those players who have suffered severe injury, they are concerned about the risk of reinjury.© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Recognition of the factors associated with injury is important for the development of effective injury management and prevention strategies (Ruddy et al., 2019). A study by Geldenhuys et al. (2023) reported that health and sports practitioners would welcome the development of a return to sport framework for musculoskeletal injury in rugby union (hereafter rugby). In adolescent rugby settings, schools' rugby coaches acknowledge that there is a need for further training around musculoskeletal injury in schools' rugby and would also welcome education initiatives that aim to increase awareness of musculoskeletal injury (Anderson et al., 2022). Moreover, research suggests players and parents agree that there is an elevated risk of injury in adolescent rugby and that serious

injuries can occur (Sly et al., 2022). In elite men's rugby Williams et al. (2013) reported an injury incidence rate of 88 injuries per 1000 playing hours (88/1000ph). In schools' rugby, studies show relatively high musculoskeletal injury incidence rates (Barden and Stokes (2018), 77/1000ph; Brown et al. (2012), 47.9/1000ph; Leung et al. (2017), 31.8/1000ph; Palmer-Green et al. (2013), 47/1000ph.).

However, there is a paucity of research exploring the factors that influence adolescent rugby players' and their parents' attitudes and beliefs regarding the phenomena of injury in schoolboy rugby. A better understanding of these perceptions may help to guide the development of education initiatives for schools' rugby coaches, players and parents and to ensure they are fit for purpose. The aim of this study was to gain an in depth understanding of players' and parents' awareness of, and attitudes towards, injury in schools' rugby. A qualitative methods approach was the most effective means of gaining an understanding of players' and parents' perceptions regarding injury, the recognition and management of injury, the return to sports participation and concerns regarding the risk of reinjury.

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2. Methods

2.1. Study design

This qualitative study used an in vivo coding methodology to analyse data collected from players and a thematic analysis approach to analyse data from the parents focus groups (Saldana, 2015). In vivo coding is suitable for qualitative research involving children and adolescents where codes are developed from the participants' own words, not those of the researcher. This method of using the participants' language allows the research team to gain a greater appreciation of the participants' point of view (Saldana, 2015).

2.1.1. Participants and recruitment

Players (n = 13) and parents (n = 9) from four schools who participated in a previous study, who field teams in the Ulster Schools' Cup were invited to take part. The Ulster Schools' Cup represents the highest level of schools' rugby in Northern Ireland (Ulster Rugby, 2023), with many players having gone on to play representative rugby for Ulster and Ireland. A purposive sampling technique was used to recruit participants to the focus groups. Players from year 12 to year 14 (16–18-year-olds) who had sustained a musculoskeletal injury while playing Ulster Schools Cup rugby were eligible to take part in a players' focus group whilst the parents or guardians of injured players were eligible to take part in a parents' focus group.

2.1.2. Procedure

The Head of Rugby of each of the four schools was contacted by letter, outlining the purpose of the study. One week later, the researcher (DA) then contacted each Head of Rugby to gauge the players' interest in taking part. The researcher (DA) attended a training session at the school to introduce himself to the players and to explain the purpose of the research. An information sheet was given to players who expressed an interest in the study, and all interested individuals were asked to contact the researcher by telephone or email. Once all participants had completed the assent (players under 18)/consent form (parents), a date and time was agreed for the focus group to take place.

2.1.3. Reflexivity

The lead author (DA) is a university lecturer and sports and exercise therapy practitioner with over 20 years clinical experience and more than ten years sports coaching experience. He was known to some, but not all the participants. The other authors (JC, DK and IW) are experienced healthcare practitioners and educators and were not known to any participant prior to the study's commencement. It was assumed that participants were likely to have a lay knowledge regarding the phenomena of injury in schools' rugby, and that some participants' prior knowledge of DA might impact on their responses. To address these assumptions, probes were included that would explore any contrary opinions and participants were reassured that they were the experts, and that there were no right or wrong answers. An experienced observer (JC, DK or IW) was present at each focus group. Their role was to make field notes including observations of the discussions and to record key points from each session. Following each focus group session, a debrief took place with DA and the observer (JC, DK or IW). Assumptions were also challenged during data analysis to ensure academic rigour.

