

Kumanu Tāngata - The Aftermatch Study

Investigating the health outcomes of high-level rugby union players using linked administrative data

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DISCLAIMER

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Statistics New Zealand. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>.



Former All Black Carl Hayman on battling dementia

Former professional rugby player Carl Hayman is speaking up about the dangers of concussion in the hope that current and future players won't have to endure degenerative brain conditions. His memoir *Head On: An All Black's memoir of rugby, dementia and the hidden...*

RNZ / Jun 20



The Telegraph

World Cup-winner Steve Thompson among 169 ex-players in concussion lawsuit against rugby authorities

High Court hears accusation of "abject failure" by World Rugby and English and Welsh unions in the management of concussion protocols

The Telegraph / Jun 23



Former Wales star Dafydd James reveals he has early onset dementia

James, who won 48 Wales caps, is among a group of former players to join a lawsuit against World Rugby, the Rugby Football Union and Welsh Rugby Union.

Mail Online / Apr 4



BBC NEWS

Head injuries: Nearly 300 rugby players suing over brain damage

Former internationals Ryan Jones, Alix Popham and Steve Thompson are among them.

BBC News / Aug 31

Previous research



Lehamn et al. (2012), *Neurology*; Mackay et al. (2019), *New England Journal of Medicine*; Russell et al. (20121), *JAMA Neurology*; Ueda et al. (2023), *The Lancet Public Health*

Previous research

Russel et al. (2022), *Journal of Neurology, Neurosurgery & Psychiatry*

- Scottish sample (n = 412 players; n= 1,236 general population)
- Players less likely to die from all causes prior to age 70
- Risk of neurodegenerative disease-related death or diagnosis was greater

Beaglehole & Stewart (1983), *NZMJ*

- No difference in life expectancy for All Blacks (N = 822) compared to life expectancy tables

Previous research

Cross-sectional research on rugby players

- Greater prevalence of osteoarthritis (vs non-contact athletes)
- Hazardous drinking (vs non-contact athletes)
- Mixed results with self-reported mood and cognitive outcomes



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Collaboration between New Zealand Rugby and the University of Auckland

The project name


Gifted by New Zealand Rugby's Kaumātua, Luke Crawford

Comes from the phrase “He Tukutuku Raraunga he kumanu tāngata”

Literal translation: A statistical latticework, cherishing people

Figurative translation: Multiple data threads, combining to care for our players

Aftermatch - a sense of what lies beyond a professional sporting career; also an opportunity for debrief and analysis

