


Professional male rugby union players' perceived psychological recovery and physical regeneration during the off-season

Stephen D Mellalieu ¹, Paul Sellars,¹ Rachel Arnold,² Sean Williams ², Mickael Campo,^{3,4} Deirdre Lyons⁵

To cite: Mellalieu SD, Sellars P, Arnold R, *et al*. Professional male rugby union players' perceived psychological recovery and physical regeneration during the off-season. *BMJ Open Sport & Exercise Medicine* 2023;**9**:e001361. doi:10.1136/bmjsem-2022-001361

► Additional supplemental material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/bmjsem-2022-001361>).

Accepted 1 March 2023



© Author(s) or their employer(s) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

¹Cardiff School of Sport and Health Sciences, Cardiff Metropolitan University - Cyncoed Campus, Cardiff, UK

²Department for Health, University of Bath, Bath, UK

³Facultés de sciences du sports de Dijon, Université Bourgogne Franche-Comté, Besançon, France

⁴Département d'accompagnement à la performance, Fédération Française de Rugby, Paris, France

⁵Rugby Players Ireland, Dublin, Ireland

Correspondence to

Dr Stephen D Mellalieu; smellalieu@cardiffmet.ac.uk

ABSTRACT

We explored male professional rugby union players' experiences and perceptions of their mental and physical health and well-being across the northern hemisphere off-season. 34 professional male rugby union players participated in individual semistructured interviews (mean (SD) age=27.5 (4.3) years). Interviews were recorded, transcribed verbatim and analysed using reflexive thematic analysis. The off-season was characterised by three phases players undergo to preserve their mental and physical health and well-being to recover from the previous season and regenerate in preparation for the upcoming season. These included decompression from previous season, cognitive detachment from the rugby environment and preparation for preseason. Successful progression through all three phases was influenced by several variables (work and life demands, contextual factors, experience level). Recovery and regeneration strategies focused on physical distancing/getting away from the rugby environment to cognitively detach.

Injured players appear an at-risk subgroup for threats to mental well-being (isolation, anxiety, reduced sense of achievement) as a result of reduced or minimal time away from the workplace due to treatment obligations. Younger professionals are a subgroup at risk of overtraining/injury due to inadequate rest, especially as this group are least likely to seek support/guidance. This study is the first investigation into male professional rugby union players' experiences and perceptions of their mental and physical health and well-being across the off-season period. It highlights the distinct phases players undertake to mentally recover and regenerate and the need to consider education and support for potential at risk subgroups.

INTRODUCTION

Rugby union is a dynamic sport with position-specific demands requiring strength, power, speed, agility and the ability to repeat high-intensity running and non-running efforts.¹ These demands consequently result in high levels of fatigue, linked to physiological, biochemical and psychological non-functional adaptations during intensive periods of training and competition and

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Training and match loads impact on injury and illness in professional rugby union, yet no consideration has been given to how players recover from the cumulative demands of a competitive season.

WHAT THIS STUDY ADDS

⇒ Players undergo distinct phases in the off-season to preserve their mental and physical well-being to recover in preparation for the upcoming season, with work and life demands, contextual factors (eg, player health, contract status) and experience levels influencing this process.
⇒ Psychological recovery strategies focus on physical distancing/getting away from the rugby environment to cognitively detach.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Players should receive sufficient time (5–6 weeks) in the off-season to progress through the phases of recovery and regeneration to prepare for the upcoming season, with consideration for the impact of work and life demands, contextual factors and experience levels.
⇒ Education should be provided to all stakeholders regarding the importance of the off-season period for well-being (recovery and regeneration), together with strategies that can be used to enhance the quality of this process (ie, physically distancing from work environment to support cognitive detachment from rugby, engaging in development activities that nourish holistic identity and personal skill development).
⇒ Clinicians should support, where appropriate, player subgroups at risk of threats to well-being and welfare in the off-season period (long term or recently injured and younger professionals).

across an entire season.^{2–4} For example, Cross *et al* have identified increased injury risk from high 1-week cumulative training loads or large week-to-week changes in load, together with a 'U-shaped' relationship for 4-week cumulative loads. In relation to match exposure,

Williams *et al* have observed accumulated (12-month) and recent (1-month) exposure substantially influences current injury risk. Negative states representative of sport burn-out has also been reported across a rugby season, with detrimental effects on performance and welfare.⁵ Burn-out symptoms have also been associated with injury, non-selection and a negative/maladaptive rugby experience and team environment, with more injuries leading to greater feelings of exhaustion/devaluation associated with burn-out.⁶

While knowledge and understanding exists regarding the impact of training load and number of matches played respectively on injury risk, and experiences of burn-out, there has been no consideration of how rugby players physically and mentally recover from the cumulative demands of a competitive season (ie, in the off-season, typically lasting 5/6 weeks in the northern hemisphere). To date, the literature has only considered psychological and physical recovery from an acute perspective⁷ (ie, in the week following a competitive match).