2.1.4. Theoretical framework

The phenomenological method was adopted in the conduct of this study. The research team sought to explore the personal

experiences and perspectives of the participants in relation to injury in schools' rugby and to understand how their experiences influenced their attitudes and beliefs (Rodriguez & Smith, 2018).

2.1.5. Data collection

The purpose of focus groups is to provide the research team with an insight into how people perceive a phenomenon (Krueger & Casey, 2009). Focus groups facilitate the exploration of how common experiences affects the lives, beliefs and values of the participants (Coetzee & Kotze, 2014). In the focus group environment, participants can communicate opinions and can integrate or reject the ideas of others, and to stimulate discussion and debate in a way that is not possible in one-to-one interviews. Active participation and interaction with others in the group helps establish a sense of 'proprietorship' and participants can ascribe value to the process (Kamberelis & Dimitriadis, 2008).

The focus groups were facilitated by the researcher (DA) and one other experienced observer (JC, DK or IW). Each session was recorded for the purposes of transcription and only the research team had access to these recordings. Once transcription and verification were completed, the recordings were deleted.

The research team developed topic guides for both the players focus groups and the parents focus groups, which addressed the study's objectives; to gain an in depth understanding of players' and parents' values and beliefs regarding the recognition and management of the injury, the players' return to sports participation and players' and parents' concerns regarding the risk of reinjury. Players were asked to reflect on their experiences of being injured when responding to questions and responses from other participants, while parents were asked to reflect on their experiences of their sons' injury (please see topic guides in Appendix 1).

2.1.6. Data analysis

In vivo coding offers the qualitative researcher the opportunity to explore the attitudes, values and beliefs from the perspective of the participants when seeking to identify and explore emerging themes. This method of coding allowing a more in-depth understanding of the specific stories, thoughts and ideas articulated by the participants (Saldana, 2015). Themes developed from in vivo coding for the players focus groups can be found in Table 1. A thematic analysis approach was used to generate themes from the parents focus groups (Creswell, 2014). Data saturation was reached as no further new codes or themes were identified in the last focus group. Themes around players' and parents' perceptions based on their experiences of injury could be clearly established following analysis of the data.

The following process was used in conducting data analysis.

1. Player and parent focus groups were conducted online and facilitated by DA and another member of the research team (JC, DK or IW).
2. DA transcribed the focus group recordings
3. A member of the research team (JC, DK or IW) verified transcriptions.
4. NVIVO Qualitative Data Analysis Software package was used to organise and code the data by DA.
5. DA developed codes.
6. Codes were independently reviewed by the research team and agreed by consensus.
7. DA identified themes.
8. The research team independently reviewed themes.
9. Themes were agreed by consensus.

Thematic analysis and in vivo coding process independently reviewed and agreed by consensus by the research team (JC, DK and IW).

Table 1
Themes and descriptions developed from in vivo coding (players).

