

INJURIES by Kathryn Wilkins and Evelyn Park

In 2000/01, an estimated 3.4 million Canadians aged 12 or older (13%) were seriously injured (Table A). That is, they sustained an injury severe enough to limit their usual activities—a broken bone, a sprain, a bad cut or burn, or a poisoning, for example. The Canadian Community Health Survey, a general health survey conducted by Statistics Canada between September 2000 and October 2001, asked respondents several questions about these types of injuries.

Overall, males were at higher risk than females: 15% of males reported sustaining at least one activity-limiting injury in the previous year, compared with 11% of females.

Higher among adolescents

Of all age groups surveyed, adolescents were the most likely to be injured. Over one in five young Canadians aged 12 to 19 had had a serious injury in 2000/01.

Although both males and females were at highest risk during adolescence, the injury rate was particularly high for boys. At 27%, the proportion of boys injured was over four times that for 65- to 79-year-old men, and over three times that for men aged 80 or older.

Differences by sex

Up to the senior years, males were more likely than females to be injured. Then, from age 65 on, the risk of injury became higher for women.

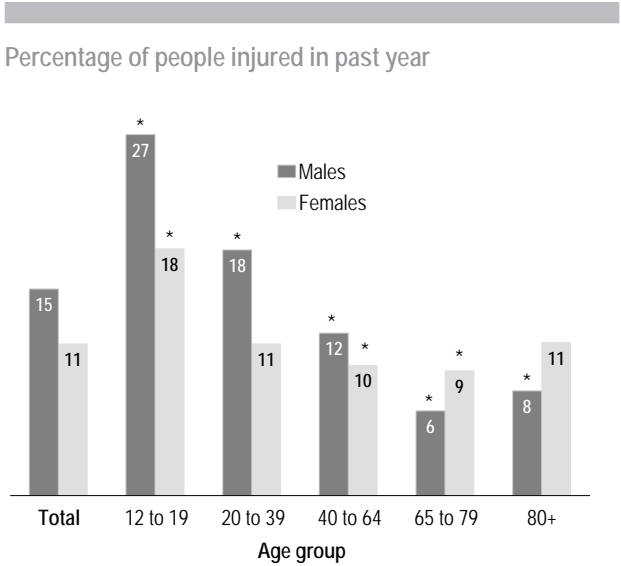
Among males, the injury rate decreased substantially with age until 80. By contrast, after their teens, the injury rate among women varied little. Women aged 20 to 39 were at the same risk of injury as elderly women (80 or older), and at only slightly higher risk than those in the 40 to 64 and 65 to 79 age groups.

Type and circumstances of injury

Sprains and strains were the leading type of injury for both sexes, followed by fractures (Table B). Males were most likely to injure either their wrist or hand; females, their ankle or foot.

Injuries to males were as likely to occur at an athletics facility (28%) as they were at home (26%). So it is not surprising that males were most often engaged in sports-related activities when they were injured.

For females, injuries at home were far more frequent (42%) than those sustained elsewhere. And injuries to females that happened while doing chores were more numerous than those that occurred during athletic pursuits. In fact, the rate of sports-related injury for males overall was more than double that for females: 5.4% compared with 2.6% (data not shown). This may reflect gender differences related to participation in sports, strenuous physical activity or risk-taking.



Data source: 2000/01 Canadian Community Health Survey
 * Significantly different from sex-specific value for total. Values between sexes differ significantly in all age groups (p < 0.01).

Risk varies with season

The risk of injury varies with the season, as activities and conditions change with the weather. Summer presented the highest risk of injury for both males and females aged 12 to 64, but seasonal variations were much more pronounced among males. Among seniors, however, the injury rate for women fluctuated more over the year than did the rate for men. Older women were most often injured during the winter months, while for older men, no significant seasonal differences emerged.

