

# BRAIN HEALTH

# AND CONCUSSION

A comprehensive plan for rugby in New Zealand.



# VISION

Everyone in rugby is doing everything they can to keep every player as safe as possible from the risks of concussion.

## INTRODUCTION

New Zealand Rugby (NZR), the New Zealand Rugby Players Association (NZRPA) and the New Zealand Rugby Foundation (NZRF) are working together to establish best practice in preventing and managing concussion in rugby. Like any contact sport, rugby carries risk of injury, but we believe through a collaborative and integrated approach we can reduce the risk while maintaining the integrity of the game.

The plan outlines our collective initiatives that will be delivered to support our vision to keep every player as safe as possible. It will be reviewed annually to ensure we remain at the forefront of this rapidly developing area. Centred on a Brain Health and Concussion Risk Management Framework, the plan details work we will undertake to strengthen each of the five focus areas.

## BACKGROUND

Concussion and the potential consequences of forces to the head are one of the biggest issues facing modern day rugby and contact sports in general. The more we can do to manage the risks of concussion and support brain health, the better the health of game and its players.

Managing injury risks in rugby doesn't imply the elimination of all injuries (i.e., regardless of severity), rather it means that stakeholders are aware of and take all reasonably practicable steps to identify and eliminate the risks to participants of serious harm. These steps will vary across aspects of the game where the risk changes. Research has helped us quantify the risk across levels of play, and by gender, so we can ensure an appropriate response.

In the community game, research has shown that the risks generally increase with age and level of play. For teenagers and adults in community rugby the risk is between 1% to 2% per year, or an average about one concussion claim every 40–60 seasons of play dependant on age and sex. Concussion rates in Super Rugby are higher due to the increased intensity of play alongside advanced technology and comprehensive medical care which enable more accurate identification and reporting of concussions. Super Rugby players, on average, sustain a diagnosed concussion once every 6.5 seasons. As with any average, some players will experience more, and some less.

We will continue communicating our understanding of the risks to participants on an ongoing basis. Actions will be based on science and research as we deepen our understanding, including differences in the men's and women's game, professional and community rugby, 15s and 7s. We are also seeking to learn more about the long-term health outcomes of playing rugby, but because evidence is not yet clear-cut, we are proceeding in accordance with a precautionary approach.

Existing models and frameworks for injury control/prevention in sport are well-established and are based on the idea of a 'continuous cycle of improvement'. In this cycle, injury issues and the importance of the issues (i.e. the frequency and severity of injuries) are established via research, interventions aiming to reduce the injury burden are put in place, and the outcomes of those interventions are then monitored to see whether they have had the desired effect. This sequence underpins World Rugby's and NZR's risk management approach to injury prevention.

## OUR APPROACH

Given the importance of this issue and its impact across all levels of the game, a collective and aligned approach between New Zealand Rugby, the New Zealand Rugby Players Association and the New Zealand Rugby Foundation has been established to comprehensively explore and take action on the issue. Each organisation has different roles and responsibilities to deliver within the plan but remains connected to and informed on work in progress across the wider programme.

The group will meet throughout the year to provide an update on the progress of the plan, review its trajectory and discuss any recommendations to change or initiate new work in response. The mid- and end-of-year meetings will result in an updated Brain Health and Concussion Risk Management plan that covers the current and following year. The result is an annual action plan that is adaptive to the environment in which it operates, staying relevant to the latest developments in research and technology.

## OUR PLAN

The plan is set out across the five key focus areas of the Brain Health and Concussion Risk Management Framework. Underpinning these is the commitment that all initiatives will consider the differing needs of our participants to ensure they are culturally safe.

Within each focus area lies its goal, a description and a table outlining the planned initiatives. Initiatives will fall into one of two categories; a) proven initiatives we have established and will continue to deliver, or b) new or improved initiatives designed to further bolster our support of brain health and concussion risk management. This work is informed by a range of policies, laws and regulations which have been established to safeguard players within the game.



**INJURY  
PREVENTION**



**INJURY  
MANAGEMENT**



**EDUCATION  
& TRAINING**



**RESEARCH &  
MONITORING**



**COMMUNICATION**

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**CULTURALLY SAFE**



# INJURY PREVENTION

## Objective:

Best practice, research-informed injury prevention programmes which reduce the severity and incidence of concussion.