Themes	Description	Sample of players' quotes
Play on	Player continues to play rugby even when experiencing pain or injury, despite knowing that there may be consequences for them	P1 - "I didn't think anything of it at the time, and I just played on ... I played on for the rest of the season and it constantly got worse, but I just kept playing." P4 - "well I probably shouldn't have played on, but I have just played on those times." P2 - "we didn't really have anyone left on the pitch; I was playing fullback ... so that's when I had to play on."
Do something about it	The player comes to the realisation that they are injured and need to do something about it	P1 - "and then last year, I felt it getting worse and I felt I had to do something about it." P3 - "the next morning I woke up and I couldn't walk on it, so I went to the physio ... I didn't realise how serious it was. The next morning was when I realised it was bad." P7 - "I played the whole of the rest of the game ... I woke up the next morning, could not move my leg at all. I realised there was something wrong ..."
Get back	Players attitude to returning to training, play and competition following injury	P4 - "I was excited to get back." P5 - "I kind of wanted to get back in as soon as possible."
Back of my mind	Player's attitude towards the risk of reinjury following RTP	P3 - "I really did want to get back to training ... I just really wanted to get back." P12 - "So I would say my first two or three games always in the back of my mind, but if you focus on it too much, you'd nearly put yourself off ... " P9 - "I had to phase back into it ... like I just put it to the back of my mind and the best thing I think you can do is just forget about it and go back at it as hard as ever ... " P3 - "but when I get into the training or the match, it goes away, and I just forget about it and I'm ok."
Down to the player	Who makes the decision regarding readiness to RTP	P9 - "I would say at the end of the day, it comes down to the player ... " P10 - "the coaches and all can't feel what the player's feeling so if he says he's fine to go back on and play then they're not going to stop him, unless ... someone does get concussed or a headbang ... " P12 - "I'd say us, cos we know the extent of it, a doctor's not going to know how you feel, they're not mind readers at the end of the day ... you're the one that's going to know more than a professional"

3. Results

3.1. Participants

A total of 13 players and nine parents from two schools took part in five focus groups. In school one, two players focus groups, and one parents focus group took place. In school two, one players' focus group and one parents' focus group were conducted (see Table 2 for descriptive data). Two schools who had been involved in a previous study did not respond to the invitation to take part in this research. All players and parents focus groups were conducted online between May and June 2021 and each took 50–70 min to complete.

3.1.1. Themes

3.1.1.1. Awareness of injury among players and parents. There is clarity around concussion injury, however there is much less clarity around musculoskeletal (MSK) injuries; specifically, awareness and knowledge of severity of injury, management of MSK injury and return to play strategy. Parents are "very aware of concussions ... and you know, the need to get kids off the field when they happen, and the seriousness of it" (PA8). There was consensus among the parents that coaches are aware of concussion protocols and that when concussion has been identified, the correct procedures are followed; "I have found that the school is really, really good if there is concussion, there the protocols are taken and adhered to" (PA3). "[My son] also had concussion the year before and the school were brilliant ... and they knew the protocol" (PA1). "The coach phoned me that night and asked me how --- was, and I said, "I'm still not

Table 2
Focus groups and participants in each school.

School	Players (n =)	Parents (n =)	Tier
1	8 (n = 3 FG1, n = 5 FG2)	4 (2 females, 2 males)	2
2	5	5 (1 female, 4 males)	3

Key: FG – focus group. Tier – Ulster Schools' Cup grade in which school plays.

sure whether he'll be able to play or not" and the coach at that point said "no, no he can't play" (PA3).

It is likely that much of this clarity around concussion injury is as a result of the dissemination of return to play protocols for concussion in sport (Echemendia et al., 2017) among coaches, players and parents; the coach may give concussed players "a wee concussion booklet that had the protocol [they] had to follow, and it would just tell [them] what [they] could do day by day ... never trying to push to get back in, it's not how it works when you have a concussion" (PL4). Parents are also aware that with "concussion, you have a set thing ... you have a set parameter with the concussion, and you have a date that you can start to reintroduce [players]" (PA5). While players and parents are aware of injury to some extent, "it's a very vague thing to know how to integrate the kids back ... the physical injuries are a player issue that I don't think the school are able just to gauge" (PA5). In the absence of clear guidelines for the management of MSK injuries in schoolboy rugby, parents are much less aware of the nature and severity of MSK injury, and the management and rehabilitation thereof; "the concussion [protocol] is very clear and then I suppose other injuries, maybe determined on the child's own feelings about it and I suppose the coaches ask how they are getting on" (PA7).