Recent work in sports science and medicine has examined the psychology of recovery and the strategies needed to recover from the mental fatigue of competing in sport. Whereas physical detachment (ie, physical rest or inactivity) is considered as one modality of dealing with physical fatigue, mental detachment from sport can be considered the primary way of dealing with mental fatigue.⁸ Mental detachment includes both cognitive and emotional aspects of detachment and refers to an athlete's sense of being away from the cognitive and emotional demands of training or competition.⁹ The importance of cognitive and emotional detachment in sport has recently been highlighted in relation to recovery between training days⁹ for avoiding mental fatigue¹⁰ and for well-being in general.⁹ To date, no research has specifically considered mental detachment in the context of the off-season period.

Given the emerging nature of the research on the psychology of recovery, there is a clear need to understand the more cumulative or chronic effects on rugby players from the various stressors associated with the professional game across the season,¹¹ and the subsequent strategies used to psychologically recover and physically regenerate from these demands to prepare for the subsequent season. This is particularly pertinent given concerns regarding the long-term consequences (eg, burn-out and increased injury risk) of 'excessive' match exposure demands.⁴ This study sought to explain the phenomenon of psychological recovery and physical regeneration of male professional rugby union players during the off-season. Specifically, we used a qualitative approach to gather the beliefs and experiences of players regarding their mental and physical health and well-being across the off-season period and identify the psychological and physical strategies adopted to recover and regenerate in preparation for the upcoming season.

PARTICIPANTS AND METHODS

Design

We adopted a qualitative descriptive method, comprising semistructured interviews, to explain male professional rugby union players' psychological recovery and physical regeneration experiences during the off-season. Qualitative description is a widely used approach identified as important and appropriate for research questions focused on discovering the who, what and where of events or experiences and gaining insights regarding poorly understood phenomenon.¹² A qualitative descriptive approach was deemed appropriate for the current study as the off-season is a phenomenon yet to be explored from a player perspective within professional male rugby union. Data were collected via semistructured interviews as they provide a flexible approach for participants to elaborate on the meanings they attach to their experiences, thus providing the interviewer with a deeper level of understanding.¹³ Our study was underpinned by the philosophical position of critical realism¹⁴ that attempts to generate knowledge through observation and asking questions to better understand the mechanisms that explain events while generating potential relationships between concepts within a general framework (eg, experiences of psychological recovery and physical regeneration and subsequent mental and physical health and well-being). Critical realism assumes that knowledge is socially produced and inherently fallible. Consequently, it relies on research findings being examined and expanded on to further develop understanding. The findings and conceptual framework presented in this paper, therefore, offer an important development to understanding psychological recovery and physical regeneration within professional rugby.

Recruitment

Interviews were conducted with 34 male professional players with a mean age of 27.5 years (SD=4.3) from a variety of nationalities, playing locations and player statuses (Current country played in—England=19; France=4; Ireland=5; Wales=6; Nationality—French=4; UK and Ireland=30; player status—academy player=4; first team squad=24; current international=6). Interview participants were identified using purposive sampling, whereby national player association representatives were asked to nominate players with a range of playing experience (ie, 0–3, 3–5 and 5+ years) at the professional level of the sport. The public was not involved in the design of this study.

Data collection

Interviews lasted an average of 55 min (range=25–65) and were informed by a semistructured interview guide (online supplemental file 1) comprising questions that directed the general topics of discussion including: demographic and rugby-specific questions (eg, age, role and position); physical and mental well-being experiences in the most recent off-season period; off-season

psychological demands; coping strategies and current practices adopted for psychological recovery and physical regeneration in the off-season. The off-season period is defined as the period immediately following the formal end of the competitive professional season to the start of the next. Participants were also asked and provided with time at the end of the interview to discuss anything which they felt important which had not been mentioned. Questions were generated from discussion among meetings of the research team, who all had significant experience of one or more of the following: publishing using qualitative methods; conducting research into stress and well-being in rugby union and practising/participating within the sport. Thirty interviews were conducted in English by the first and second author, and four in French by the fifth author (who translated the interviews into English following data collection). All interviews were conducted virtually via Microsoft Teams during the period from September 2018 to October 2019.

