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Cumulative sport-related injuries and longer-term impact in retired male elite and amateur level rugby code athletes and non-contact athletes: a retrospective study

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Summary

Rugby union and rugby league are popular team contact sports but bring a high risk of injury. Although previous studies have reported injury occurrence across one or several seasons, none have explored the total number of injuries sustained across an entire career. By collecting and comparing data on former rugby code athletes and former non-contact athletes, the UK Rugby Health Project is the first study to report on cumulative injuries and their perceived long-term impact in retired rugby code athletes compared to athletes from non-contact sports. Across multiple injury types, past participation in rugby union and rugby league, particularly at elite level, is associated with a high cumulative injury load and a continued impact of previous injuries post-retirement. Given the high number of reported concussions (and their recurrence) and associations between previous injuries during a player's career and current musculoskeletal conditions, efforts should be prioritized to reduce the occurrence and recurrence of injuries in rugby codes at all levels of the sport. Strategies should also be developed for supporting the specific physical health needs of rugby code athletes post-retirement.

Key points

(1) Compared to age-matched, non-contact controls, and across multiple injury types, retired rugby code athletes, particularly at elite level, were 1.7 to 7.3-times more likely to report sustaining a given injury and 2.4 to 9.7 times more likely to report continued impact from a given injury.

(2) Most former rugby code athletes (elite: 81%, amateur: 76%) reported at least one concussion, and concussion injury had the highest recurrence alongside upper or lower back injury.

(3) Compared to age-matched, non-contact controls, the prevalence of osteoarthritis was more than 2-fold greater in former elite rugby code athletes (51% v 22%), and was associated with previous joint injury and surgery. The prevalence of current back pain and severe and regular joint pain was high in all former athletes, particularly former elite rugby code athletes (64% and 80% respectively).

(4) It is important that efforts are prioritized to reduce the occurrence and improve the longer term monitoring and management of injuries in rugby code athletes at all levels. In addition, strategies are needed to support the specific health needs of players post-retirement.

Highlights

(1) Across multiple injury types, past participation in rugby codes (particularly at elite level) is associated with a higher number of injuries, recurrent injuries, a continued impact of previous injuries post-retirement and more than a 2-fold greater risk for osteoarthritis.

(2) Concussion injury was the most commonly reported injury in both elite and amateur rugby, and was the injury with the highest cumulative load, indicating the highest rate of recurrence.

(3) Thirdly, that the prevalence of current back pain and severe and regular joint pain was high for all former athletes, particularly former elite rugby code players.

(4) Our findings add to the knowledge base on lifetime injuries sustained by rugby code athletes and suggest that for each season played, individuals are at risk of sustaining at least one injury. There were a high number of reported injuries per player, equivalent to 1.6 injuries/season in former elite rugby code players and 0.9 injuries/season in former amateur rugby code players, compared with 0.2 injuries/season in former non-contact athletes. The average rugby career spanned 24 - 25 seasons.

(5) The most common injury reported was concussion, followed by injuries to the back and to the knee ligament. The most frequently reported injury (total number of a given injury) was also concussion, followed by thumb sprain, and thigh contusion. This reflects recent injury surveillance data, and suggests that approximately 80% of rugby code players will experience at least one concussion at some point during their playing career,

(6) Although it has been suggested that increased skills and technical proficiency can reduce the risk of certain types of injuries, we observed that in all cases where differences were statistically significant, injury numbers were higher in elite than in amateur rugby code players.

Conclusion

Our findings indicate that elite rugby code athletes experience notably more injuries and surgeries over the course of their playing careers than non-contact athletes. In addition, elite rugby code athletes appeared to be at an elevated risk for injuries that continued to affect them post-retirement. Although to a lesser extent than elite level rugby codes, amateur rugby code athletes also experienced more injuries and surgeries, and were more likely to have long-term effects of knee ligament injuries than non-contact athletes. Given the high number of reported concussions and their recurrence, and the association between current musculoskeletal conditions and previous injuries during a player's career, governing body efforts should continue to be prioritized to reduce the occurrence of rugby union and rugby league injuries in both the elite and amateur game. Importantly, strategies should also be developed for supporting the specific physical health needs of rugby code athletes' post-retirement.

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