The findings of this study suggest some players in this age group (16–18 years old) are less aware of the implications of injury than others. Other players adopt a somewhat gung-ho attitude; "ah I need to grow a pair!" (PL7), "you just beat on" (PL6), "there's no point going half-hearted at a thing" (PL12). Yet in hindsight, some players came to appreciate that they "probably shouldn't have played on" (PL4), that they "really couldn't just soldier on" (PL8) and that they were "going to have to do something about this" injury (PL1). For one player whose "injuries were like, when you get them, you can't really play rugby ... I was in a sling or a big stupid brace and crutches" (PL9), there was obvious disappointment in not being able to play.

3.1.1.2. Parents' perceptions of the management of injury. Parents' perceptions of injury in schoolboy rugby are informed by their experiences of their son's injury and interactions with coaches

and other key personnel (healthcare professionals, fitness professionals). Where players have been exposed to minor injuries, “maybe a few knocks and bumps and aches and sore backs and things, but nothing major” (PA7), parents share a similar outlook; coaches look after players “very well ... we appreciate the care they give the boys” (PA6). Significant trust is placed in the coaches; “they’re never in any danger in any way at all. It’s always the coaches’ decision, which takes it out of our hands, we don’t need to worry, we put all our trust in them” (PA7). School’s rugby coaches are “very knowledgeable” and are “there to do the best for the kids and that includes looking after their health and wellbeing” (PA5). Coaches are “very switched on in terms of those things” (PA8). However, this view is not shared by all parents. Some parents are concerned that while coaches “are doing their best [to provide] support around the pitch ... none of them are medical practitioners, so therefore they don’t know what they are looking for” (PA4). Where players have suffered more serious injury, there is an acknowledgement of the coaches’ limitations in terms of knowledge and training; “but I think it was the element of they didn’t know what they didn’t know, and they wouldn’t have the [ability] on the pitch at that time to say “actually, this is a really serious injury”, or “this is not”, and to be fair, why would they? They couldn’t” (PA1).

When injured players enter the healthcare system, parents become more aware of the implications of injury and can reflect on these experiences; “but in hindsight, you know, if we had brought him to the consultant earlier probably would have been surgery a little bit earlier in terms of the process” (PA1). In recalling his son’s injury experience, Participant 2 expressed that he:

really didn’t think it was a big deal until it was put to us in black and white by the surgeon what needed done and the risks that come with it. Obviously, the thought of – getting his shoulder cut open and this plate put in was horrific ... it wasn’t until I was signing on the line that it dawned on me ‘hold on, never mind the rugby, this guy mightn’t have full functionality of the arm or back to normal’ and in the end thankfully he had, and everything is grand (PA2).

When players sustain more severe injury, parents are also alerted to the risk of reinjury Participant 5 was hopeful “that once he came back to it, it wouldn’t reoccur, or that it wouldn’t be an ongoing situation for him, you know (PA5).

3.1.1.3. Return to play. While some parents may assume that “a school is absolutely going to have to have everybody up to speed and up to date and regularly getting their first aid courses and all the rest of it” (PA8), others query the processes in place to ensure a player’s readiness to return from injury:

what testing did anybody come and do, any sort of physical testing of the injury, or whatever the case may be? But the actual next bit is for somebody to say, ‘right you’re now fit to play rugby again’ ... it just felt ok, and the boy started to play again and that was it (PA4).

Implementation of a criteria-based return to play strategy, where functional capacity and performance is monitored, facilitates a safe return to training, play and performance (Powell et al., 2018). Where this provision is not in place, most parents are more likely to rely on feedback from the player; “I would say “what do you think, can you play, what’s your coach think?” If they go back and do a bit of training and if it hurts, they just don’t play, they give it another week. And it really is a bit more like self-regulation” (PA3). The

findings of this study indicate that parents are largely unaware that return to play strategies exist for MSK injuries; “I wasn’t aware, I never even thought about it really apart from concussion about how the return protocol would be” (PA1), “I’m not aware of any return to play protocols other than for concussion” (PA3), “I wouldn’t be aware of any other strategies if you like, other than the concussion ones” (PA8).