Data analysis

Interview data were analysed using a six-phase reflexive thematic analysis.¹⁵ Reflexive thematic analysis provides an easily accessible and theoretically flexible interpretative approach to qualitative data analysis that facilitates the identification and analysis of patterns or themes in a given data set.¹⁵ Phases 1 and 2 of the reflexive thematic analysis involved the first and second author engaging in a process of familiarisation (ie, reading and rereading the transcripts, making informal notes) and line-by-line coding (ie, systematically identifying and labelling ideas or concepts related to the research question), respectively. During phase 3, coded extracts were organised inductively into themes by considering patterns in the perspectives of participants regarding their off-season experiences. Themes were collaboratively reviewed, discussed and refined in phase 4 and synthesised into a provisional conceptual framework representing perceptions of the off-season phases, factors influencing psychological recovery and physical regeneration, and the subsequent impact on well-being. Additionally, the remaining members of the research team acted as critical friends to challenge the first and second authors to consider assumptions, act as a theoretical 'sounding board', and to facilitate richer interpretations of meaning for the findings.¹⁶ As such, codes (and the framework) were iteratively revised and regrouped throughout this stage. The resulting themes, subthemes and conceptual framework generated were named in phase 5, with the final phase involving writing up the results (led by the first author), with subsequent review by all the research team members in relation to coherence, logical nature and application to its multiple audiences (reviewer, practitioner and player). Data analysis was also characterised by retroduction, a key feature of critical realism involving integration of subjective and objective knowledge.¹⁷ Here, retroduction initially involved inductive reasoning which enabled organic development of themes; however, deductive reasoning

also played a role. For example, subthemes describing perceived off-season phases and the subsequent factors influencing psychological recovery and physical regeneration were informed by the contemporary literature regarding the psychology of recovery⁸ and the psychological load or demands athletes encounter,¹⁸ respectively. The final stages of analysis involved deductively identifying and grouping subthemes and influencing factors that clearly resonated with the contemporary literature. The movement between subjective participant meanings and established theoretical explanations was also used to examine the mechanisms and contextual conditions influencing psychological recovery and physical regeneration (ie, the influence of participant experience level, health status on well-being), thus enabling a deeper understanding of the phenomenon.¹³

Researcher reflexivity

Researcher reflexivity considers the role of the researchers' background, self-identities and values in the research process (eg, data collection, analysis, results presentation). Within the current study, all the authors were white heterosexual academics with doctoral degrees who were actively involved in research projects within professional rugby or had previously published academic work in professional rugby populations. In addition, at the time of the data collection the first, fifth and sixth authors were actively working as mental health/player welfare professionals in the professional game in their respective countries. Awareness of these identities was used to reflexively position the research team as both insiders and outsiders in the research. For example, the authors working within the professional game allowed for credibility and insider status with regard participant recruitment and data collection. It also allowed these authors to draw on their own personal practical experiences and observations of the research topic when engaging with data analysis and subsequent interpretation of findings. For example, the reported feelings from players of having insufficient time away from the sport due to a reduced off-season period were common observations noted. The other members of the team, as outsiders, were able to bring experience of undertaking research within the population of study and challenge potential implicit influences on the interpretations of the inside members through the data collection and subsequent analysis processes. For example, connection with non-rugby environments and relationships was originally proposed merely as a strategy employed within the decompression/cognitive detachment phases. However, the outsider members of the team challenged this conceptualisation, proposing the lack of ability to connect with non-rugby environments and relationships was a subtheme that impacted on the broader psychological well-being of the individual.

Methodological rigour

A list of criteria was adopted to consider the methodological rigour of the work,¹⁹ including credibility, reflexivity,

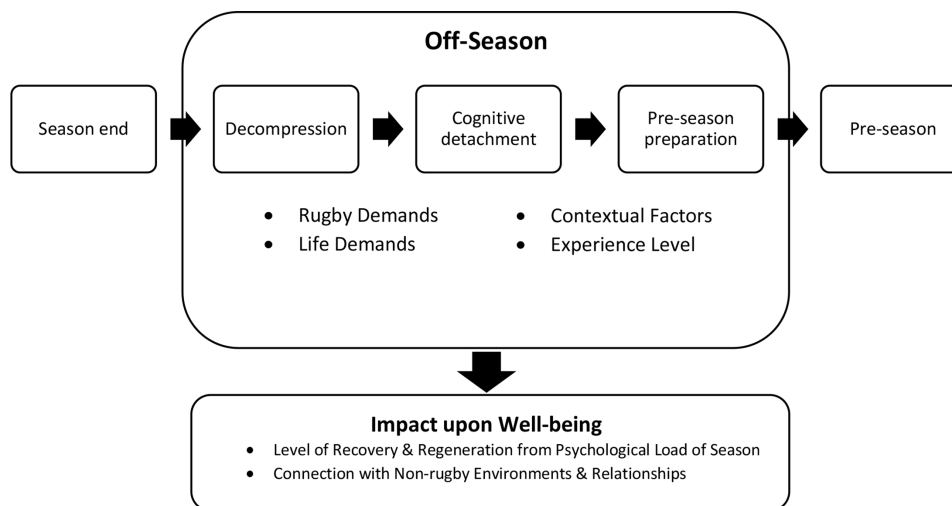


Figure 1 A conceptual framework to describe player perceptions of the phases of the off-season, the factors influencing psychological recovery and physical regeneration, and subsequent impact on well-being.