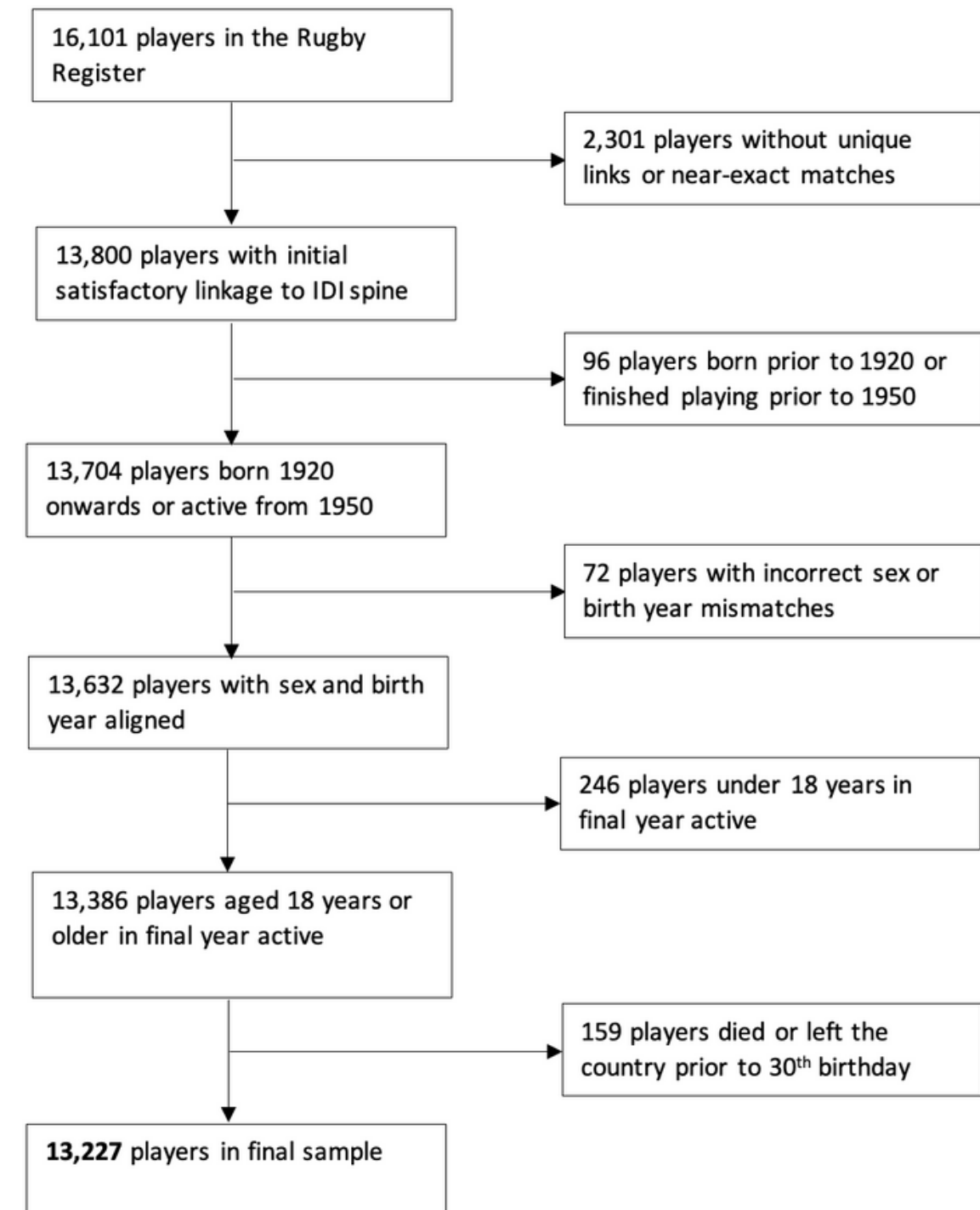


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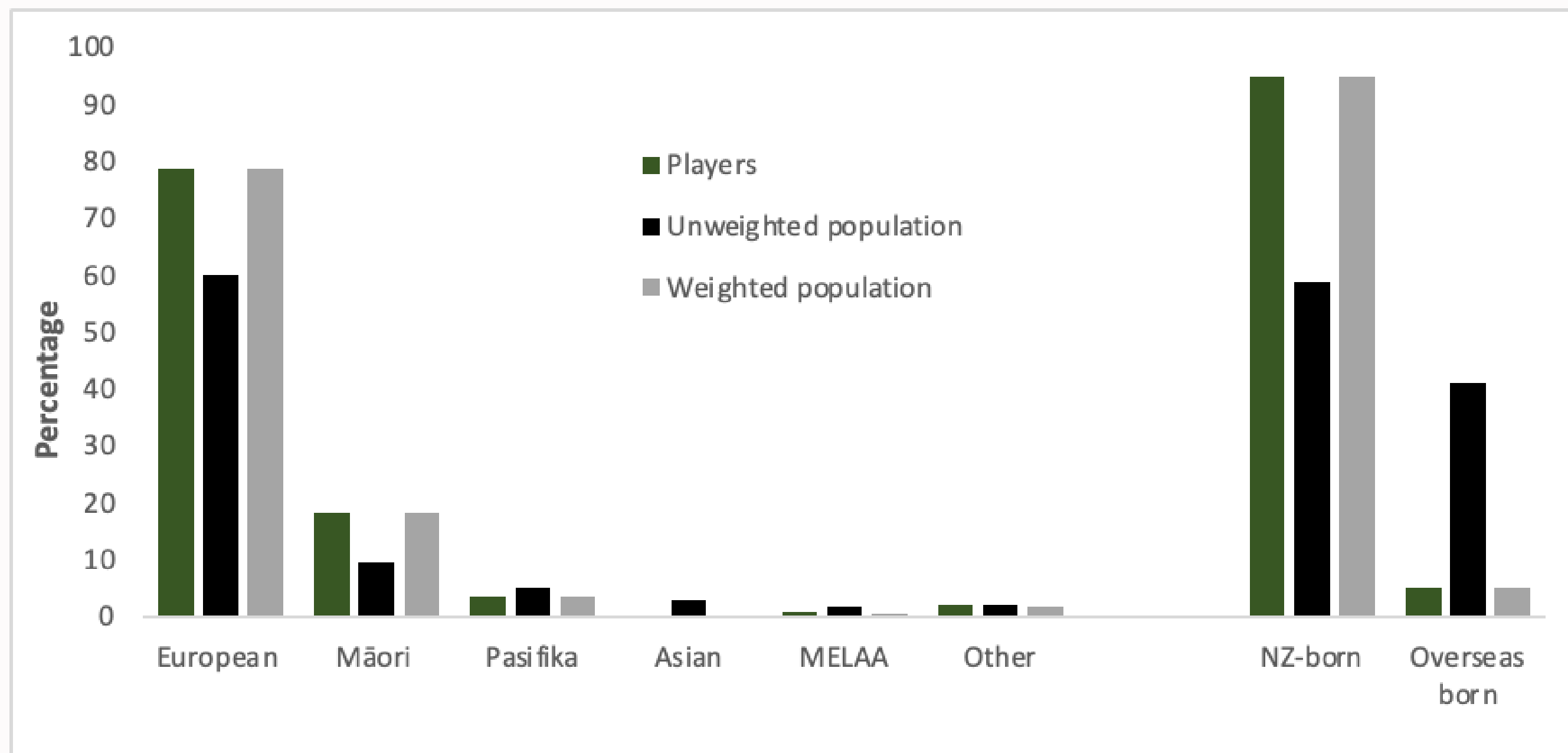
Utilise the Integrated Data Infrastructure (IDI) to investigate a wider range of health outcomes with a considerably large sample size.

