

# CHIRPP INJURY BRIEF

Canadian Hospitals Injury Reporting and Prevention Program



## Injuries associated with ... TEAM SPORTS

2000-2002, Ages 5 years and older

### SOURCE OF THE STATISTICS

Injury data were obtained from the database of the Canadian Hospitals Injury Reporting and Prevention Program. CHIRPP is an injury surveillance system operating in the emergency departments of 10 pediatric and 5 general hospitals in Canada. Data collection began in April 1990 at the pediatric hospitals and between 1991 and 1995 in the general hospitals. CHIRPP is a program of the Injury and Child Maltreatment Section of the Health Surveillance and Epidemiology Division, Public Health Agency of Canada.

Briefs and reports are updated when there is reason to believe the injuries or circumstances surrounding the injuries have changed. For example, the report of injuries associated with a specific product would be updated if the manufacturing regulations for the product are changed to include a new safety element. There is no need to update reports on a regular basis because the data collection sites are not a representative sample of all Canadian hospitals. Frequent updates would simply increase the number of records included in the report but not necessarily result in any change in the patterns and distributions found.

### LIMITATIONS

It is important to note that the injuries described do not represent all injuries in Canada, but only those seen at the emergency departments of the 15 hospitals in the CHIRPP network. Since the bulk of the data comes from the pediatric hospitals, which are in major cities, injuries suffered by the following people are under-represented in the CHIRPP database: older teenagers and adults, who are seen at general hospitals; native people; and people who live in rural areas. Fatal injuries are also under-represented in the CHIRPP database because the emergency department data do not capture people who died before they could be taken to hospital or those who died after being admitted.

### INCLUSION AND EXCLUSION CRITERIA

A search of the CHIRPP database for injuries related to team sports occurring in the years 2000-2002 was conducted (ages 5 years and older; 273,293 records total). Cases were identified using the CHIRPP factor and context codes for sports and activities as well as extensive bilingual (English and French) text string searches using stems, full words and phrases. Children's games and activities were included. Children's free play and incidental injuries involving sports equipment (e.g. "TRIPPED OVER HOCKEY STICK IN GARAGE") were excluded. Various automated searches and record-by-record reviewing of small random subsets was performed to ensure data quality.

### RECOMMENDED CITATION

Injury briefs and reports and data from them may be copied and circulated freely provided that the source is acknowledged. The following citation is recommended:

Health Surveillance and Epidemiology Division (Public Health Agency of Canada). *Injuries Associated with Team Sports* : Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) database, 2000-2002, Ages 5 years and older, 47,484 records.

### FOR MORE INFORMATION

Please contact the Injury and Child Maltreatment Section, Health Surveillance and Epidemiology Division, by PHONE at (613) 957-4689, by FAX at (613) 941-9927 or visit our website at <http://www.phac-aspc.gc.ca/inj-bles/>

## Overview

Overall 47,484 cases of injuries related to team sports were identified, which represents 17.4% of all cases in CHIRPP and 40.9% of all sports and recreation injuries in CHIRPP (ages 5 years and older). Team ball sports represented 63.3% of all cases and bat/stick sports accounted for 36.6%. Water sports were less than 1% of cases. Table 1 details the specific sports; hockey, soccer and basketball account for two-thirds of all cases.

**Table 1.** Injuries related to team sports, ages 5 years and older, CHIRPP 2000-2002

<b>Sport or Activity</b>	<b># cases (%)</b>
Ice Hockey	11,552 (24.3)
Soccer	10,521 (22.2)
Basketball	10,055 (21.2)
Football	5,374 (11.3)
Baseball	3,059 (6.4)
Volleyball	1,660 (3.5)
Rugby	1,366 (2.9)
Street hockey	1,087 (2.3)
Dodgeball	646 (1.4)
Floor hockey	637 (1.3)
Lacrosse	300 (<1.0)
Ringette	252 (<1.0)
Roller hockey	216 (<1.0)
Ultimate frisbee	160 (<1.0)
Broomball	124 (<1.0)
Soccer-baseball	123 (<1.0)
Field hockey	116 (<1.0)
European handball	112 (<1.0)
Water polo, other water ball team sports	54 (<1.0)
Hockey, NFS	39 (<1.0)
Omnikin, Kinball	31 (<1.0)
<b>Total</b>	<b>47,484 (100.0)</b>

NFS=Not Further Specified

## Age and sex

Table 2 details the age and sex distribution. Although 10-14 year-olds accounted for 53.4% of all cases, when adjusted for the skewed age distribution in CHIRPP, 15-19 year olds are most frequent at 2,930.2 cases per 10,000 CHIRPP cases of all types. Tables 3 and 4 show the age distribution by sport for males and females.

