

Ethics and injury risk in World Rugby and England Rugby tackle-height trial

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Concussion in Rugby

Concerns about concussion in contact sport have permeated debate within sports medicine (1, 2, 3, 4). Considerable scientific attention has been focused on the short- and long-term outcomes of concussions, as well as the strategies to reduce the risk of traumatic brain injury. The practicalities and impact of altering rules (laws) in sport – including the evaluation of outcomes – are often considered.

In the elite setting, World Rugby recently opted to lower the permitted tackle height in Championship Rugby (5, 6). We believe this research intervention (7) raises some ethical questions around informed consent and the right to withdraw, since the players were contractually compelled to participate. Unfortunately, rather than reducing injury risk, this research intervention also resulted in an increased risk of concussion.

Thus, we alert the reader to issues relating to the ethics and increased risk of injury following this research intervention and make some recommendations for the future.

Ethical Practices

We are concerned by the ethical approval and participant selection processes employed in this research intervention. Indeed, this trial was conducted by World Rugby following research published by World Rugby employees (5, 6). World Rugby then subsequently imposed this trial on Championship Rugby players in the UK to test the hypothesis that lowering tackle height would lower concussion incidence.

Given that players are employed by their clubs to play rugby, it is extremely unlikely they had the ability to consent to participate or the right to withdraw from the trial *without penalty or prejudice* (8). This is particularly concerning given that ‘the majority of players felt that reducing tackle height would result in more, rather than less, concussions’ (7).

Trial Findings

Another area of concern for us relates to the injury risk that followed this research intervention. Specifically, this trial reduced the permitted height of the tackle from the line of the shoulder to the line of the armpit in elite men’s rugby. Although not statistically significant, the result of the trial was that there were 16.9 concussions per 1000 playing-hours in the non-intervention period compared to 22.2 concussions per 1000 playing-hours during the intervention. This equates to a 30% greater relative risk of concussion.

The impact of this trial was greatest on the tackler, whereby ‘...concussion incidence rates for tacklers were 6.9 per 1000 hours in the control and 13.2 per 1000 hours in the intervention period’ (7). Therefore, the trial increased the risk of injury in the form of mild traumatic brain injuries to the participants within Championship Rugby.

Although some may consider the decision to run this intervention separate from the research - making it not under the purview of research ethics - the research in question **was** the law change. Indeed, the authors have reported this research as an ‘intervention’ study (7). Thus, it becomes difficult to accept any assertion that tries to separate the trial from the research, a common strategy used to erode the nature of participant informed consent in trials (10).

The ethical approval cited by the researchers refers to observational injury surveillance and does not acknowledge any intervention (i.e., the change to the laws of the game).

We also identify the potential entanglement of researcher and corporate interests; whereby the researchers are employed and funded directly by the sport. The decision from the Rugby Football Union and World Rugby to (rightly) stop the trial shows how intertwined the

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research was within the governance of the trial. Thus, further consideration should be given to the governance process and oversight of approving rule (law) changes that may increase the risk of injury to participants.

Some may argue that World Rugby and England Rugby have a responsibility to fund and/or undertake research into player safety. We have no intention of stifling any such endeavour. However, the potential entanglement of researcher and corporate interests require careful consideration, alongside ethics and sport governance. The authors of this research did declare their conflicts of interest.

Recommendations

World Rugby should be supported in attempting to decrease concussions within the sport (1). Notwithstanding, it is concerning that this trial was conducted without what we consider to be sufficient regard to the informed choice of human participants, as well as the right to withdraw without prejudice or penalty (8).

This is particularly concerning given that 'most of the players' predicted an increase in concussion was likely. Players were then subsequently placed at an increased risk of injury - a risk that is already higher than other team sports (9). Thus, given the ethical concerns identified and the increased risk of injury, research should not repeat these mistakes.

We recommended that World Rugby and England Rugby have all research and interventions externally scrutinised by scientists from outside the rugby community or higher education institutions funded by them. This will encourage critical dialogue and mitigate the likelihood of unethical research practices.

In addition, informed consent and the right to withdraw without penalty or prejudice should be central components to any future intervention-based research - which suggests that imposing changes on the professional game before substantiated research evidence and dialogue (e.g., with the Rugby Players Association) should be avoided.

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