philosophical assumptions, resonance and significant contribution. For, credibility (ie, the extent to which the research is plausible and persuasive) in-depth illustrations of the data provided thick description regarding context-specific meanings. For reflexivity (ie, how the interpretation of the data had been challenged and developed) members of the research team acted as 'critical friends' to encourage reflection on multiple/alternative interpretations throughout the data analysis and writing. Philosophical assumptions refer to the assumptions stated which are consistent with the research processes and conclusions. Specifically, in our study epistemological social constructionism and ontological realism informed the development of the research question, methodology, interpretations of data and discussion of results. Resonance considers the extent to which the research meaningfully resonates with the reader. In this respect, we have offered thick description and rich interpretation of the data, through a guiding framework, potentially transferable to different situations. For significant contribution (ie, the degree to which the work

extends knowledge and practice) the work has provided a novel understanding of the strategies undertaken by professional rugby union players in the off-season, generating a conceptual framework to inform subsequent research and practice.

RESULTS

Reflexive thematic analysis of the interview data is summarised in figure 1 in the form of a conceptual framework which illustrates three themes: player perceptions of the phases of the off-season, the factors influencing psychological recovery and physical regeneration, and subsequent impact on well-being. Tables 1–3 present subthemes and example participant quotes for each of these themes. The framework suggests that the off-season is characterised by three phases that players undergo to preserve their mental and physical health and well-being to recover from the previous season and regenerate in preparation for the upcoming season. These include decompression from previous season, cognitive detachment from the rugby environment and preparation for

Table 1 Subthemes and example quotes describing the perceived phases of professional rugby union off-season

Subthemes	Example quote
Decompression from season	'I think you probably, especially if the season doesn't end the way you want it to end... you might spend that first week dwelling on what's gone, maybe even longer, and you're still thinking about it because that's the way you're conditioned to think really. You're conditioned to analyse what you've done, what you could do better, how you can improve.' P1
Cognitive detachment from rugby	'I went on my first non-rugby-related holiday for five years... did me the world of good... completely switched off from rugby. I didn't think about rugby the whole time I was there... I came back and I felt like a different person. I was ready then to go, 'Actually, you know what, I'm ready to get back into the physical activity, I'm ready to get back into pre-season. I'm ready for this.' P15
Preparation for pre-season	'And then that last two weeks is when you sort of start ramping up because you've had four weeks to completely sort of freshen up and then you've got two weeks to build yourself in, so you're not coming in poor shape or getting injured.' P2
*P denotes participant.	

Table 2 Subthemes and example quotes describing factors perceived to influence psychological recovery and physical regeneration during professional rugby union off-season period

Subthemes (and influencing factors)	Example quote
Rugby demands	
► Length of the off-season	'We were supposed to be off, we got told that our season ended on a certain date and then they put a play-off in later and decided the date was about three or four weeks away, I think three weeks after the season actually finished. So, we had an extra three weeks in (training), so then it cut down (the off-season) a little bit, I think it took a week off what we were actually going to have off.' P11
► Level of off-season expectations	'They give us runs and things to do but in fairness some of them are quite hard but they're under your own control, you can do them whenever you want, so it's very flexible, so you, if you want to, if you want to have a couple of nights out or you want to do whatever you want, whenever you want, you can, which is nice to just be away from a very stringent schedule because during the year it's very set, like you're never your own boss, so it's nice to be able to run your own show for a while.' P6
► Level of autonomy over off-season training	
► Level of clarity of preseason expectations	'You don't relax, you don't switch off, you don't enjoy your holidays ... I went to a wedding for three days and then I went [on holiday abroad] and like I say I was in the gym every day and my partner at the time, she didn't get it. My partner doesn't understand when you're on holidays that you're not actually on holidays because we could get up at 9 o'clock and my partner might not see me until 12 because I've got to locate a gym, go to a gym, or rehab session or whatever. And it seems hard on the people that are around you as well that they don't see you.' P7
Life demands	
► Non-rugby/personal responsibilities	'If you're like in your thirties and you've got another season you might use that four or five weeks and you can think, 'Right, I know I can go in physically fit because I'm doing a bit', but you're going to have to absolutely prep yourself in the off season. You can also spend it (off-season) investing in your outside interests/business because you know this could be your last year of rugby.' P12
► Interpersonal challenges	
► Planning for retirement from rugby	
Contextual factors	
► Health status	'I spent all the summer in the physio room, which is a lot tougher than just coming back and training because you're having to do the fitness and stuff, but you're doing a lot of it on your own. That mental strain on it as well, it makes a big difference... It just, you know when you're there and you're like frustrated the fact that you're injured, you know other people are away enjoying and you know you're back in because you've got earlier into the grind of the thing and there's probably five of you here rather than fifty of you here... And you also know that maybe if two or three of those boys have got the same sort of injuries, they're doing rehab together and all of a sudden, you're the one going in on your own because nobody's got the same injury as you. Yeah, as well as the fact that you know that, from my experience of that and I knew from a couple of years back that at some point I was going to struggle the fact that I'd only had two weeks off and I hadn't had a chance to debrief the season.' P11
► Physical load experienced in previous season	'This year it's a contract year for me and I'm worried about if pre-season doesn't go well and I get off to a bad start, you know, I could be having contract issues and stuff like that.' P5
► Psychological load experienced in previous season	'Especially when you play so regularly, I think you need that time off, not just for your body but mentally and away from the place, amongst all the physical stresses, it also adds quite a lot of mental stress, so that break from everything, being away from the club for that period of time was something that was essential if we were going to come in and refresh and actually be able to commit to putting in a load of effort, into pre-season and the following season.' P3
Experience	
► Stage of playing career	'Some lads, younger lads especially, who are trying to make a name, they just burn out because they try and sort of match all these expectations.' P2
► Ability to detach from rugby related cognitions	'I'm still learning to convince myself that sometimes a week off doing nothing and just house stuff or family stuff or business stuff is actually good for you, physically and mentally really.' P21
► Knowledge and experience of physical and psychological conditioning/recovery techniques	