New Zealand Rugby Register linked to the IDI spine

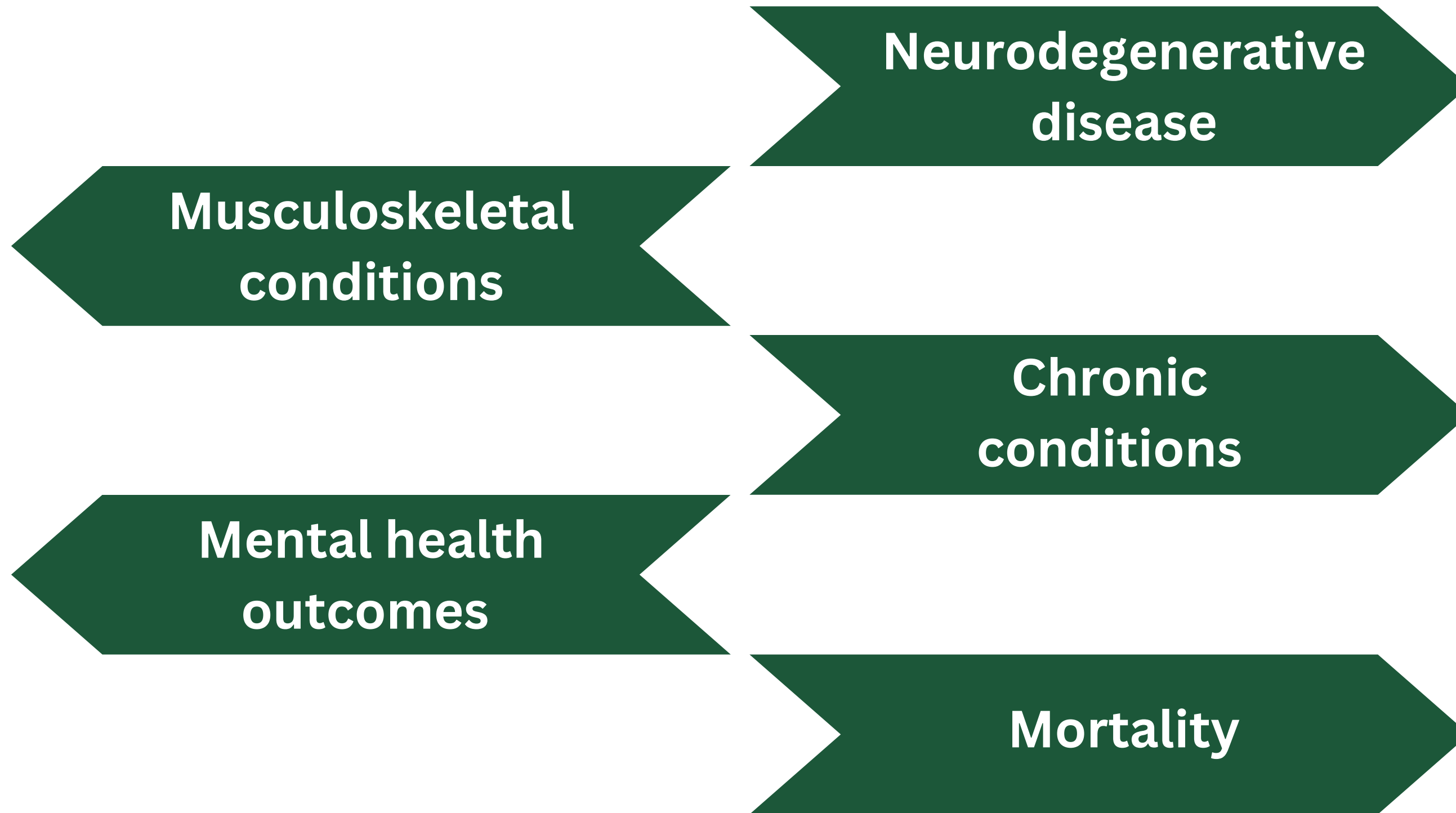
- 16,101 records provided to Statistics New Zealand
- Accurate linkage was achieved for 13,800 (85.7%) players.
- Following further exclusion criteria, our final sample consisted of 13,227 players born between 1920-1984