**Table 2.** Injuries related to team sports, age and sex distribution, CHIRPP, 2000-2002

Age group (years)	# cases (%)	Number/10,000 CHIRPP cases <sup>1</sup>	M:F <sup>2</sup>	M:F CHIRPP <sup>3</sup>
5-9	4,922 (10.4)	672.7	3.4	1.4
10-14	25,347 (53.4)	2,700.2	2.5	1.6
15-19	12,878 (27.1)	2,930.2	2.9	1.7
20 +	4,336 (9.1)	696.3	3.9	1.4
<b>Total</b>	<b>47,483* (100.0)</b>	<b>1,737.6</b>	<b>2.8</b>	<b>1.5</b>

\* in one case the age was missing

<sup>1</sup> The number of injuries per 10,000 CHIRPP injuries of all types within the age group indicated, over the same time period. Because CHIRPP collects information from ten children's hospitals and only four of the general hospitals, there is a high number of young children in the database. Using number per 10,000 within an age group (instead of overall percent by age group) adjusts for different age group distributions.

<sup>2</sup> Male to female ratio (#males/#females)

<sup>3</sup> Male to female ratio in the entire CHIRPP database for that age group, over the same time period.

**Table 3.** Injuries related to team sports, sport by age, males, CHIRPP 2000-2002; age-adjusted proportions (3 most frequent are highlighted)

Sport	Age Group (yrs), # cases/10,000 *				
	5-9	10-14	15-19	20+	Total
Ice hockey (n=10,675)	<b>157.0</b>	<b>945.0</b>	<b>1,135.2</b>	<b>370.9</b>	<b>646.4</b>
Soccer (n=6,340)	<b>327.4</b>	<b>563.6</b>	431.5	<b>128.5</b>	<b>383.9</b>
Basketball (n=6,656)	<b>100.0</b>	<b>644.3</b>	<b>752.6</b>	107.5	<b>403.0</b>
Football (n=4,730)	74.6	449.8	<b>564.9</b>	62.2	<b>286.4</b>
Baseball (2,102)	83.3	161.8	119.7	<b>129.4</b>	<b>127.3</b>
Volleyball (n=724)	7.5	57.5	77.7	38.8	<b>43.8</b>
Rugby (n=967)	0.9	41.5	202.5	43.4	<b>58.6</b>
Street hockey (n=992)	85.0	83.5	33.4	14.2	<b>60.1</b>
Dodgeball (n=415)	21.1	49.4	12.9	0.5	<b>25.1</b>
Floor hockey (n=508)	15.7	39.9	42.4	24.8	<b>30.8</b>
Lacrosse (n=275)	5.4	28.9	28.4	1.4	<b>16.7</b>
Ringette (n=11)	0.0	1.2	1.1	0.3	<b>0.7</b>
Roller hockey (n=201)	7.0	21.7	14.4	1.4	<b>12.2</b>
Ultimate frisbee (n=111)	1.2	6.9	10.1	10.4	<b>6.7</b>
Broomball (n=62)	0.5	3.3	6.8	6.0	<b>3.8</b>
Soccer-baseball (n=55)	2.8	7.1	0.7	0.0	<b>3.3</b>
Field hockey (n=36)	0.9	3.4	3.6	0.5	<b>2.2</b>
European handball (n=68)	0.9	5.9	10.1	0.5	<b>4.1</b>
Water polo (n=24)	0.2	1.9	2.2	1.6	<b>1.5</b>
Hockey, NFS (n=35)	1.6	2.8	2.2	1.6	<b>2.1</b>
Omnikin (n=13)	0.5	1.4	0.7	0.3	<b>0.8</b>

\* The number of cases per 10,000 CHIRPP cases (males, for the given age group)

**Table 4.** Injuries related to team sports, sport by age, females, CHIRPP 2000-2002; age-adjusted proportions (3 most frequent are highlighted)