For some players, playing “at the highest level [they can] is what [they] like to do” (PL3). For matches against schools where there is great rivalry, players get “very, very psyched up for those games and really ready for them and go with full aggression” (PL12). Playing rugby is also “all about a bit of fun and craic” (PL1) with friends and team-mates. However even when players were injured, there was a desire to return to play, and the primacy of competition often took precedent; “the pressure was on to get back” (PL7) and there was “the pressure on getting everyone in who’s out, back into the team” (PL6). Players want to “get back in as soon as possible” (PL5). “You wouldn’t want to be, it’s the classic, letting the team down. You’ve got to do you bit” (PL6). Players are aware of the pressure they put on themselves and each other; “you put pressure on each other to try and do well, train hard and do well in games and everything” (PL7), but they are also aware of pressure placed on them by other stakeholders; according to Participant 7, “a big performance in a school’s cup was nearly expected of you, at a certain stage leading up to it” (PL7).

Players attitudes to returning to play following injury appear to be influenced by the nature and severity of their injury and their overall injury experience. Some were “excited to get back” (PL4), some “really [wanted] to get back to training” but were “wary about it” (PL3), while others were concerned that they had rushed “back in too soon” (PL6). For those injured players who experienced an extended period away from the sport, upon returning to competitive rugby, the fear of going “down the same road” (PL7) plays “in the back of your mind” (PL12), but “the best thing you can do is just forget about it and go back at it again as hard as ever and try not to think about it” (PL9). Players tend to believe that it “comes down to the player” (PA9) to decide about their readiness to return to play. “The coaches and all, can’t feel what the player’s feeling” (PL10). Participant 12 agreed; “I’d say us, because we know the extent of it, a doctor’s not going to know how you feel” (PL12). In concurring with his peers, Participant 7 states “only I could know when I was fit to go back” (PA7).

3.1.1.4. Awareness of risk. The parents who took part in this study are aware to some extent that there is risk in playing rugby; it is a “physical game and there just is this risk of relatively high risk of getting some form of injury from it”, but it does not seem to “deter us as parents, or the kids” (PA8). Some parents know that their son’s “worst fear would be not being able to play rugby” (PA7). Participant 5 agreed that rugby was a “more physical game but as the other parents have said, my child thrives on it” (PA5). Parents of players whose sons have not received serious musculoskeletal injuries were more likely to agree that coaches are “really knowledgeable” (PA8), “always guide [players] in the right direction” and have “a very good idea of any injuries” (PA7). Players have “a wonderful experience, in every way” (PA6), “their experience has been wonderful, it’s been a joy to see that ... so I’m only indebted to the coaches” (PA7). In contrast, there is also concern among some parents that injured players may not be receiving appropriate pitch side medical attention:

but the actual “I’ve hurt my knee, I’ve hurt my shoulder”, do they actually know what they are actually looking for? Is it sort of a wet sponge and a slap on the back of the head, and ‘you’re ok

son, away you go' ... if that's what they are doing, you know, is that right? (PA4).

3.1.1.5. Factors that influence players' and parents' perceptions of injury. Some parents understand that schools' healthcare provision is limited by the financial and personnel resources available to them:

I think in an ideal world there would be both monetary resource and people resource to help the boys in this area ... but I'm not sure that's ever going to materialise ... there's always going to be the haves and have nots ... unless — are prepared to put some funding into this type of area, the support, the schools that don't have the resources, it's a difficult circle to square off. I'm not sure what the answer is either (PA1).

Can the school afford to have, you know, guys that are trained medical practitioners, physios, and things like that there, actually on the side lines ... it's not going to be like

— or — where they've got multimillionaires standing on the side of the pitch who are probably funding a lot of the stuff that is going on (PA4).