Table 3 Subthemes and example quotes describing the impact on well-being of the off-season period

Subthemes (and influencing factors)	Example quote
Recovery from psychological load of the season	'If there wasn't an offseason break, I can guarantee there'd be a lot more retirements from rugby from mental health... without it ... I'd just, I'd hate the sport and I'd literally... I just don't think I could handle it. You know, no matter what, you need time away from it and no matter what anyone says, having the odd week off here and there in the season does nothing because you're still having to think about rugby, you're still, like, constantly on it, whereas five weeks, or whatever, is long enough to be able to not have to think about it, to be able to go away and be able to actually do something.' P22
Connect with non-rugby environments and relationships <ul style="list-style-type: none"> ▶ Spending time in non-rugby environments ▶ Reconnecting with family and friends ▶ Participating in non-rugby activities and interests 	'For me it is getting as far away from rugby as possible. You almost have like 52 weeks of work, 50 weeks of work, for me it's breaking that routine... it's waking up when you want, go to bed doing things that you don't get the chance to do. For me it really is about just enjoying myself, you know, getting lost somewhere, going for like a day out doing these things because you can plan all the things you want in the season. P14 'The main benefit is getting your head away from rugby for a little bit and being able to focus on your family, your friends, and spending a bit more time with them...' P31
P denotes participant.	

preseason. Successful progression through all three phases appears to be influenced by a number of variables including the work and life demands a player is encountering at the time, contextual factors such as their health status (ie, currently injured or ill), and their level of experience in the sport (eg, previous experiences of the off-season). Successful progression through these phases of the off-season, in terms of mental and physical well-being, is characterised by perceptions of recovery and regeneration from the psychological load of the previous season and the ability to connect with non-rugby environments and relationships.

Phases of the off-season

The first theme, phases of the off-season (table 1), comprised three subthemes that players reported progressing through to preserve their mental and physical health and well-being to recover from the previous season and regenerate in preparation for the upcoming season: (1) decompression from the previous season; (2) cognitive detachment from rugby and (3) preparation for the upcoming preseason. Decompression from the previous season described attempts to unwind or come down from the intensity of the day-to-day demands of professional training and playing, due to an inability to immediately switch off from rugby as soon as the season had finished. Example strategies included taking a vacation with teammates or spending time at the club getting treatment for unresolved minor injuries.

Cognitive detachment from rugby referred to the period where players genuinely felt able to mentally switch off and detach fully from thinking about rugby-related demands. This period was viewed as essential to promoting psychological recovery and was frequently characterised by some form of 'vacation', typically with personnel other than teammates, in a different

environment/geographical location to where the player was based.

Preparation for the upcoming preseason described the activities players engaged in ready for a return to the rugby environment. Consistent across participants was the act of undertaking a period of physical and mental conditioning to prepare for the demands that would be faced on returning to rugby and beginning preseason training.

Influencing factors

The second theme illustrated in the framework is influencing factors on psychological recovery and physical regeneration during the off-season (table 2). Specifically, the ability of players to successfully progress through the three phases of the off-season was reported to be influenced by several variables including: rugby and life demands encountered, contextual factors and experience level.

