

## Ken Quarrie

### Chief Scientist, New Zealand Rugby

**Research specialisation:** Injury Prevention and risk management

**Experience:** Dr Ken Quarrie is the Senior Scientist for New Zealand Rugby, a member of three World Rugby Advisory Groups, and a Research Associate at AUT University.



Following the completion of a degree in physical education at the University of Otago in 1989, Ken undertook a master's degree examining the biomechanics of rugby scrummaging. In 1993, an opportunity to be involved in the Rugby Injury and Performance Project (RIPP) presented itself, and Ken has been studying aspects of rugby performance and injury management ever since. RIPP was one of the first major prospective studies examining risks of injury among rugby players.

In 2000, Ken was appointed as the inaugural Injury Prevention Manager for New Zealand Rugby and was responsible, in partnership with the Accident Compensation Corporation, for developing and managing a nationwide injury prevention programme, entitled 'RugbySmart'. The main goal of the programme was to reduce the incidence of permanently disabling injuries resulting from rugby. Since 2000, there has been an 89% reduction in scrum-related spinal injuries, and a reduction of 56% in all injuries resulting in permanent disablement. The success of RugbySmart has seen it since copied in a number of countries around the world, including South Africa, Australia and Japan. In 2008, Ken completed a PhD in the epidemiology of rugby injuries at AUT. Since 2007, Ken has focused on analysing player performance and team strategies and tactics. As such, he provides a range of analyses and reports to high performance coaches and staff within New Zealand Rugby.

**Research overview:** With respect to injury and risk management, Ken has published academic papers on preventing cervical spine injuries, the effect of compulsory mouth-guard use on reducing dental injuries, risk factors for injuries among club players, the types and risks of tackles in professional rugby, shoulder injury mechanisms, managing player loads, and the acceptability of risks in children's sport. On the performance side of the ledger, he has published papers on the fitness characteristics of club players, changes in match activities and player size in international rugby from 1972 to 2004, the physical demands of international rugby, agent-based modelling for the development of moves, and a paper ranking the ability of goal kickers in international rugby. He is currently taking a special interest in issues regarding concussion management.

#### Research publications:

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- Fuller CW, Molloy MG, Bagate C, Bahr R, Brooks JH, Donson H, Kemp SP, McCrory P, McIntosh AS, Meeuwisse WH, **Quarrie** KL, Raftery M, Wiley P. Consensus statement on injury definitions and data collection procedures for studies of injuries in rugby union. *Br J Sports Med* 2007;41(5):328-31.
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