

Oro-facial and dental injuries in club rugby union players

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Oro-facial and dental injuries are of particular importance as dental tissues have a low potential for recovery when damaged and such injuries can give rise to functional, aesthetic and psychological disfigurement. Also their repair can be costly, distressing and time consuming. This study sought to clarify the nature and severity of oro-facial injuries amongst rugby players in a first division club in Scotland. A secondary aim of the study was to examine the influence of position and standard of play on injury rates. The results show that oro-facial injuries are common amongst rugby players, and that players in the first fifteen were at the greatest risk. Although injuries may still occur when mouthguards are used, their severity will be reduced by use of such protective devices.

Keywords: Oro-facial injury, dental injury, rugby, mouthguards

Oro-facial injuries are commonly sustained by players of contact sports¹. If all different sports are considered together, the commonest site of damage is the lower limbs². However, in rugby the face is the commonest part of the body to be injured. The term 'oro-facial' damage includes a wide range of injuries, but dental injuries (damage to the teeth and supporting tissues) are said to be the most common type of oro-facial injury sustained by sports players³.

One-third of all people suffering from dental trauma do so during participation in sports activities, and although such injuries may happen in any sport, they are clearly more prevalent amongst those participating in the more vigorous and competitive contact sports⁴.

Dental injuries are of particular importance for several reasons. First, the exposure of a dental nerve such as that which occurs when a tooth is fractured, is painful and distressing. Secondly, dental injuries pose particularly difficult treatment problems for the dentist and therefore it is costly to repair dentition to a functional and aesthetic condition. Thirdly, repeated injuries and subsequent treatments may well influence the players' attitude to his game. Lastly, and of greatest importance, dental tissues have an almost non-existent capacity for recovery. Any part of

the dentition which is lost through trauma can only be replaced by prostheses and restorations, unlike the limbs.

Figure 1 shows a radiograph of a 26-year-old rugby player's dentition as an example of the extensive damage to dentition which can occur. All the anterior teeth have been replaced by porcelain crowns with metal posts and cores. Two of these teeth have required apicectomies (exposure and curettage of the apex of the tooth root). The posterior teeth have required gold-shell crowns due to repeated impacts on a heavily filled dentition.

It is clear that oro-facial and dental injuries and their prevention are important to all involved in sports and sports medicine, and will become more so with the increasing popularity of contact sports. As dental caries in the younger cohorts of the population declines, dental injuries will become a proportionately greater cause of problems, particularly in children who have never experienced operative dental care. The prevention of dental injuries in school children is therefore crucial.

The aim of the study reported here was to assess the nature and severity of oro-facial injuries amongst Scottish first division club rugby players. It also aimed to examine the effect of player experience, team position, team level and mouthguard use, on injury rates.

Method

One first division Scottish rugby club was selected for inclusion in this study. All of the 99 players known to the club secretary were forwarded a questionnaire along with a covering letter from the Scottish Rugby

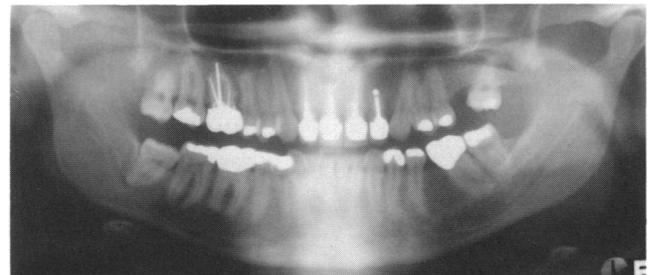


Figure 1. Radiograph of rugby player's dentition showing extensive repair

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Union's medical and dental advisors, and a reply-paid envelope. Non-respondents were telephoned 2 weeks subsequent to the initial mailing in order to stimulate further response. The questionnaire, which had been previously tested and validated in pilot studies, asked players about their rugby careers and for details of any oro-facial injuries sustained during participation in the sport. Questions concerning dental work carried out as a result of rugby injuries were also included. Finally, the players were asked about their use of mouthguards and their reasons for failing to avail themselves of this readily available protection.