Rugby demands referred to factors related to the professional rugby environment which influenced the ability to engage in the off-season phases to recover and regenerate sufficiently. For example, reductions in the designated length of 5–6 weeks for the off-season due to an extended regular season forced players to compress their plans, often leading to a perception of a lack of time to engage in recovery and regeneration. Additionally, the expectation regarding what activities players were required to undertake in this period also impacted on well-being, such as scheduled conditioning sessions at the team training ground. Here, players reported the level of autonomy they were given over their off-season training was salient, with more autonomy leading to greater perceptions of a successful off-season. Similarly, increased clarity regarding upcoming preseason expectations from team management and staff, for example, when players

felt informed about the upcoming preseason content/schedule, was reported to reduce rugby-related burden in the off-season.

Life demands included: non-rugby/personal responsibilities, such as getting married or attending family events; interpersonal challenges, that is, relationship with partner, managing childcare; and planning for retirement from the sport by engaging in vocational training/study/career development. Players described how these factors impacted on their ability to feel as though they were engaging in meaningful recovery and regeneration practices.

Several contextual factors were suggested to impact on the quality of the off-season experience and the ability to psychologically recover and physically regenerate. For example, a player's health status going into the off-season dictated whether they were able to switch off and fully cognitively detach from the team environment and undertake physical regeneration as desired, or whether they had to attend the team environment for regular medical treatment or rehabilitation. Players described feelings of isolation, anxiety and a reduced sense of achievement when having an injury and undertaking rehabilitation during the off-season. Contractual status (ie, if a player was going into the final year of their contract the following season) was also reported to impact on the ability to fully detach and put rugby out of the mind. The demands from ongoing contract negotiations and the associated considerations, such as moving club, changing geographical location and social network for both the player and their family, all impacted on the quality of the off-season experience. Several players also discussed how the extent of the physical and psychological load experienced in the previous season impacted on recovery and regeneration. Individuals who had played a large number of matches in the preceding season described how it took longer to recover due to the accumulation of physical and mental fatigue. Those who had less game time across the previous season described that while physically they needed less time to regenerate, the season had still posed a high psychological load (eg, due to the demands of training), requiring time for psychological recovery in the off-season.

Level of experience described the amount of experience regarding managing the off-season period. Some players discussed how they were able to successfully 'switch off' and detach from rugby-related cognitions using physical and psychological recovery techniques (eg, taking a vacation, connecting with friends and family, engaging in non-rugby conditioning) that were learnt and refined over the course of their careers. In contrast, the off-season period for those early in their career was often viewed as an extra opportunity to train harder to improve physically and technically, typically due to 'expectation' to prove oneself and/or break through into the team. Typically, in these instances, there was no deliberate strategy to detach or switch off, instead players discussed how they actively maintained

'engagement' with rugby-related cognitions. These early career off-season experiences were also characterised by overtraining due to a lack of structure and failure to seek advice on how to best manage the time period effectively. This was reported to often lead to reduced well-being via the experience of staleness and injury in the subsequent season.

Impact on player well-being

The final facet of the framework described the impact of the first two themes (ie, the ability to progress through the phases of the off-season period and influencing factors) on subsequent mental and physical health and well-being (table 3). This comprised two subthemes: the impact on the perceived level of recovery and regeneration from the psychological load experienced in season; and the ability to connect with non-rugby environments and relationships. The level of recovery and regeneration from the in-season psychological load described the extent to which players perceived they had been afforded a 'mental break' from rugby demands, with the aim to feel recovered and regenerated for the new season, preventing cumulative (psychological) fatigue and enhancing overall well-being. Influencing factors such as the level of demands (eg, rugby/life) encountered in the off-season were suggested to further add to, or reduce, this cumulative psychological load experienced and impact on well-being through changes in perceptions of recovery and regeneration.

The ability to connect with non-rugby environments and relationships referred to the impact of the quality of the off-season period on opportunities to participate in non-rugby activities (eg, other sports and business), spend time in environments other than rugby settings (eg, holiday/vacation) and reconnect with family and friends (eg, spend time with children; socialise with non-rugby friends). Collectively, these activities allowed players to nourish the non-rugby parts of their self/identity and bring balance to their lives away from work.

Contextual factors, such as health status in the off-season (eg, being injured and unable to take time away from the rugby environment due to needing daily treatment), were suggested to influence well-being by limiting opportunities to engage in connecting with non-rugby environments and relationships.

