

# SPORTS INJURIES AMONG YOUTH AS SEEN IN FOUR EMERGENCY DEPARTMENTS PARTICIPATING IN EDISS

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## BACKGROUND

Data collection for the Emergency Department Injury Surveillance System (EDISS) has been ongoing in ten hospitals within BC since April 2001. EDISS collects demographic and injury-event information based on a 13-element Minimum Data Set:

Patient Indicators	Injury Event Indicators
Chart Number	Date of Visit
Personal Health Number	Cause of Injury
Postal Code	Activity When Injured
Sex	Place of Occurrence
Date of Birth	Narrative Description
	Main & Other Diagnoses
	Visit Disposition

This system was the core of a joint provincial and federal project (December 2000 - March 2003) supported by the BC Ministry of Health Planning and Health Canada.

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## OBJECTIVE

The purpose of this study is to use EDISS data to describe sports injuries occurring among youth ages 10 to 24 years old in the Fraser South Health Area. Hospitals contributing these data include Langley Memorial, Delta, Peace Arch (White Rock) and Surrey Memorial.

## METHODS

Based on 2001/2002 EDISS data, sports injuries among youth (10 to 24 years) in the Fraser South Health Area are described. Sports injuries are identified in the database by Activity when Injured, as either *Organized Sports* or *Informal Sports*. This classification excludes sports undertaken during educational activities.

### Organized Sports

Organized physical activities undertaken under the auspices of a sports federation, club or similar organization. The activity is accompanied by a referee, trainer, or coach.

### Informal Sports

Physical activities similar to competition sporting activity, but not under the auspices of a sports federation, club or similar organization. Activity recognizable as a form of sport but not satisfying definition of competition sporting activity.

Data are presented using frequencies and rates. Sports injuries are described by age group and sex. Comparisons between Organized Sports and Informal Sports are made based on Cause of Injury, Nature of Injury (diagnosis), and Place of Occurrence.

The only means of identifying specific sports in the EDISS database is through the collection of the Narrative Statement, which has not been universally collected by all sites. Discrepancies in the collection of the narrative have largely been due to software limitations. An exploration of the available narratives is conducted to identify the leading sports in terms of emergency department injuries cases captured.

## RESULTS

A total of 3,455 sports-related injuries among youth aged 10 to 24 years presented to one of four emergency departments of the Fraser South Health Area during the fiscal year of 2001/2002. Of these, 76 percent were among males, and 44 percent were classified as *Organized Sports* as opposed to *Informal Sports*.

	ACTIVITY WHEN INJURED		SEX		Total n (%)
	Age Groups (Years)	Males n (%)	Females n (%)	Total n (%)	
<b>Organized Sports</b>	10-14	359 (13.6)	156 (18.9)	515 (14.9)	
	15-19	576 (21.9)	200 (24.3)	776 (22.5)	
	20-24	206 ( 7.8)	37 ( 4.5)	243 ( 7.0)	
	Total	1,141 (43.4)	393 (47.7)	1,534 (44.4)	
<b>Informal Sports</b>	10-14	548 (20.8)	206 (25.0)	754 (21.8)	
	15-19	615 (23.4)	154 (18.7)	769 (22.3)	
	20-24	327 (12.4)	71 ( 8.6)	398 (11.5)	
	Total	1,490 (56.6)	431 (52.3)	1,921 (55.6)	
Total (n)		2,631 (100 )	824 (100 )	3,455 (100 )	

## CAUSES OF INJURY

### Among Organized Sports:

- Struck by Object is the leading cause of injury among all three age groups

### Among Informal Sports:

- Falls precede Struck by Object as leading cause of injury among all three age groups

## NATURE OF INJURY

### Among Organized Sports:

- Fracture is the leading nature of injury among 10-14 year olds, followed by Superficial Injury and Sprain/Strain
- Sprain/Strain is the leading nature of injury among 15-19 year olds, followed by Superficial Injury and Fracture
- Open Wound is the leading nature of injury among 20-24 year olds, followed by Sprain/Strain and Fracture

### Among Informal Sports:

- Fracture is the leading nature of injury among 10-14 year olds, followed by Sprain/Strain and Superficial Injury
- Sprain/Strain is the leading nature of injury among 15-19 year olds are Sprain/Strain, Fracture and Superficial Injury
- Sprain/Strain is the leading nature of injury among 20-24 year olds are Sprain/Strain, Fracture and Open Wound

