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An Investigation of

Mild Traumatic Brain Injury in

Club-Grade Rugby: A New Zealand Study

A thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Psychology at Massey University

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2002

Mild traumatic brain injury (MTBI) in sports is a relatively common phenomenon, particularly where a high degree of physical contact is a central feature of the sport. While many of the MTBI's incurred by athletes may be innocuous, some result in negative outcomes that are more persistent and disabling. It is important, therefore, to ensure that sporting groups not only have adequate knowledge about the incidence and severity of MTBI and of the factors that typically surround its occurrence, but that they also have adequate guidelines regarding appropriate assessment, management and treatment of this phenomena.

Despite numerous studies having been conducted with elite/professional or school grade players in high-contact sports such as American gridiron football and rugby league, very little research has been conducted in the area of club-grade rugby, and to-date, there has been no detailed examination of MTBI incurred at this level. The present investigation sought to rectify this situation.

The proposed investigation, incorporating male rugby players participating in a regional club-grade competition, took place in two distinct phases. In the first phase of the research, three questionnaires were administered to players and to those monitoring the sport (i.e., coaches, team management, and referees). The results revealed a high rate of MTBI (14.4%), of which 20.7% of concussions involved a loss of consciousness (LOC). Identified risk factors included: (1) being under 21 years of age; (2) being a forward player, in particular a flanker; (3) the second half of a match; (4) frequent involvement in tackles; and (5) having a history of more than two MTBI. While a relatively high rate of mouthguard use was identified, it unfortunately did not reflect the compulsory use required by mandatory rugby laws. Attitudes relating to mouthguard use indicate that more education surrounding the proven benefits of mouthguard use in MTBI prevention is required at this level.

Slightly more than half of the MTBI reported in the current investigation failed to receive any attention, with players involved at the top club-grade level (i.e., Senior I) more likely to have their injury go unrecognised than players in lower grades. Such findings are attributed in part to the subtlety of MTBI symptomology, but more importantly, to an apparent reluctance on the part of players to report these symptoms. While the majority of those monitoring club-grade players reported basic first aid training/qualifications, the need for more specific training in the assessment and management of MTBI is evident on the basis of the research findings. A general lack of knowledge regarding recommendations for periods of abstinence after MTBI (as advised by governing sporting bodies) was also demonstrated, highlighting another area requiring further attention.

Phase II of the research involved the administration of three neuropsychological measures sensitive to deficits in information processing speed (Symbol Digit Modalities Test, Digit Symbol-Coding Test and Speed of Comprehension Test) in an attempt to monitor the rate of recovery after MTBI. However, on the basis of players reluctance to report (a phenomenon which appeared endemic at this level), the objectives in relation to this phase of the research were not achieved.

The apparent failure of the latter research phase effectively highlights just one of a number of methodological problems associated with conducting research with this particular population, of which other difficulties also primarily relate to the collection of data (i.e., less-than-ideal testing conditions, missing data, etc.). On the basis of the research findings, continuing education and relevant training in relation to MTBI is advocated for all those involved at the club-grade level, particularly in relation to symptom recognition, potential adverse outcomes, protective factors and appropriate assessment and management techniques. Despite the challenges this area presents for research, continued exploration is recommended with careful consideration given to the methodological issues raised in the current investigation.

ACKNOWLEDGEMENTS

There are a number of people whom I would like to sincerely thank for their contribution to the formation of this thesis. Firstly, I would like to acknowledge the commitment and dedication afforded to this project by my primary supervisor, Professor Janet Leathem. Janet, your encouragement, guidance and extensive knowledge in the field of neuropsychology has proved invaluable over this course of study. Thank you also for your support on both a professional and personal level. My sincere thanks also to Associate Professor John Podd, my second supervisor, for his expertise and much respected advice. I would also like to extend my gratitude to Dr. Ross Flett, who offered his time selflessly to assist with the statistical analyses undertaken in this research, and whose enduring patience was greatly appreciated.

In particular I would like to express my sincere appreciation to the players, referees, coaches and members of team management who gave of their valuable time – this research would certainly not have been possible without your co-operation. Thank you also to the Manawatu Rugby Football Union for their tolerance and support. I would especially like to acknowledge the financial contribution afforded by the Neurological Foundation, which enabled the present study to be undertaken. Thank you also to the School of Psychology for their support, both professional and financial, over the course of this project.

Thank you also to my fantastic friends, in particular to those who have shared a similar journey – your support has been truly valued. Finally, I would like to thank my wonderful family for their enduring love and support over the years. In particular I would like to thank my parents, for their unwavering belief in my abilities especially in times of my own doubt. My achievement is also yours.

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