DISCUSSION

This study is the first to investigate male professional rugby union players' psychological experiences of the off-season. The findings support the limited research into the psychology of rest in athletes, which suggest recovering psychologically depends in part on engagement in wakeful resting, of which specific resting experiences, such as not thinking about or cognitively detaching from one's sport, are fundamental.²⁰

Detachment requires self-regulation and others' support

Our findings are consistent with a body of knowledge in organisational psychology that suggests the ability

to cognitively detach during non-work time (ie, the off-season period) is a core process that can buffer the impact of work demands on health and well-being.²¹ Indeed, detachment may not happen by itself but may require self-regulatory effort (engaging in a preparatory 'decompression' phase or period). Like our study, this literature emphasises that organisations (clubs) as well as employees (players) need to take deliberate steps to facilitate detachment. These may include developing norms for detachment and work/non-work segmentation (undertaking recovery/regeneration activities away from the club environment), organising and prioritising workload (sticking to prescribed training plans, recovery schedules) and offering supervisor (staff) and employee (athlete) education regarding recovery and regeneration, together with strategies that can be utilised to enhance the quality of this process. The literature also suggests employees should become more aware of their needs for detachment and develop and implement specific strategies to aid work detachment ability.²²

'At-risk' groups

Two subgroups whose well-being may be 'at-risk' over the off-season can be identified from our study. First, due to reduced time away from the rugby workplace due to treatment obligations, injured players may experience threats to mental well-being through feelings of isolation, anxiety, and reduced sense of achievement. Athletes typically report psychological distress following injury and throughout rehabilitation,²³ with rugby players particularly susceptible to feelings of loss of control, competence and affiliation to their sport, often leading to threats to athlete identity and subsequent identity crises.²⁴ The off-season period is a potential time point where conditions to reinforce these threats can be augmented due to insufficient time off compared with healthy teammates (lack of autonomy), and limited interaction with staff/players (affiliation) given most are away from the training ground.

Academy/younger players also appear 'at-risk' in relation to their mental and physical well-being during the off-season from overtraining due to insufficient rest, often due to the perceived demands to successfully transition to the professional level.²⁵ These include the pressures to obtain a professional contract despite a lack of game time, non-selection or non-sport demands, and resulted in the use of task-focused coping strategies in the off-season (ie, train harder to increase physical performance characteristics). Players reflected that when they were younger, they were less likely to seek support/guidance on how to mentally recover and physically regenerate during the off-season. Many noted they had only learnt how to use the off-season period effectively through trial and error, highlighting the importance of player education regarding self-regulatory effort to promote recovery and regeneration.²² Promoting a psychologically safe environment²⁶ can further encourage help seeking among such a cohort.

Limitations

Data collection for our study relied on single 'one off' interviews with players regarding their experiences of their most recent off-season to develop a preliminary conceptual framework describing potential relationships between off-season phases, factors influencing psychological recovery and physical regeneration, and the subsequent impact on well-being. Future research should seek to establish the cogency of this proposed conceptual framework developed by prospectively exploring players' ability to cognitively detach in the off-season. Specifically, self-regulation strategies and well-being experiences should be tracked across the off-season period to assess changes qualitatively and quantitatively in markers associated with psychological recovery and physical regeneration. In addition, the sample obtained for our study was representative of northern hemisphere tier 1 male professional rugby players. While the findings provide naturalistic generalisability (ie, resonate with reader experiences) and analytical generalisation (concepts that are generalisable), together with transferability (extent to which findings transfer to other settings) in a qualitative context,²⁷ future research should consider experiences and practices of other professional playing groups (eg, southern hemisphere, tier 2 nations, Pacifica). In particular, the structure of the female 15s professional season across the hemispheres means their off-season experiences are also likely to differ in comparison to their male counterparts. Lastly, given our study only sampled player perspectives regarding the off-season, other stakeholders' (eg, Medical Leads, Directors of Rugby) knowledge and understanding are important to fully characterise the off-season experience and design best practice guidelines for maximising recovery and regeneration to sustain player welfare. Enabling participants to interact with each other (eg, via focus groups/online platforms) will allow for the integration of alternate roles (coaches, stakeholders, players' partners) to open the possibility for generating more nuanced understanding.

CONCLUSION

This study is the first to investigate male professional rugby union players' experiences and perceptions of their mental and physical health and well-being across the off-season. It highlights the distinct phases undertaken to mentally recover and physically regenerate, and the need to consider education and support for those subgroups whose well-being may potentially be at risk. Future research should seek to quantify how players attempt to cognitively detach from their sport over time and identify the factors, which influence the relative success of this action. The utility of the proposed conceptual framework should be explored across briefer rest periods that occur within season to allow for best practice guidance to maximise the benefit of planned season breaks for player welfare.

Twitter Stephen D Mellalieu @stevemellalieu

Contributors SDM and PS have contributed to all elements of planning, conduct and reporting of the work described in the article. RA, SW, MC and DL have contributed to the conduct and reporting of the work. SDM is the guarantor.

Funding This study has been funded by World Rugby (ID:G-1806-00175).

