

APPENDIX

Table S1. Checklist for Reporting Results of Internet E-Surveys (CHERRIES).

Item category	Checklist item	Explanation	Page number
Design		The study used a cross-sectional design. Eligibility criteria included elite female rugby players who participated in at least five international matches and/or played for a professional or national team prior to 2020 and who have been retired from elite competition for at least two years. Participants had to be at least 18 years of age and able to communicate in and understand English.	5
IRB (Institutional Review Board) approval and informed consent process	Approval	Ethical approval was obtained from Western University Research Ethics Board (#120795).	5
	Informed consent	Participants who passed the eligibility screening questions were presented with a Letter of Information prior to starting the questionnaire. Informed consent was implied through participation in the questionnaire, and this was communicated to participants. The end of the Letter read: <i>“Consent – If you choose to participate, consent will be implied upon starting the survey.”</i>	5
	Data protection	All responses were anonymised.	5
Development and pre-testing		The survey was designed by our team of sports medicine experts and former elite athletes. A retired athlete focus group pre-tested our questionnaire.	5
Recruitment process and description of the sample having access to the questionnaire	Survey type	The data was collected using a closed survey. Participants were sent a unique 8-digit code via email with the link to the survey.	
	Contact mode	We emailed national federations affiliated with World Rugby requesting to send an email to retired female players with a link to receive more information about the study. The link was also promoted on social media by our research team.	5

	Advertising to the survey	The link to learn about the study was posted on the Twitter accounts of Dr Jane Thornton (PI) and co-investigators.	
Survey administration	Web/E-mail	The link to the survey was distributed via email as well as various public social media accounts.	5
	Context	The social media accounts that advertised the survey are generally followed by members of the sporting community, including current and former athletes and health care professionals in the field of sports medicine.	
	Mandatory/voluntary	Participation in the survey was voluntary.	
	Incentives	Participants who completed both the online questionnaire and the additional neurocognitive assessment received a \$50 CAD Amazon gift card.	
	Time/Date	July 2022 – March 2023.	5
	Randomisation of items or questionnaire	N/A.	
	Adaptive questioning	A skip logic was applied to certain sections of the questionnaire. Participants who selected a particular health outcome (e.g., injury, pregnancy, cardiovascular symptoms) were prompted further questions, while those who did not skipped to the next section.	
	Number of items	179 items.	6
	Number of screens	Three.	
	Completeness check	Manual completeness checks were performed during the data analysis phase.	7
	Review step	Participants could use a Back button.	
Response rates	Unique site visitor	RelevantID scores were calculated to prevent multiple questionnaire completions from the same participant.	
	View rate	N/A.	
	Participation rate	N/A.	
	Completion rate	287 participants agreed to participate in the study, however; 159 fully completed the questionnaire, giving a completion rate of 55%.	

Preventing multiple entries from the same individual	Cookies used	N/A.	
	IP check	IP addresses were collected by Qualtrics as part of the security feature and reviewed for duplicate responses.	
	Log file analysis	N/A.	
	Registration	At the start of the survey, participants were asked to enter the 8-digit code that was sent to them via email along with the link to the survey. If a code appeared more than once, only the completed questionnaire was kept.	
Analysis	Handling of incomplete surveys	Only completed questionnaires (i.e., those who clicked “Finish & Submit”) were analysed.	7
	Questionnaires submitted with an atypical timestamp	We reviewed the responses of questionnaires that were significantly shorter and longer than the mean duration to completion. However, our primary criteria for inclusion in the analysis was completeness.	
	Statistical correction.	Where applicable, age-adjusted odds ratios were calculated.	12-13

Table S2. List of questions/topics asked within each section of the survey.

Section	Questions/Topics
Demographics	<ul style="list-style-type: none"> • Birth year • Gender identity • Racial or cultural group • Country of origin • Rugby history • Height • Weight • Marital status • Employment status • Medical history • Routine check-ups • Diagnoses • Medication and supplement use • Tobacco and marijuana use • Current physical activity levels
Musculoskeletal health	<ul style="list-style-type: none"> • Surgery history • Injury history • Ongoing pain • Hip Disability and Osteoarthritis Outcome Score (HOOS)

	<ul style="list-style-type: none"> • Knee Injury and Osteoarthritis Outcome Score (KOOS) • Foot and Ankle Outcome Score (FAOS) • Oswestry Disability Index (ODI) • Brief Pain Inventory (BPI) – Pain Interference Score
Cognitive Health	<ul style="list-style-type: none"> • Concussion history • Verbal Memory Test (VBM) • Visual Memory Test (VSM) • Finger Tapping Test (FTT) • Symbol Digit Coding (SDC) • Stroop Test (ST) • Shifting Attention Test (SAT) • Continuous Performance Test (CPT)
Mental Health	<ul style="list-style-type: none"> • Kessler-10 • Generalized Anxiety Disorder – 7-item (GAD-7) • Patient Health Questionnaire – 9-item (PHQ-9) • Alcohol Use Disorders Identification Test Consumption (AUDIT-C) • Cutting Down, Annoyance by Criticism, Guilty Feeling, and Eye-openers Adapted to Include Drugs (CAGE-AID) screen • Psychologist or psychiatrist support while on national or professional team • Harassment and abuse while on national or professional team
Reproductive Health/Endocrine Function	<ul style="list-style-type: none"> • Eating Disorder Examination Questionnaire (EDE-Q) • Weight loss while on national or professional team • Relative Energy Deficiency in Sport (REDs) history • Low Energy Availability in Females Questionnaire (LEAF-Q) • Fertility and pregnancy history
Cardiovascular Health	<ul style="list-style-type: none"> • Family history of heart attack • Sleep apnea history • Specialist-diagnosed/documented cardiac condition (e.g., atrial fibrillation or flutter, myocardial infarction, cardiomyopathy, heart failure) • History of cardiovascular tests • Pittsburgh Sleep Quality Index (PSQI)
Self-Reflection	<ul style="list-style-type: none"> • General health rating: • Current • Upon retirement • While competing • Most important health topics • Influence of aspects of training/competition environment on general health and whether choice if given option to compete in elite rugby again • Advice to “rookie” athletes