3.1.1.6. Participants' interactions with healthcare professionals. Where a player requires hospitalisation for a MSK injury; a fracture or a dislocation for example, the player may be seen by an emergency department doctor, orthopaedic consultant, radiographer, radiologist, and physiotherapist. Parents in this study whose sons experienced significant injury requiring medical intervention had positive experiences. The "injury was obviously quite a serious injury, he was out for quite a long period of time, but I do think it was handled quite well" (PA2). Guidance for ongoing management of the injury "probably did come more from the hospital themselves ... I do think we could have rushed him back sooner, but no, we took time and eased him back in" (PA2). Similarly, Participant 5, whose son had suffered a fractured clavicle said that his son's "broken collarbone had fused and healed completely, that there was no issue with it and that rest and recuperation and a good bit of rehab, there should not be any ongoing issues with the dislocation ... so you are kind of going with what the medical people are saying" (PA5).

For injuries that do not need hospitalisation, but require clinical and rehabilitation interventions, coaches often refer players and parents to a healthcare professional working at a local rugby club or who have an association with the school (Anderson et al., 2022). In such circumstances, players and parents are often given clear guidance; "so that was him told to be in a sling for three weeks and that he wouldn't be able to do any contact until at least 12 weeks and after the sixth week to start the rehab" (PA5). In these instances, parents feel satisfied that their son has been well looked after and so form perceptions based on their positive experiences. However, parents are more likely to form perceptions based on negative experiences when they feel their son's injury has been poorly managed. Participant 1, whose son had a shoulder injury said this:

to be fair, we didn't know either, we probably just thought the same ... again, I think it was the first game, he came off with an injured shoulder and he really only played a bit part in some of the other games, during the tour, he was strapped up and he tried to play and when they came back, throughout the season, literally every game it was [dislocating]. I guess we were more

disappointed for him in the sense that he missed out so much in his last year [of schools' rugby] (PA1).

Some parents are unaware of the expertise that an experienced physiotherapist, graduate sports and exercise therapist or graduate strength and conditioning coach may utilise in the management of sports injuries:

one kid who, [had a] dislocated shoulder, he'd had a long time out, he might have even had a whole season and he wanted to come back and he dislocated it again in the first session back ... I felt that because he was confident to come back, he had been out for so long, it wasn't like he'd come back after four weeks or six weeks or something. But I'm not sure what we might have done differently in that situation to have avoided that, you know (PA8).

4. Discussion

The findings of this study suggest that there is clarity around concussion injury among the players and parents who took part; there is clear guidance for the management of concussion in sport, and players and parents involved in this study were aware of the concussion protocol. There is a lack of clarity in schools' rugby around musculoskeletal injury in relation to awareness/knowledge of severity of injury, management of MSK injury and return to play strategy among all stakeholders. In the absence of input from healthcare professionals, parents and coaches rely on players to indicate their readiness to return to training, play and competition. In summary, parents' perceptions of injury are influenced by their experiences and their responses can be broadly categorised as parents of sons with severe injury that required a prolonged time away from training/competition as opposed to those whose sons have received only minor injuries.

Adolescent rugby players play rugby because they love the game, the excitement that comes from competition and the camaraderie from being part of a team. They have some awareness of injury but may be willing to play on when they should not. They may be aware of some of the consequences of doing so but are willing to ignore these risks. Without the guidance of qualified and experienced healthcare practitioners, players feel it is their responsibility to decide about their readiness to return to play. The concern here is that the decision-making process is subjective and based on how the player feels at the time. The education of injured athletes about the contexts surrounding their injury is an important step in the recovery and return to play journey. Having a good understanding of the injury, treatment interventions and expected outcomes helps the athlete set realistic goals and encourages compliance (Christakou & Lavalley, 2009).

4.1. Perception of risk

Human beings are more likely to participate in risky behaviours during adolescence than at any other stage of life (Gullone et al., 2000). Contrary to the notion that adolescents take risks because of a sense of invulnerability, research suggests they weigh up the potential costs and benefits of risky behaviour (Rodham et al., 2006). The findings of this study reflect this assertion; however, adolescents' decision-making processes are more likely to be informed by their subjective experiences, rather than empirical evidence. Decision making is influenced by the situations in which adolescent finds themselves; in unfamiliar situations, with their peers, or when decisions are made in the 'spur of the moment' or in

'the heat of passion' (Reyna & Farley, 2006). The debate as to what constitutes acceptable risk in adolescent rugby continues; there is no consensus on what defines low, moderate and high risk (Quarrie et al., 2017).