The more practical steps we can put in place to reduce the risk of concussions from occurring, the more people we have playing rugby for longer. Our evidenced-based injury prevention programmes apply research and best practice within a rugby setting to reduce the incidence and severity of concussions.

WHAT	PURPOSE	LEAD	FROM
<i>Continue</i>			
RugbySmart	Annual injury prevention course for all community rugby referees and coaches of grades over U14+.	NZR	Ongoing
Non-Contact Variants	Develop and trial non-contact rugby variants for use in the community game.	NZR	Ongoing
Shape-of-game improvements	Continue to explore game innovations and law changes to reduce risk of concussion in players.	NZR	Ongoing
<i>Improve or introduce</i>			
Establish player load guidelines	Use of Instrumented Mouthguards in professional rugby to understand player load and inform guidelines.	NZR	2024-25
Expand the warmup programme in Community Rugby	Expand to cater to female participants in community rugby and specifically incorporate proven neck priming and strengthening exercise	NZR	2024-25
Contact Ready tackle training programme	Introduction of Contact Ready trial, an introductory tackle training programme for teenage girls to learn the basics of how to tackle, ball carry into contact, and land safely.	NZR	2024-25





# EDUCATION & TRAINING

## Objective:

Stakeholders are fully informed about the risks, causes and effects of concussion and take active steps to mitigate them.

We want to ensure that anyone involved in rugby — players, coaches, referees and supporters — know what to look out for and what to do when they suspect a player has sustained a concussion. We all have a role to play in recognising, removing and helping to manage concussions.

WHAT	PURPOSE	LEAD	FROM
<i>Continue</i>			
Small Blacks Training	Provide coaches of players 12 and under with training to increase enjoyment and safety.	NZR	Ongoing
Tackle Clinics	Teach rugby players to correctly position their heads when making a safe and correct tackle.	NZR	Ongoing
Scrum Factory	Teaching strong and safe body shape whilst scrummaging	NZR	Ongoing
FAIR delivery	Provide people in community rugby with a rugby-specific first aid qualification.	NZR	Ongoing
Super Rugby Player Induction	Concussion education for new Super Rugby players.	NZR	Ongoing
Annual Concussion Education Session	Ensure professional players receive concussion and HIA education from team doctors each year.	NZR	Ongoing
Medical Education Programme (ICIR)	Standardise the quality and delivery of pitchside care including concussion management in the acute setting.	NZR	Ongoing
Annual Rugby Medical Meetings	Provide Super Rugby, Provincial and National Team medical staff with up-to-date concussion information.	NZR	Ongoing
<i>Improve or introduce</i>			
Development and delivery of concussion education to professional players	Consistent education for pro players on brain health to understand risks, their responsibilities and how to continue to be role models.	NZR and RPA	2024-25
Pilot exit education for retired players	Providing education and support for retired players who are concerned about brain health.	RPA	2024-25
Develop and trial approaches to community concussion education	To improve concussion education for community participants so everyone can understand roles/responsibilities.	NZR	2025
Support non-pro retired players	Establish an agreed approach to support non-pro retired players who are concerned about their brain health.	NZR	2025



# INJURY MANAGEMENT

## Objective:

Fit-for-purpose support systems and processes at all levels of the game.

While we do everything we can to reduce the number of concussions in rugby, there are times where concussions are going to occur. Injury management is focused on ensuring we have the best possible practices, policies and personnel in place to support players when they do experience concussion.