Results

Sixty-four percent (63) of the players returned questionnaires. The average length of time the players had been participating in rugby on a regular basis was 15 years, and the age range of the players was between 14 and 40 years (average 26.1).

Soft tissue injuries were common. Forty percent (25) of the participants had, at some time during their rugby careers, required sutures in either their face or head. Table 1 shows that skeletal and dental injuries were even more prevalent. Forty-four percent (28) of the respondents had at some time suffered a significant nasal injury to bone or cartilage – 'a broken nose'. Thirty percent (19) had fractured their teeth, and 19% (12) had had teeth completely knocked out. Five percent (three) had fractured their mandibles. The overall average injury rate per player was therefore 0.98.

Table 2 shows that some playing positions on the field increase the likelihood of oro-facial injury and,

Table 1. Number of players experiencing hard tissue injury

	<i>N</i>	<i>Percentage of all respondents</i>
Fractured nasal bones/cartilage	28	44
Fractured teeth	19	30
Avulsed teeth	12	19
Fractured mandibles	3	5

Average number of injuries per player = 0.98

Table 2. Effect of field position on rates of oro-facial injury

	<i>No. of players</i>	<i>No. of injuries</i>	<i>Injury rate per player</i>
Prop	18	6	0.33
Hooker	3	3	1.0
2nd row	6	3	0.5
Wing forward	13	17	1.3
Locks	5	7	1.4
Scrum half	4	5	1.3
Stand-off	4	6	1.5
Centre	8	9	1.1
Wing	9	5	0.6
Full back	1	1	1.0
Total	63	62	

Table 3. Rates of oro-facial injuries reported at each team level

<i>Team</i>	<i>No. of players</i>	<i>No. of injuries</i>	<i>Injury rate per player</i>
1st	18	23	1.3
2nd	20	20	1.0
3rd	19	18	0.95
4th	3	0	0
5th	3	1	0.33
Total	63	62	0.98

also, those playing in the higher level teams appeared to be more prone to dental and facial injuries (Table 3). Among the dental injuries, all but two of the teeth which had been fractured or avulsed were anterior teeth and the majority (90%) were from the maxillary arch. Injuries to teeth on the left side were reported twice as commonly as those on the right. A total of 43% (27) of the participants claimed that they had some type of dental prosthesis (crowns, bridges or dentures) which had been required solely due to rugby injuries.

Sixty-three percent (40) of the respondents reported that they now regularly wore a mouthguard while playing rugby. The majority of these (66%) were custom made by dentists, rather than being shop bought. Table 4 shows the reasons given by the players for ever failing to wear mouthguards.

Discussion

This study was retrospective and observational in nature. As with any retrospective study, reporting bias is problematic, as the questionnaire was asking players to cast their minds back to injuries which may have occurred many years previously. Similarly, the small sample size and the fact that the sample was not randomly selected may affect the results. However, this is the first report of oro-facial injuries in adult club level rugby, and the results therefore warrant attention.

It is clear from this study that oro-facial and dental injuries are a far from rare occurrence on the rugby field. Indeed, the injury rate of 0.98 indicates that it is highly probable that anyone who participates regularly in rugby will, at some time, suffer from one of these types of injury. It is also clear that the rate of injury is much greater in those playing at the higher levels of the sport, presumably because of greater commitment to the game.

It is easy to hypothesize that the reasons for the left/right distribution of dental injuries was due to purposeful blows, but further more definitive studies are required to support this assumption.

Due to the rising cost of, and the difficulties in successfully treating dental injuries, it seems clear from this study that a mouthguard is an essential part of a rugby player's kit. Players should be advised that custom-made mouthguards offer the greatest comfort, fit, and protection against these common injuries. Use of mouthguards as a health oriented behaviour will increase if the habit of wearing them is

promulgated and encouraged when players are young. Junior clubs and schools should insist that all young rugby players use mouthguards when participating in contact sports.

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