The findings of the current study suggest adolescent rugby players love playing the game of rugby and are aware of both self-imposed pressure and pressure from peers, parents, coaches and their school to play. While they have some appreciation of the risks of concussion and are willing to adhere to concussion protocols for safe return to play, adolescent rugby players do not necessarily perceive MSK injury risk in the same way, particularly in terms of severity of injury and readiness for return to play. Many of the 'rugby parents' involved in this study have played the game or have been involved in coaching the game and are keen spectators. Adults are more likely to permit their children to play contact sports if they participated themselves and are likely to approve their own sport-associated ideals for their children (Memmini et al., 2021). It may be for these reasons that some parents are willing to accept a perceived level of risk for their sons. The level of acceptable risk is likely to be mediated by their personal experiences and their understanding of the evidence base.

4.2. A need for greater awareness of MSK injury among players and parents

Concussion research and injury management protocols in rugby are communicated through rugby federations (IRFU, 2023) and are freely available for clubs and schools, players, parents and coaches to access. The 11 Rs of sport related concussion along with the Sports Concussion Assessment Tool version 5 (SCAT5) developed by the Concussion in Sport Group (CISG), provides a standardised set of assessment guidelines for healthcare practitioners and sports coaches who engage in the management of concussed athletes (McCroory et al., 2017). The concussion protocol provides a benchmark for rugby players and all stakeholders involved in the management of concussed players. The protocol is prescriptive and provides clarity for the user.

Similarly, an education focused MSK injury toolkit for schools' rugby coaches, players and parents, could potentially be useful in providing a reference point, providing guidance and clarity around aspects of player management such as injury recognition and referral, aims of rehabilitation and criteria for return to play. Incidence of injury in schools' rugby is relatively high, potentially influenced by the competitive environment players find themselves in and perhaps compounded by the pressure to perform from parents and coaches (Viviers et al., 2018). According to previous research, schoolboy rugby coaches play a significant role in the management of injured players; they provide pitch side triage/first aid, refer players to healthcare and fitness professionals and oversee return to play (Anderson et al., 2022). However, coaches often rely on their own playing and coaching experience when making decisions about the management of injured players (Anderson et al., 2022). The findings of the current study suggest players and parents may not be fully aware of the issues associated with severe MSK injury and the need to implement appropriate return to play strategies to allow a safe return to sports participation and reduce the risk of re-injury (Taberner et al., 2019).

5. Conclusion

Players' and parents' knowledge and understanding of injury is partly based on and informed by personal experience; they are unaware of the evidence base regarding return to play strategies for musculoskeletal injuries, for example. Schools' rugby is a community that players want to be part of, they experience camaraderie in

competition, but they are aware of the pressure to perform and the primacy of competition. Whilst they are aware of injury, many will seek to push their fears to the back of their mind. However, for those players who have suffered severe injury, they are concerned about the risk of reinjury.

The concussion protocol provides a point of reference for rugby players and all stakeholders involved in the management of concussed players. The protocol is prescriptive and provides clarity for the user. Schools' rugby coaches, players and parents currently do not have a reference point to inform good decision making around MSK injury. Prescriptive guidelines for MSK injuries may be helpful in providing clarity for players, parents and coaches involved in the management of injured schools' rugby players.

Ethical statement

The work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki).

Written consent was received by all participants prior to commencement of the study.

Funding

None declared.

Author contributions

DA, JC, DK and IW participated in the design of the study, contributed to data collection and data analysis. All authors contributed to the manuscript writing.

Declaration of competing interest

The authors have no conflicts of interest to declare.

Acknowledgements

None declared.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ptsp.2023.04.005>.

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