

World Rugby & New Zealand Rugby welcome long term health study outcomes

- **Player welfare** and concussion research continues to be a major priority for World Rugby and member unions
- Retired elite and community rugby players studied in New Zealand, along with retired non-contact athletes
- Further research recommended into potential links between rugby and long-term cognitive health

World Rugby and New Zealand Rugby welcome the results of a wide-ranging independent study, researching the long-term physical and psychological health effects of playing elite rugby, community rugby and non-contact sports.

With rugby participation experiencing record growth around the world, World Rugby is committed to commissioning and funding research to drive forward medical and player welfare knowledge and enhancements to protect and support participants at all levels of the sport. It is currently supporting a number of global player welfare studies.

Concussion education, prevention, management and research continues to be the sport's number one player welfare priority. The three-year study conducted by the Auckland University of Technology (AUT), funded by World Rugby, and supported by New Zealand Rugby, set out to assess the general health, neuropsychological function, balance capability and brain corticomotor excitability in retired professional and community level rugby union players from New Zealand playing from the 1980s through to the 2000s in comparison with age-matched control groups.

A retrospective study, the research aimed to show associations and identify areas of importance for further investigation. The study showed that rugby players performed above average in some tests compared to non-contact sports players and less well in others. It is therefore difficult to draw robust conclusions about the links between rugby and long-term cognitive health issues and underscores the need for further in-depth research

In its recommendations, the study endorsed World Rugby's concussion strategy of prevention, management, education and research.

The key recommendations made by AUT were:

1. Further targeted research is needed to assess the impact of concussion on long-term balance and cognitive brain function. Arthritis and cardiovascular health in retired athletes also requires further investigation.
2. Sports should focus on improving concussion awareness, management (immediate and follow-up) and prevention programmes.
3. Injury prevention and injury management programmes should target not only acute injuries during participation but also long term injuries associated with the greatest morbidity such as arthritis.
4. Education on the harmful effects of excessive alcohol ingestion should be a core inclusion in all sports education programmes.
5. Sports should identify and highlight not only the injury risk associated with sport but also the potential benefits to general and neuropsychological health that are associated with sports participation.

Impact of sport

When looking at the results across all participants (rugby and non-contact sport athletes):

1. Ex-sportsmen, when compared to New Zealand males in general reported better health, were more likely to be in long-term relationships, generally had higher incomes, and were less likely to smoke cigarettes.
2. Ex-sportsmen, irrespective of the number of concussions reported, had no differences in marital status, hours worked per week, income, arthritis, medication use, mental health issues, sleeping patterns, frequency of alcohol use, current smoking levels, and current physical activity levels.
3. Ex-sportsmen, irrespective of the number of concussions reported, showed no differences in brain excitability assessment (i.e. efficiency of connection between brain cells).
4. Ex-sportsmen who reported four or more concussions during their sporting career
 - Performed worse on the some but not all measures in the neuropsychological test used in this research
 - Reported more injuries during sport
 - Had more hospitalisations for injury
 - Rated their current health lower
5. Ex-sportsmen who reported one to three concussions during their sporting career (but not four or more) had a worse result in one of the five balance tests.

Retired rugby players (both elite and community) compared with non-contact sports people reported:

1. More injuries during their career
2. Current higher levels of osteoarthritis and cardiovascular issues
3. Fewer alcohol drinking sessions in a week but higher alcohol intake during a drinking session
4. Retired elite rugby players performed marginally worse on some, but not all, of the neuropsychological tests used in this research*

World Rugby Chief Executive Officer Brett Gosper said: “World Rugby’s number-one priority is player welfare and our strategies regarding concussion education, management, prevention and research are at the very top of our agenda.

“We welcome the findings of this study, and while the study does not provide any definitive conclusions, we are alive to all potential risks and, as such, we will continue to prioritise research in this very important area.”

World Rugby Chief Medical Officer Dr Martin Raftery: “Concussion impacts all sports and World Rugby continues to take a proactive approach to educating and protecting our players at all levels and studies like are important to informing our evidence-based approach.

“Guided by leading independent experts and based on increased scientific understanding, rugby is being proactive in this important area. We are changing culture within the sport, our extensive education and management initiatives are working and players have never been so informed and supported when it comes to concussion.

“We continue to collaborate with other international sporting federations and bodies to share knowledge and move towards a common cross-sport approach to educating and supporting athletes at all levels of recreation and competition.”

[VIEW THE SUMMARY RESULTS HERE>>](#)

[VISIT WORLD RUGBY’S PLAYER WELFARE WEBSITE HERE>>](#)

[WATCH THE RECOGNISE & REMOVE CONCUSSION VIDEO HERE>>](#)

In 2014 World Rugby delivered face to face or online concussion education to more than 13,000 players, coaches, referees and medics (sport and GPs) and launched its #RecogniseAndRemove campaign, centered on public concussion guidance – a resource that underpinned the development and roll-out of the all-sport education programme in Scotland.

Editors notes

Starting in October 2012 and completed in March 2015, the study involved a total of 485 participants – 131 retired elite rugby players, 281 retired community rugby players and 73 retired non-contact sports players. Despite the number of participants recruited, recruitment was difficult and makes the results of this study indicative and these results should be interpreted with caution.

In addition to the sub-optimal numbers recruited, there were key differences between the three retired sports groups in the study samples:

- Elite Rugby players played significantly more (>40%) games than community Rugby players
- Elite rugby players had 7 times the rate of 'no formal education' when compared with non-contact athletes
- Maori and Pacific Island participation in the three retired groups was significantly different (Elite=28%, Community=18%, Non-contact=3%)

As part of the research, retired players were asked – given what they know now about their health and the risks involved in their sport – whether they would choose to do it all over again if they could travel back in time to the beginning of their sports career. The answer was “absolutely” and equal across the three retired sports groups.

*Authors noted that the significance of the results from this study would be influenced by sub-optimal recruitment numbers and the significant differences in the characteristics of the three groups studied. These group differences included:

1. Higher levels of athletic exposure for elite Rugby players, that is, percentage of athletes playing more than 150 games – *Elite Rugby players – 96%, Community Rugby – 86% and non-contact sports – 67%*.
2. Higher percentage of elite Rugby players having “no formal education” – *Elite Rugby players – 7%, Community Rugby – 5% and non-contact sports – 1%*.
3. Diversity of ethnic origins as an example the percentage of Maori and Pacific Island heritage involved in different sports – *Elite Rugby players – 28%, Community Rugby – 18% and non-contact sports – 3%*.