WHAT	PURPOSE	LEAD	FROM
<i>Continue</i>			
<b>Individualised Concussion Rehab (Graduated Return To Play)</b>	Step-by-step return to play process specific to a player's individual needs.	NZR	Ongoing
<b>Very Injured Player support</b>	Provide guidance, vital funding and a unified social network for seriously injured players.	NZRF	Ongoing
<b>Near miss &amp; accident support</b>	Provide a response and support to every reported serious rugby injury.	NZRF	Ongoing
<b>NZR/RPA Benevolent Welfare</b>	Provide support to professional players who have had to retire through injury.	RPA	Ongoing
<b>Blue Card</b>	Enable referees to remove players from a match if suspected of sustaining a concussion.	NZR	Ongoing
<b>Medical support staff</b>	Provide professional players with varying levels of medical support dependent level of competition.	NZR	Ongoing
<b>Maintain clear clinical guidelines</b>	Developing concussion management pathways so that our doctors have clear protocol to follow.	NZR	Ongoing
<i>Improve or introduce</i>			
<b>Advocate use of other health professionals to diagnose and clear concussion</b>	Advocate ACC to approve use of other health professionals for diagnosis and clearance of concussion to remove barriers for players.	NZR	2024-25
<b>Rollout World Rugby Brain Health Service</b>	Rollout of the World Rugby Brain Health Service to offer access to expert neurological assessments, cognitive testing, and personalised care plans for former and current professional players.	RPA and NZR	2025
<b>Establish Brain Health Service exit assessments</b>	Establishing an understanding of brain health for players when exiting professional rugby.	RPA	2025
<b>Establish network of practitioners to help with concussion assessments</b>	Establish a network of practitioners to help with clearance and support for retired professional players.	NZR and RPA	2025
<b>Improve community rugby concussion reporting &amp; management</b>	Improve reporting processes through the Blue Card system and alternative methods along with automated injury management education.	NZR	2025



# RESEARCH AND MONITORING

## Objective:

NZR, NZRPA and NZRF are fully committed to, and recognised as, being at the forefront of research and its application to concussion risk management.

What we do regarding brain health and concussion on and off the field can only be as good as the research behind it. While we are recognised as world leaders in concussion research in rugby, there are still many unknowns. We must continue to undertake quality research and use this to inform our approach to concussion risk management.

WHAT	PURPOSE	LEAD	FROM
<i>Continue</i>			
Community concussion management pathway	Provide a clear pathway to follow when a player receives a suspected concussion.	NZR and NZRF	Ongoing
World Rugby injury surveillance project	Captures time loss injuries and training loads across Super Rugby level and above.	NZR	Ongoing
Community rugby ACC concussion claims	Annual counts and rates of concussions/brain injuries reported to ACC by age and gender.	ACC/ NZR	Ongoing
Modified Head Impact Assessment trial in Farah Palmer Cup	Enhance identification and management of head acceleration events with potential for concussion.	NZR	Ongoing
Community Instrumented Mouthguards (iMGs)	Use of iMGs to understand player load, age, experience, and gender differences in community players from U13 to Adult.	NZR/ Otago Uni	Ongoing
Review research findings for application	A process for capturing and considering implementation of research findings.	NZR	Ongoing
Performance reporting	Consistent reporting metrics and process to evaluate impact of brain health and concussion work across the game.	NZR	Ongoing
<i>Improve or introduce</i>			
Instrumented Mouthguards (iMGs)	Examine head impact loads players are exposed to in matches and trainings.	NZR	2024-25
Explore collaboration opportunities with University of Auckland brain bank	Discuss opportunities to collaborate in brain health research and communication.	NZRF/ NZR/ RPA	2024-25
Investigate serious/ near miss incidents	Investigating serious/near miss incidents to understand what happened and prevent it from occurring again.	NZRF	2025
Develop longitudinal brain health studies	Development and implementation of a long-term research project on the rugby player's brain health before, during and post career.	NZR	TBD

# COMMUNICATION

## Objective:

Open, honest and informative communication to all stakeholders.

Open, honest and informative communication about brain health and concussion helps our current and future participants make informed decisions. Sharing this information with stakeholders and the public is vital to supporting the welfare of players and ensuring more people are involved in rugby.