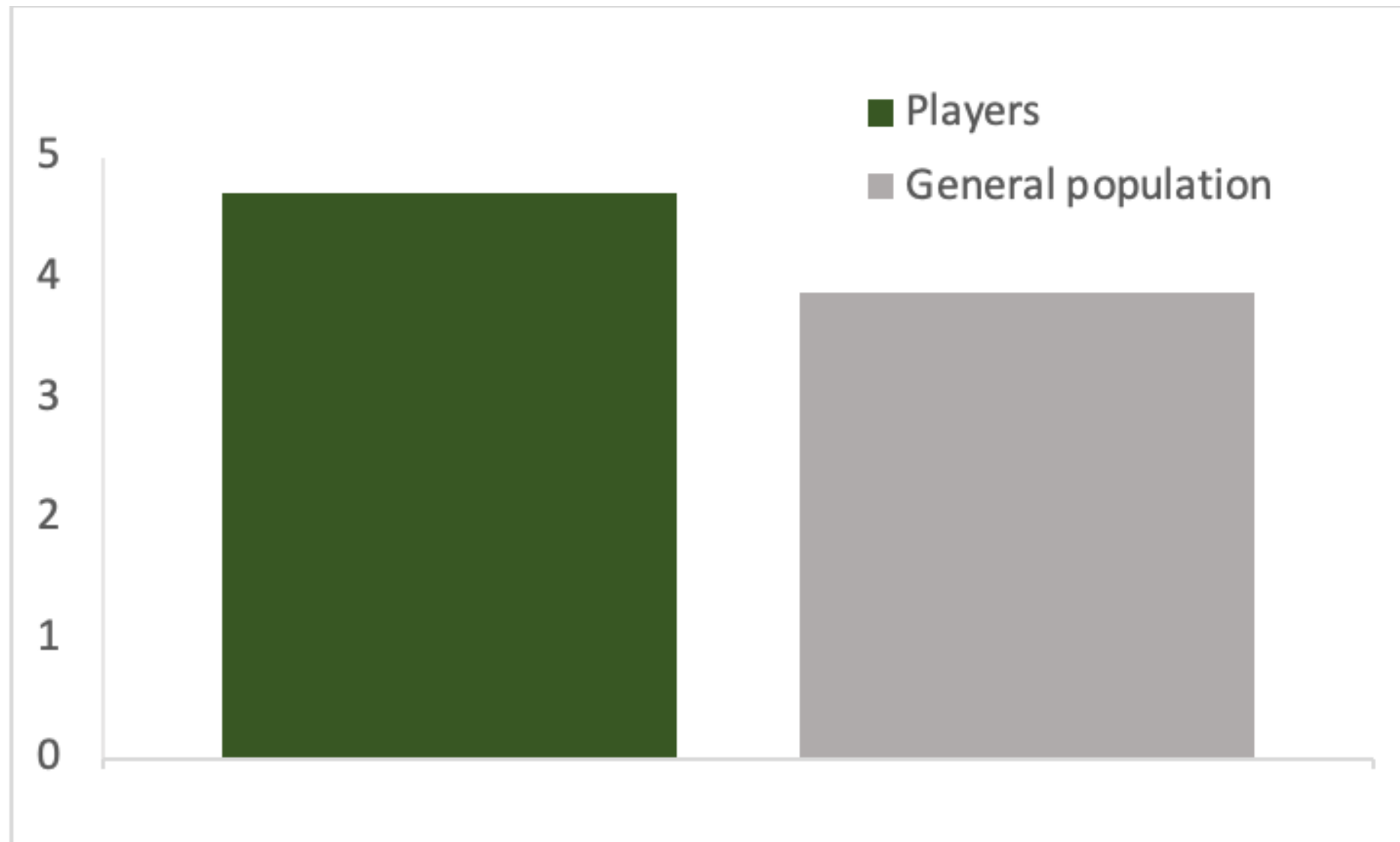
Weighting results



Outcomes of interest



Neurodegenerative diseases



- **Any NDD:** HR 1.22 [95% CI 1.12–1.32]
- **Alzheimer's disease:** HR 1.51 [95% CI 1.29–1.76]
- **Other dementias:** HR 1.22 [95% CI 1.11–1.34]
- **Parkinson's disease:** HR 1.13 [95% CI 0.95–1.34]
- **Motor neuron disease:** HR 1.04 [95% CI 0.71–1.53]