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by Cardiff School of Sport and Health Sciences Ethics Committee (Cardiff Metropolitan University) Ethics ID: Sta-595. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Stephen D Mellalieu <http://orcid.org/0000-0003-2868-3328>

Sean Williams <http://orcid.org/0000-0003-1460-0085>

REFERENCES

- Dubois R, Paillard T, Lyons M, *et al*. Running and metabolic demands of elite rugby union assessed using traditional, metabolic power, and heart rate monitoring methods. *J Sports Sci Med* 2017;16:84–92.
- Dubois R, Lyons M, Paillard T, *et al*. Influence of weekly workload on physical, biochemical and psychological characteristics in professional rugby union players over a competitive season. *J Strength Cond Res* 2020;34:527–45.
- Cross MJ, Williams S, Trewartha G, *et al*. The influence of in-season training loads on injury risk in professional rugby Union. *Int J Sports Physiol Perform* 2016;11:350–5.
- Williams S, Trewartha G, Kemp SPT, *et al*. How much rugby is too much? A seven-season prospective cohort study of match exposure and injury risk in professional rugby union players. *Sports Med* 2017;47:2395–402.
- Cresswell SL, Eklund RC. Changes in athlete burnout over a thirty-week “rugby year.” *J Sci Med Sport* 2006;9:125–34.
- Cresswell SL, Eklund RC. Athlete burnout: a longitudinal qualitative study. *Sport Psychol* 2007;21:1–20.
- Shearer DA, Kilduff LP, Finn C, *et al*. Measuring recovery in elite rugby players: the brief assessment of mood, endocrine changes, and power. *Res Q Exerc Sport* 2015;86:379–86.
- Eccles DW, Kazmier AW. The psychology of rest in athletes: an empirical study and initial model. *Psychol Sport Exerc* 2019;44:90–8.
- Balk YA, de Jonge J, Oerlemans WGM, *et al*. Testing the triple-match principle among dutch elite athletes: a day-level study on sport demands, detachment and recovery. *Psychol Sport Exerc* 2017;33:7–17.
- Russell S, Jenkins D, Rynne S, *et al*. What is mental fatigue in elite sport? perceptions from athletes and staff. *Eur J Sport Sci* 2019;19:1367–76.
- Nicholls AR, Jones CR, Polman RCJ, *et al*. Acute sport-related stressors, coping, and emotion among professional rugby union players during training and matches. *Scand J Med Sci Sports* 2009;19:113–20.
- Sandelowski M. Whatever happened to qualitative description? *Res Nurs Health* 2000;23:334–40.
- Sparkes AC, Smith B. *Qualitative research methods in sport, exercise and health*. Routledge, 2014.
- Lincoln YS, Lynham SA, Guba EG. Paradigmatic controversies, contradictions, and emerging confluences, revisited. In: Denzin NK, Lincoln YS, eds. *The Sage handbook of qualitative research*. Sage, 2011: 97–128.
- Braun V, Clarke V, Weate P. Using thematic analysis in sport and exercise research. In: Smith B, Sparkes AC, eds. *Routledge handbook of qualitative research in sport and exercise*. Routledge, 2016: 191–205.
- Byrne D. A worked example of braun and Clarke’s approach to reflexive thematic analysis. *Qual Quant* 2022;56:1391–412.
- Danermark B, Ekstrom M, Jakobsen L, *et al*. Generalization, scientific inference, and models for an explanatory social science. In: Danermark B, Ekstrom M, Jakobsen L, eds. *Explaining society: An introduction to critical realism in the social sciences*. Routledge, 2002: 73–114.
- Mellalieu S, Jones C, Wagstaff C, *et al*. Measuring psychological load in sport. *Int J Sports Med* 2021;42:782–8.
- Tracy SJ. Qualitative quality: eight “big-tent” criteria for excellent qualitative research. *Qualitative Inquiry* 2010;16:837–51.
- Eccles DW, Balk Y, Gretton TW, *et al*. “The forgotten session”: advancing research and practice concerning the psychology of rest in athletes. *J Appl Sport Psychol* 2022;34:3–24.
- Sonnentag S, Bayer U-V. Switching off mentally: predictors and consequences of psychological detachment from work during off-job time. *J Occup Health Psychol* 2005;10:393–414.
- Sonnentag S, Fritz C. Recovery from job stress: the stressor-detachment model as an integrative framework. *J Organiz Behav* 2015;36:S72–103.
- Tracey J. The emotional response to the injury and rehabilitation process. *J Appl Sport Psychol* 2003;15:279–93.
- Carson F, Polman RCJ. Self-determined motivation in rehabilitating professional rugby union players. *BMC Sports Sci Med Rehabil* 2017;9:2.
- Drew K, Morris R, Tod D, *et al*. A meta-study of qualitative research on the junior-to-senior transition in sport. *Psychol Sport Exerc* 2019;45:101556.
- Edmondson A. Psychological safety and learning behavior in work teams. *Adm Sci Q* 1999;44:350–83.
- Smith B. Generalizability in qualitative research: misunderstandings, opportunities and recommendations for the sport and exercise sciences. *Qual Res Sport Exerc Health* 2018;10:137–49.