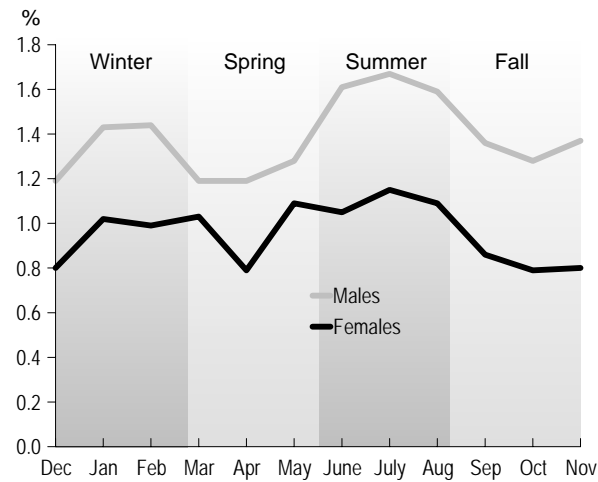
Falls cause most injuries

Falls were the leading cause of serious injury, accounting for 34% of injuries in males and 43% in females. For males, the risk of a fall-related injury was highest at ages 12 to 19. For females, the risk by age group was U-shaped; that is, women aged 80 or older and 12- to 19-year-old girls shared the same rate of fall-related injury.

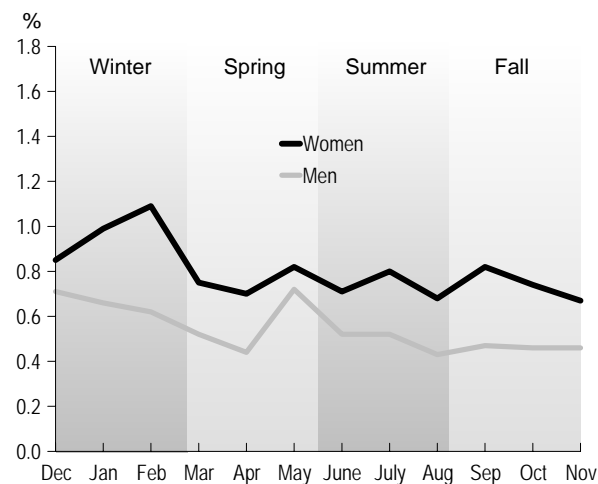
Slips on ice, snow perilous for seniors

For both seniors and younger people, slipping, tripping or stumbling (on a non-icy surface) was the leading cause of injurious falls. Reflecting the hazards of the Canadian winter, slipping on ice or snow also accounted for a substantial share of falls,

Percentage of people aged 12 to 64 injured in past year, by month of occurrence



Percentage of seniors (65+) injured in past year, by month of occurrence



Data source: 2000/01 Canadian Community Health Survey

and was especially perilous among seniors. In males younger than 65, over one-fifth of falls causing serious injury involved high-velocity sports: skating, skiing, snowboarding, in-line skating or skateboarding.

Risk lower in Québec, Nunavut

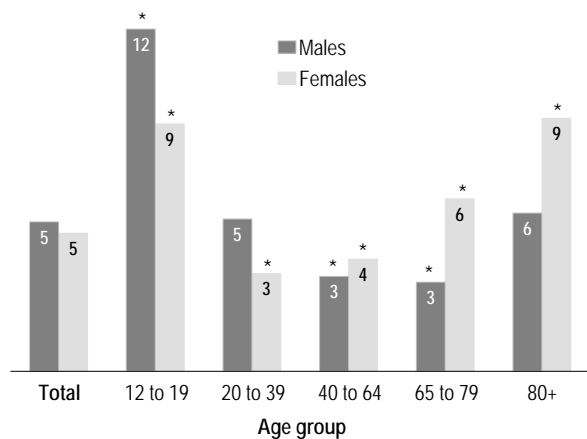
In 2000/01, the rates of serious injury in Nunavut (9%) and Québec (11%) were among the lowest in the country. Alberta recorded a high proportion of people reporting injury (18%).

Rates for adolescents—the most injury-prone age group among those surveyed—varied considerably by jurisdiction. Among the provinces, Québec had the lowest proportion of injuries among 12- to 19-year-olds; rates were higher in Saskatchewan and Alberta. The rate for Nunavut adolescents was strikingly lower than the rates for this age group in the rest of the country (data not shown).

Males — High income/high injury rate

Males who lived in the highest income households were more likely than Canadian males in general to sustain a serious injury in 2000/01. By contrast, males in the lower-middle category experienced a lower rate. This link between household income and injury among males may indicate a greater likelihood of participation in activities and sports that require fairly substantial expenses: lessons,

Percentage of people sustaining an injury caused by a fall



Data source: 2000/01 Canadian Community Health Survey
 * Significantly different from sex-specific value total.