Sport or Activity	Age Group (yrs), # cases/10,000 *				
	5-9	10-14	15-19	20+	Total
Ice hockey (n=877)	22.2	124.9	170.4	33.9	<b>81.1</b>
Soccer (n=4,181)	<b>164.6</b>	<b>681.4</b>	<b>619.6</b>	<b>93.6</b>	<b>386.7</b>
Basketball (n=3,398)	<b>64.5</b>	<b>658.2</b>	<b>481.4</b>	26.9	<b>314.3</b>
Football (n=644)	16.4	108.4	116.5	7.0	<b>59.6</b>
Baseball (n=957)	<b>32.7</b>	112.1	123.9	<b>99.9</b>	<b>88.5</b>
Volleyball (n=936)	7.5	<b>142.5</b>	<b>195.8</b>	<b>33.9</b>	<b>86.6</b>
Rugby (n=399)	0.0	15.4	183.4	18.7	<b>36.9</b>
Street hockey (n=95)	14.7	10.6	4.3	2.0	<b>8.8</b>
Dodgeball (n=231)	17.0	45.3	8.1	1.6	<b>21.4</b>
Floor hockey (n=129)	4.6	22.4	15.5	3.9	<b>11.9</b>
Lacrosse (n=25)	0.7	4.2	3.7	0.8	<b>2.3</b>
Ringette (n=241)	9.8	42.2	33.5	2.3	<b>22.3</b>
Roller hockey (n=15)	1.3	2.0	2.5	0.0	<b>1.4</b>
Ultimate frisbee (n=49)	0.0	4.8	13.6	3.9	<b>4.5</b>
Broomball (n=62)	0.0	5.0	10.5	10.5	<b>5.7</b>
Soccer-baseball (n=68)	5.6	12.9	2.5	0.4	<b>6.3</b>
Field hockey (n=80)	0.3	9.5	26.0	1.2	<b>7.4</b>
European handball (n=44)	0.3	9.2	6.2	0.0	<b>4.1</b>
Water polo (n=30)	0.3	3.6	9.3	0.4	<b>2.8</b>
Hockey, NFS (n=4)	0.3	0.6	0.0	0.4	<b>0.4</b>
Omnikin (n=18)	1.6	2.2	2.5	0.4	<b>1.7</b>

\* The number of cases per 10,000 CHIRPP cases (females, for the given age group)

## Severity

Table 5 details the proportion of fractures, skull/brain injuries and hospital admissions (all proxies for severity) by sport and sex.

**Table 5.** Injuries related to team sports, proportion of all cases which are fractures, skull and brain injuries or admission to hospital by sport and sex, CHIRPP, 2000-2002

Sport	% fractures		% Skull and brain <sup>1</sup>		% admitted to hospital	
	Males	Females	Males	Females	Males	Females
Ice hockey (n=11,552)	24.1	17.1	13.0	14.4	3.7	2.5
Soccer (n=10,521)	30.1	25.4	7.5	5.0	2.7	1.9
Basketball (n=10,055)	27.0	24.4	4.4	3.3	1.9	0.6
Football (n=5,374)	30.8	36.5	8.2	4.7	2.6	1.1
Baseball (3,059)	20.7	20.2	8.0	6.9	3.1	2.5
Volleyball (n=1,660)	22.9	21.7	3.7	1.8	2.6	0.6
Rugby (n=1,366)	24.5	20.3	13.3	10.5	3.7	1.8
Street hockey (n=1,087)	14.7	12.6	5.8	6.3	1.2	0.0
Dodgeball (n=646)	34.0	38.5	10.1	5.6	0.7	0.9
Floor hockey (n=637)	18.1	24.0	8.1	4.7	2.0	1.6
Lacrosse (n=300)	27.3	12.0	10.2	4.0	1.8	0.0
Ringette (n=252)	18.2	22.0	9.1	19.5	0.0	1.2
Roller hockey (n=216)	40.3	26.7	9.0	6.7	5.0	6.7
Ultimate frisbee (n=160)	25.2	12.2	4.5	6.1	0.9	4.1
Broomball (n=124)	12.9	24.2	8.1	6.5	0.0	1.6
Soccer-baseball (n=123)	36.4	38.2	7.3	2.9	1.8	1.5
Field hockey (n=116)	22.2	8.8	11.1	3.8	0.0	1.3
European handball (n=112)	17.7	25.0	4.4	0.0	0.0	0.0
Water polo (n=54)	20.8	13.3	16.7	6.7	0.0	0.0
Hockey, NFS (n=39)	31.4	25.0	2.9	0.0	5.7	25.0
Omnikin (n=31)	23.1	22.2	7.7	0.0	7.7	0.0
<b>Total (N=47,484)</b>	<b>26.3</b>	<b>24.2</b>	<b>8.8</b>	<b>5.5</b>	<b>2.8</b>	<b>1.4</b>

<sup>1</sup> Includes minor closed head injuries, concussions, intracranial injuries and skull fractures