

SHORT REPORT

Impact of school sports injury

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Background: Most injuries in school occur during sport. Objectives: To explore the impact of sports injury in supervised school sport.

Method: A prospective study of sports injury in children of secondary school age presenting to the accident and emergency department. Each patient was identified on registration, matched with medical records after discharge, and contacted later by telephone to complete a structured interview. Patients were only included if their injury was sustained during supervised school sport.

Results: During the study period, 194 patients aged 11–18 attended the accident and emergency department with an injury, 51% of which occurred during school sport. Injuries occurred most commonly in rugby (43%), followed by physical education and games together (17.5%). Most injuries were x rayed (72%). Just over 12% of pupils lost no time from sport, most (71%) were back to sport within three weeks, and 2.7% were injured for more than eight weeks. Almost a third of parents needed to take time off from work to deal with the injured child.

Conclusion: School sports injuries are important. They account for just over half of all injuries in secondary school children. They cause significant disruption to school and sport and have important implications for the wider family.

School sport is not risk free. With considerable emphasis not just on the benefits of exercise, but on the potential improvement in sporting expertise, it is easy to forget the potential impact of injury in school sport. There are documented physical, psychological, and social benefits,^{1–3} but sport is also the largest contributing factor to injury at school.^{4–5} As many as 22% of 8–17 year olds may suffer sports injury,⁶ and the incidence of sports related injury ranges from 3% to 39% depending on the age group, sex, and the definitions used to categorise participation, skill, and ability.^{7–10} School sport includes at least three categories of activity: formal physical education (PE) class, organised sports participation, and casual sports activity. In one study from the Netherlands, injury rates varied, with 62% of sports injuries occurring during organised sport, 20% during PE, and 18% in non-organised sport.⁶ The level of supervision may vary in different countries, and a study from the United States found that 25–30% of youth injuries occurred during organised sport compared with 40% in unorganised sport.¹¹ Most school sports injuries are minor, causing limited physical and social disruption,⁶ but a recent report¹² identified such injuries as a major reason for unnecessary school absence. These injuries can be serious. There is evidence that up to 19% of sports related injuries require more than one medical attendance or specialist referral, and, with more serious conditions such as concussion or fracture, the admission rate is 3.8%.¹³ One study from France identified a 22% fracture rate in the under 15 age group, with 12% of the inpatient children experiencing angulation or shortening of a limb or limited joint mobility.¹⁴ Overall, 34% of all paediatric injuries require review, and 7.5%

warrant three or more visits. Specialised rehabilitation, including physiotherapy, occupational therapy, supply of crutches, or a wheelchair is needed for 27% of inpatients.¹⁵ This study builds on previous work by our group that looked at training needs and injury care in the schools¹⁶ and complements this work by exploring the impact of school related sport injury on the family.

METHOD AND RESULTS

This was a prospective study of patients with sports related injury in the post primary school age group presenting to the accident and emergency department of a major district general hospital. Patients were included if their injury was sustained during supervised school sport—that is, school games, PE classes, and competitive school matches occurring both on weekdays and at weekends. We carried out a structured telephone interview of a parent if the patient was less than 16 years, or the pupil if they were over 16 years of age, focusing on review requirements, time lost from school and from sport, and implications for the family. The interview data were married with the medical record of investigations and treatments administered, waiting times, and outcome.

We have complete data on 76 (88%) of 86 children identified as sustaining a sports injury. Data on sport and injury type were also included from 10 other patients (seven who were lost to follow up, plus three who were unsuitable because they sustained a second injury in the interim). On surveying the accident and emergency attendance list retrospectively for the study period, we identified 13 additional school sports injuries that had been missed at registration. Consequently we were able to estimate that school sports injury accounted for 51% (99/194) of all injuries of 11–18 year olds attending the accident and emergency department during the study period.