WHAT	PURPOSE	LEAD	FROM
<i>Continue</i>			
<b>NZR Concussion Risk management research</b>	Provide information to public on concussion research undertaken or relevant to NZR.	NZR	Ongoing
<b>Community or professional law changes/game innovations</b>	Provide information to public and stakeholders on law variations and game innovations.	NZR	Ongoing
<b>NZR Brain Health and Concussion initiatives</b>	Provide information on the initiatives regarding brain health and concussion undertaken by NZR and/or partners, or within rugby.	NZR	Ongoing
<b>Community rugby concussion education and behaviour change</b>	Promote and support positive player safety behaviour within the rugby community.	NZR	Ongoing
<b>Using players as role models in campaigns.</b>	Using Teams in Black players to reach key people and drive awareness, education and behaviour change.	NZR	Ongoing
<b>Stakeholder engagement and education</b>	Educate participants (PUs, parents, coaches, staff etc.) on brain health through various channels.	NZR	Ongoing
<i>Improve or introduce</i>			
<b>Develop and resource a concussion communications strategy</b>	Develop one comms strategy to create open, honest communication and support an informed perception of concussion in rugby.	NZR	2025
<b>Improving media understanding and use of correct language</b>	Educating key story tellers on consistent and correct use of language and messaging.	NZR	2025



# SUPPORTING POLICIES, LAWS & REGULATIONS

Outside of the five framework areas, we also have a range of policies, laws and regulations which support brain health and concussion risk mitigation. These can be further broken down into areas which are under NZR and NZRPA's direct control, and those governed by World Rugby which we uphold.

WHAT	PURPOSE
<b><i>NZR &amp; NZRPA</i></b>	
<b>Participation policies</b>	NZR policies established to support player safety (e.g. age/weight banding, minimising minutes, mouthguards).
<b>Domestic Safety Law Variations</b>	Additional laws within the game over and above World Rugby's which have been introduced to increase player safety.
<b>ACC claims and support</b>	Provide all support and assistance to players who fall within NZR's Accredited Employer arrangement with ACC.
<b>Player insurance</b>	Provide insurance for all community rugby players who suffer catastrophic injuries.
<b>NIB Professional Player Insurance</b>	Provides insurance for players who experience career-impacting injuries and life events.
<b><i>World Rugby</i></b>	
<b>Head Injury Assessment (HIA)</b>	Assist identification, diagnosis and management of head impact events with potential for a concussion.
<b>World Rugby Coaching intervention programme</b>	Incentivises player education around tackle technique to reduce the risk of head contact in rugby.
<b>World Rugby Contact Load Guidelines</b>	Advise on best practice and create contact training guidelines for the elite global rugby community.
<b>World Rugby Head Contact Process</b>	The process is designed to protect the head, neck and throat area of players by using sanctions in game.

## HOW WE MEASURE SUCCESS

Each year the group will report on key measures to understand the plan's impact and whether it is delivering the desired results.

There are a number of measures specific to each initiative, but across the programme of work some of the key measurements to be tracked include:

Area	Measures	Progress indicators
Injury Prevention	<ul style="list-style-type: none"><li>- Quality of professional rugby concussion surveillance data (for NZR contracted players)</li><li>- Average cost per approved ACC concussion claim</li></ul>	<ul style="list-style-type: none"><li>- ↑ in accuracy</li><li>- ↓ av cost</li></ul>
Education & Training	<ul style="list-style-type: none"><li>- Likelihood of pro players reporting a suspected concussion</li><li>- Likelihood of Community rugby player intervening if they saw another player showing signs of concussion.</li></ul>	<ul style="list-style-type: none"><li>- ↑ likelihood</li><li>- ↑ intervention</li></ul>
Injury Management	<ul style="list-style-type: none"><li>- Compliance rates with professional rugby medical education requirements</li><li>- Annual number of First Aid in Rugby (FAIR) medics trained in community rugby</li></ul>	<ul style="list-style-type: none"><li>- ↑ year-on-year</li><li>- ↑ year-on-year</li></ul>
Communication	<ul style="list-style-type: none"><li>- Public perception of rugby's response to concussion risk</li><li>- Number of visits to NZR concussion website resources</li></ul>	<ul style="list-style-type: none"><li>- ↑ + perception</li><li>- ↑ site visits</li></ul>

## KEY TERMS & DEFINITIONS

**Concussion:** A mild traumatic brain injury (TBI) that occurs when the brain is jolted or shaken, often due to a direct hit to the head or blow to the body.

**Brain Health:** Overall state of brain functioning across cognitive, sensory, social-emotional, behavioural and motor domains.

**Instrumented mouthguard (IMG):** Mouthguard which is fitted with measurement devices (e.g. accelerometers) and is worn by sports participants to quantify exposure to forces on the head.