Leading causes of falls . . .

. . . among people aged:	Percentage of falls		
	Total	Males	Females
12 to 64			
Slip or trip (not on ice)	42	40	46
Skating, skiing, snowboarding, inline skating	17*	22*	12*
From elevated position	13*	17*	8*
Slip or trip on ice or snow	13*	11*	16*
65 or older			
Slip or trip (not on ice)	53	43	57
Slip or trip on ice or snow	19*	22*	18*
Going up or down stairs	12*	15*	11*

Data source: 2000/01 Canadian Community Health Survey
 * Significantly different from total or sex-specific value for slip, trip (not on ice)

memberships in sports clubs, associations and fitness centres, for example, or skiing, snowboarding and hockey.

For females, injury rates did not differ significantly by household income.

Most treated, few hospitalized

About two-thirds (64%) of people who had a serious injury in 2000/01 sought treatment within 48 hours. More than half of those seeking treatment went to hospital emergency rooms, and about 1 in 5 to a doctor's office; only about 8% were admitted to and stayed overnight in a hospital (data not shown).

Deaths

Although most injuries are not fatal, according to the Canadian Mortality Database, 13,082 Canadians died from injury- and poisoning-related causes in 2000. This amounted to 6% of all deaths that year. The number of injury and poisoning fatalities for males (8,730) was twice that for females (4,352). Over one-quarter (28%) of these deaths were suicides; just under one-fifth (19%) were due to motor vehicle traffic crashes. Falls accounted for 13% of injury deaths.

Kathryn Wilkins (613-951-1769; Kathryn.Wilkins@statcan.ca) is with the Health Statistics Division and Evelyn Park (613-951-6473; evelyn.park@statcan.ca), the Census and Demographics Statistics Branch, both at Statistics Canada, Ottawa, Ontario, K1A 0T6.

References

- 1 Béland Y. Canadian Community Health Survey—Methodological overview. *Health Reports* (Statistics Canada, Catalogue 82-003) 2002; 13(3): 9-14.
- 2 Rao JNK, Wu CFJ, Yue K. Some recent work on resampling methods for complex surveys. *Survey Methodology* (Statistics Canada, Catalogue 12-001) 1992; 18(2): 209-17.
- 3 Rust KF, Rao JNK. Variance estimation for complex surveys using replication techniques. *Statistical Methods in Medical Research* 1996; 5: 281-310.

The Questions

The estimates of *serious*, or *activity-limiting*, injuries among Canadians aged 12 or older in 2000/01 are based on responses to questions in the Canadian Community Health Survey. Respondents were asked about injuries that occurred in the past year and that were serious enough to limit their normal activities. Several examples were given: "a broken bone, a bad cut or burn, a sprain, or a poisoning." Respondents were asked:

- Not counting repetitive strain injuries, in the past 12 months were you injured?
- Thinking about the most serious injury, in which month did it happen? Was that last year or this year?
- What type of injury did you have? (For example, a broken bone or burn.)
- What part of the body was injured?
- Where did the injury happen?
- What type of activity were you doing when you were injured?
- Was the injury the result of a fall?
- How did you fall?
- What caused the injury?
- Did you receive medical attention for this injury within 48 hours from a health professional?
- Where did you receive treatment?
- Were you admitted to a hospital overnight?

Data sources

Canadian Community Health Survey

Estimates of *activity-limiting injuries* were obtained from the first cycle of the Canadian Community Health Survey (CCHS), which was conducted between September 2000 and October 2001.¹ The CCHS is a general health survey that covers the population aged 12 or older who were living in private households. It does not include residents of Indian reserves, Canadian Forces bases, and some remote areas. The overall response rate for cycle 1 was 85%; total sample size was 131,535.

Estimates were weighted to represent the 2000 Canadian population aged 12 or older. Variance on estimates, and on differences between estimates, was calculated using the bootstrap technique, which accounts for the complex sampling design of the survey.^{2,3}

Canadian Mortality Data Base

Information on *deaths related to injury* was obtained from the 2001 Canadian Mortality Data Base. This data source, compiled from information provided by the vital statistics registrar in each province and territory, is maintained by Statistics Canada.