## PLACE OF OCCURRENCE

### Among Organized Sports:

- Sports & Athletics Area accounts for the majority of all places of occurrence among all three age groups

### Among Informal Sports:

- Sports & Athletics Area is the leading place of occurrence among all three age groups
- Among 10-14 year olds, Home and School, Other Institution and Public Area are also leading places of occurrence
- Among 15-19 year olds, Street & Highway precedes School, Other Institution and Public Area as leading places of occurrence
- Among 20-24 year olds, School, Other Institution and Public Area precedes Street & Highway

## NARRATIVE STATEMENTS

Narrative statements were available for 945 of the *Organized Sports* and *Informal Sports* injuries presenting to emergency departments of the Fraser South Health Area during 2001/2002, approximately 27 percent of all sports-related records.

The proportions of cases by hospital with a narrative available for analysis are:

- 67% for Surrey Memorial
- 22% for Delta
- 7% for Langley
- 4% for Peace Arch

From the available narratives, 37 percent were classified as *Organized Sports*. Furthermore, despite containing a narrative statement the actual sport could not be identified among 18 percent of all sports cases.

The top four leading sports for *Organized Sports* and *Informal Sports* combined, as documented in the Narrative Statement, are:

- Basketball
- Baseball
- Soccer
- Hockey

Other Sports include: bicycling, football, gymnastics, other types of hockey (excluding ice hockey), horseback riding, lacrosse, martial arts, rollerblading, rugby, skateboarding, ice skating, snowboarding, trampoline, volleyball, work outs, and wrestling, among others.

SPORT	ACTIVITY WHEN INJURED		
	Organized Sports n (%)	Informal Sports n (%)	Total n (%)
Basketball	34 ( 9.8)	139 (23.2)	173 (18.3)
Baseball	61 (17.6)	43 ( 7.2)	104 (11.0)
Soccer	36 (10.4)	34 ( 5.7)	70 ( 7.4)
Ice Hockey	36 (10.4)	19 ( 3.3)	55 ( 5.8)
Other Sports	101 (29.2)	276 (46.1)	377 (39.9)
No Sport Information	78 (22.5)	88 (14.7)	166 (17.6)
Total (n)	346 (100 )	599 (100 )	945(100 )

Broken down by age groups

- Baseball is consistently the leading *Organized Sports* among all three age groups, tied with Ice Hockey for those aged 10-14 years
- Basketball ranks first for *Informal Sports* for all ages
- Soccer ranks fourth for *Organized Sports* for the two older age groups
- Ice Hockey ranks fourth for *Informal Sports* among all ages

## CONCLUSIONS

Differences in the leading Cause of Injury between *Organized Sports* (*Struck by Object*) and *Informal Sports* (*Falls*) are likely due to the differences in frequency of the types of sports falling into these two categories. From the analysis of the narrative data, Ice Hockey ranks higher as an *Organized Sport*.

Although varying in rank by age group, the top three leading Natures of Injury included both *Fracture* and *Strain/Sprain* for all three age groups and for both *Organized Sports* and *Informal Sports*. *Superficial Injury* was also leading among 10-19 year olds, whereas *Open Wound* was leading among those aged 20-24 years.

Little variation exists for Place of Occurrence among *Organized Sports*, which are predominately occurring at *Sports & Athletics Areas*. Among *Informal Sports*, other leading locations include *Home* among the younger age group, *School, Other Institution and Public Area* among all age groups, and *Street & Highway* among the two older age groups.

Although the Narrative Statement was not consistently available for all sports injuries, the majority of narratives (69%) were from Surrey Memorial Hospital. Of all sports injuries presenting to Surrey Memorial, 67 percent of cases included a narrative. The top four sports for *Organized Sports* and *Informal Sports* combined were found to be basketball, baseball, soccer and ice hockey. This order may not be maintained if narrative data were available for all sports cases across all four sites.

Emergency department data bring added knowledge to injury surveillance by capturing injuries not described by mortality or hospitalization data, by capturing large numbers of injuries, and by providing detailed information regarding the injury event. Furthermore, EDISS has the ability to provide locally relevant detailed injury information in a timely fashion.