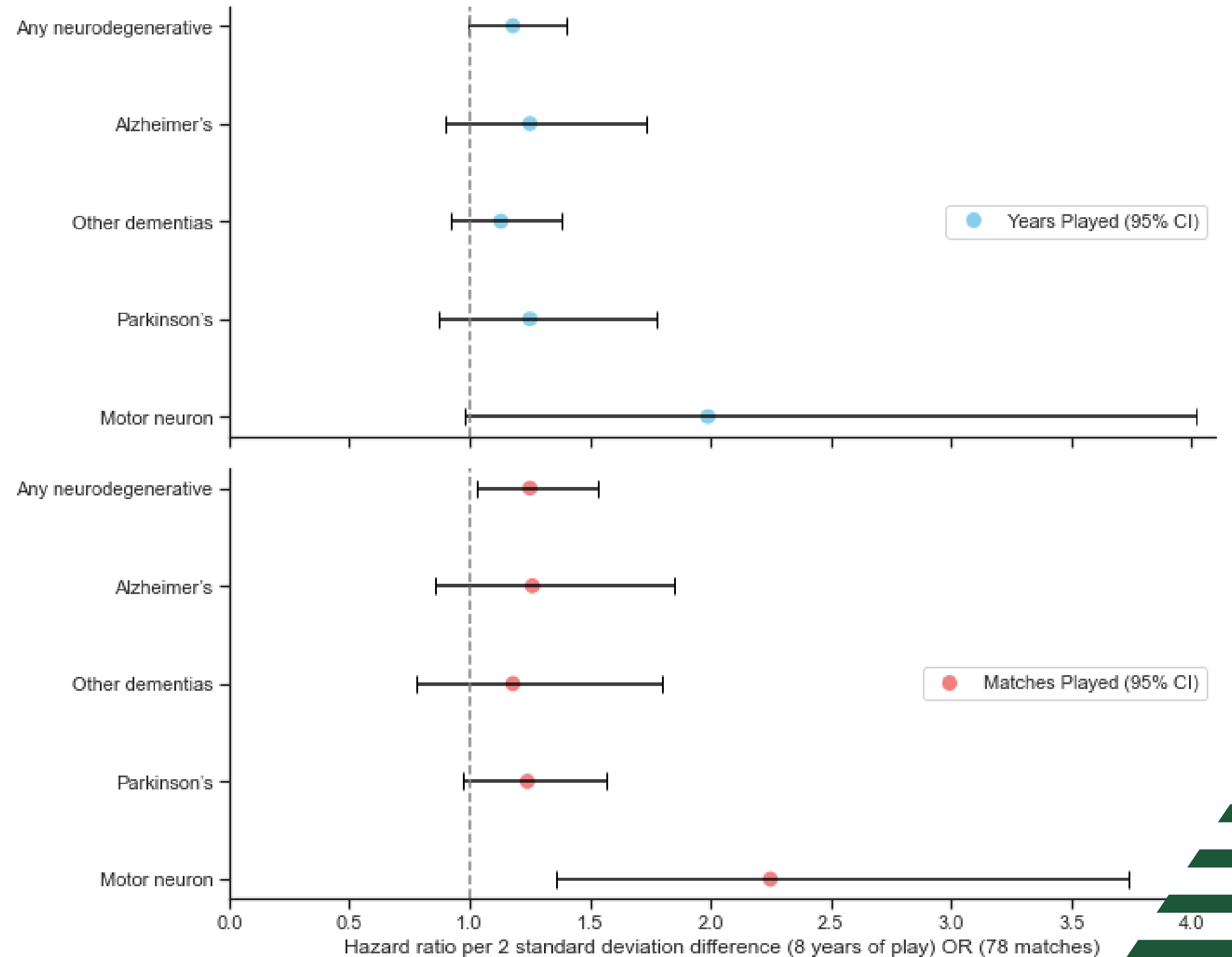
Player-specific analyses

Player position

Forwards were less likely to be diagnosed with any neurodegenerative disease, Alzheimer's disease, and other dementia than backs

Level of play

Professional/international-level players did not differ from those who played at a provincial/amateur level



Conclusions

Evidence of an increased risk of neurodegenerative disease amongst high-level rugby players

Highlights ongoing need to prioritise player safety

Next steps

1. Mortality outcomes - results finalised
2. Musculoskeletal outcomes - analyses underway

Caveats

Undercounting cases due to reliance on service use data and lack of primary care data

No direct measures of exposure to rugby-related factors (e.g. repeated head impacts)

May not generalise to players in more recent years

No information on general population's exposure to rugby or other contact sports

Acknowledgements

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