Table A

Percentage of people who sustained at least one activity-limiting injury in past year, by sex, household population aged 12 or older, Canada

	Total		Males		Females	
	'000	%	'000	%	'000	%
Total	3,441	13.3	1,966	15.5	1,475	11.3 [†]
Age group						
12-19	738	22.8*	448	26.9*	291	18.4*
20-39	1,320	14.8*	819	18.3*	501	11.3
40-64	1,077	10.8*	594	11.9*	483	9.6*
65-79	229	7.9*	82	6.3*	147	9.3*
80+	76	10.1*	22	7.8*	53	11.5
Season						
Spring (March, April, May)	802	3.1*	434	3.4*	368	2.8*
Summer (June, July, August) [‡]	973	3.8	565	4.5	408	3.1
Fall (September, October, November)	783	3.0*	468	3.7*	315	2.4*
Winter (December, January, February)	852	3.3*	483	3.8*	370	2.8*
Province/Territory						
Newfoundland	53	11.5*	33	14.7	20	8.4*
Prince Edward Island	15	12.7	8	13.7	7	11.8
Nova Scotia	107	13.6	58	15.2	50	12.2
New Brunswick	78	12.2*	43	13.8	35	10.7
Québec	689	11.1*	399	13.0*	290	9.2*
Ontario	1,297	13.1	733	15.1	564	11.2
Manitoba	122	13.5	70	15.8	52	11.3
Saskatchewan	127	15.8*	70	17.5	57	14.1*
Alberta	434	17.5*	254	20.4*	180	14.6*
British Columbia	509	14.9*	292	17.3*	218	12.6*
Yukon	4	14.8	2	15.2	2	14.4
Northwest Territories	4	13.7	3	18.8	1	8.2
Nunavut	2	8.5*	1	9.4*	1	7.5*
Household income						
Low	346	12.9	152	14.2	194	12.1
Lower-middle	631	12.3*	335	14.0*	296	10.7
Upper-middle	1,088	13.3	625	15.1	464	11.5
High	1,034	14.6*	666	17.2*	368	11.5

Data source: 2000/01 Canadian Community Health Survey

[†] Significantly different from estimate for men ($p < 0.05$)

[‡] Reference group

* Significantly different from value for total, or total in same sex where appropriate, or reference group ($p < 0.05$)

Table B

Characteristics and circumstances of injury, by sex, household population aged 12 or older who sustained at least one activity-limiting injury in past year, Canada

	Total		Males		Females	
	'000	%	'000	%	'000	%
Total	3,441	100.0	1,966	57.1	1,475	42.8 [†]
Type of injury						
Sprain/Strain [†]	1,467	42.7	802	40.9	665	45.1
Fracture	639	18.6*	351	17.9*	287	19.5*
Cut	453	13.2*	318	16.2*	135	9.2*
Body part						
Ankle/Foot	737	22.2*	367	19.3*	370	26.0*
Wrist/Hand [†]	671	20.2	419	22.1	251	17.6
Back	467	14.1*	270	14.2*	197	13.8*
Knee/Lower leg	419	12.6*	235	12.3*	185	12.9*
Mechanism						
Fall [†]	1,278	37.4	654	33.5	623	42.7
Exertion	696	20.4*	409	21.0*	286	19.6*
Sharp object	330	9.7*	237	12.2*	92	6.3*
Struck	292	8.5*	191	9.8*	101	6.9*
Transport-related	229	6.7*	110	5.6*	119	8.2*
Place						
Home	1,136	33.1*	515	26.3	621	42.3*
Athletics area [†]	796	23.2	556	28.4	241	16.4
Street	426	12.4*	191	9.8*	234	16.0
Construction/Industrial area	297	8.7*	274	14.0*	23	1.6*
Activity						
Sports [†]	1,025	29.9	689	35.2	336	22.9
Work	817	23.9*	585	29.9*	232	15.8*
Chores	603	17.6*	245	12.5*	358	24.4
Leisure	476	13.9*	237	12.1*	239	16.3*

Data source: 2000/01 Canadian Community Health Survey

[†] Reference group

* Significantly different from estimate for reference group in same sex ($p < 0.05$)