Table 1 gives the sport participation and nature of the injuries. Sports injury resulted in no school absence in 41.3% of cases. However, 21.3% missed part of a day, 10.7% a full day, 9.3% parts of more than one day, 16% two or more full days, and 1.3% a combination of full days and parts of days, amounting to more than two full days. The total time spent in accident and emergency ranged from less than 30 minutes

Table 1 School sport participation and nature of injuries presenting to The Ulster Hospital (1–21 October 2001)

Sport involved	Number	%	Injury sustained	Number	%
Rugby	37	44.6	Fracture	20	23.3
Hockey	12	14.5	Dislocation	2	2.3
Football	11	13.2	Soft tissue injury	46	53.5
Netball	4	4.8	Laceration	12	13.9
PE	12	14.5	Head injury	3	3.5
Games	3	3.5	Other injury	3	3.5
Other sports*	7	8.4			
Total	86	100	Total	86	100

PE, Physical education.

*Other sports: basketball (3), badminton (1), not documented (3).

(3.6%) to more than three hours (8.3%). Mean time was 105 minutes, with 61–90 minutes the modal time (31%). Just over 12% of pupils lost no time from sport, and 56% had returned to sport within 14 days. Most (71%) were back to sport within three weeks, but a small proportion (2.7%) were injured for more than eight weeks. Just under one third (32%) of parents needed to take time off from work to take the patient to the accident and emergency department or for review or referral appointments, and 7.9% had to arrange child care for siblings during hospital visits.

DISCUSSION

The pattern of injury is comparable to those in other studies from accident and emergency departments and schools,¹⁰ showing that boys presented more often and that the main causes of injury were rugby (45%) and association football (12.8%). Indeed, the findings support the conclusions of a recent report that rugby had three times the risk of new substantive injuries than the next most risky activities among 16–25 year olds.² The proportion and nature of injuries is similar to those in other studies.^{3 10 13} The evidence on the influence of age is conflicting: some studies show no difference,¹⁷ while others suggest that peak injury rates in girls occur at 13–14 years, and in boys at 15–16 years,¹⁸ or, as in our study, at 12 years.¹⁹ The reason for this is not known, but may be related to acquisition of a new sporting skill such as rugby after primary school.

The high rate of radiographic investigation is comparable to or less than in other studies.^{20 21} Review and referral figures were comparable to practice in Denmark and the United States,^{13 15} although the admission rate was significantly lower than in other reports.

The particularly interesting new finding of this study is the extent of school absence. Although just over one third of pupils (36%) attended during school, a much greater proportion (58.7%) had time off school, ranging from part of a day to a few days. This was much higher than reported in other studies.^{3 15} Similarly, these relatively minor injuries impacted on members of the family, so that 32% of parents had to take time off work to bring patients to hospital. In the only other study that we could find with comparable data, 23% of parents took time off work.¹⁵ In addition, parents often had to make arrangements for the care of other members of the family (7.9%). Review clinics are held during school hours, and we were unable to ascertain from the data if this influenced school absence and parental time off work more than the severity of the injury.

It is recognised that this study is limited to one hospital, and is influenced by the sporting emphasis of the school population served. The diversity of sport participation and sporting emphasis between schools, identified in other work,¹⁶ made it impractical to attempt to express injury rate in terms of hours of activity. The timing of the study allowed only winter sport to be considered. However, this should not detract from the fact that this study is interesting and important, not just for its contribution to the study of school sports related injury, but because it identifies the serious implications of what is often considered to be a relatively trivial injury. There are costs to pupils through time off school, and economic costs to parents through time off work and arranging child care. This study adds to other work, which simply identifies the pattern of injury and explores risk associations such as duration and intensity of training and competition, because it highlights other social dimensions to school related sport injury. We hope that future studies may see the wider implications of the incidence of seemingly trivial injury and include a health economic perspective or identify the social or educational cost of such injury.

Take home message

School sports injuries are important, accounting for just over half of all injuries in children of secondary school age. Such injuries cause significant disruption to school and sport and have important implications for the wider family.

In conclusion, we found that school sports injuries accounted for just over half of all injuries in children of secondary school age, and 80% require treatment other than simple analgesia and advice. Such injuries cause significant disruption to school and sport and have important implications for the wider family through parental time off from work and arranging child care.

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