

Circumstances surrounding all-terrain vehicle (ATV) fatalities in Canada, 2013 to 2019

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All-terrain vehicles (ATVs), including utility terrain vehicles (UTVs), are used all across Canada for recreation, transportation and work. While these vehicles are a popular form of activity, there is potential for injury and death. From 2013 to 2019, on average, across all provinces and territories, 100 people in Canada died from unintentional ATV events every year. Among these fatalities, 9% involved a UTV. Unlike other types of ATVs, UTVs are able to seat passengers side-by-side and provide additional safety features, including seatbelts, roll bars and, in some cases, windshields and doors.

Understanding the circumstances surrounding ATV fatalities can be a good starting point toward implementing preventative measures to minimize harm to Canadians. Although the circumstances are not always known, insights can be learned from looking at what has been reported by the coroner or medical examiner who investigated these deaths. In 2009, The Canadian Quad Council put in place safety recommendations, or "Quad rules," to minimize harm while ATV riding. These recommendations include wearing protective safety gear such as a compliant helmet, riding with headlights on, riding on designated trails while avoiding paved roads and live water courses where possible, riding with the number of passengers that the vehicle can accommodate, ensuring ATV size is appropriate for the driver's age, weight and riding ability, supervising young riders, travelling in a group, driving sober and getting certified ATV training.

The results in this report are based on new insights released today from the Canadian Vital Statistics: Death Database and the Canadian Coroner and Medical Examiner Database from 2013 to 2019.

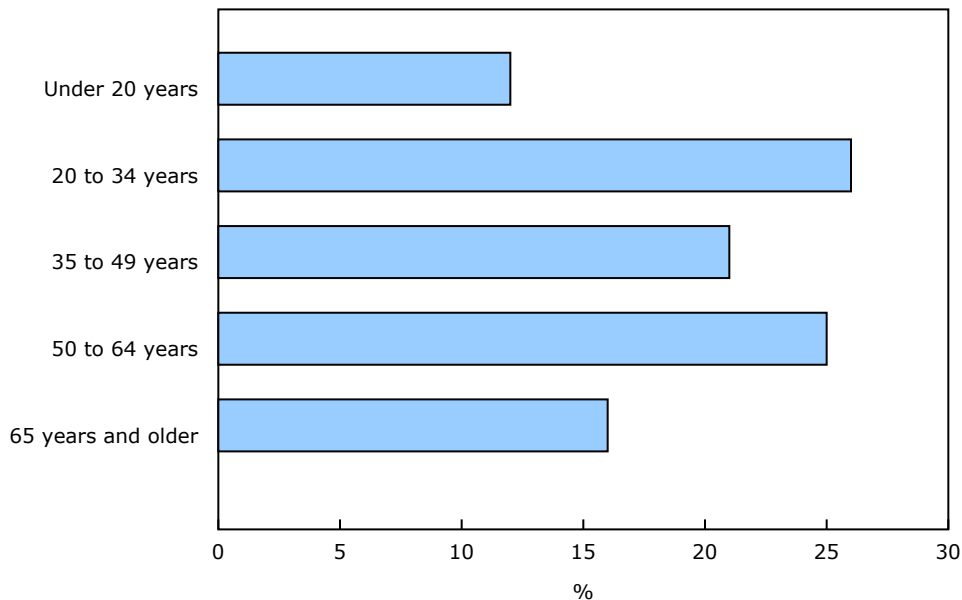
More than 8 in 10 ATV-related fatalities occur among men

The majority of ATV fatalities occur among men (85%). Even when the higher rate of males participating in off-road vehicle recreation is taken into account, the rate of death among males (2.8 deaths per 100,000 males who ride ATVs, snowmobiles or other off-road vehicles) is four times higher than among females (0.7 deaths per 100,000 female riders).

ATV-related fatalities occur in all age groups. Nearly three-quarters of fatal events occur among those aged 20 to 64 years, while fewer fatalities were reported among Canadians aged 65 or older (16%) and youth aged under 20 (12%). This trend is consistent with the proportion of riders of ATVs, snowmobiles, and other off-road vehicles.



Chart 1
Distribution of ATV fatalities by age group, Canada, 2013 to 2019



Note(s): All-terrain vehicle (ATV).

Source(s): Canadian Coroner and Medical Examiner Database (5125) and Canadian Vital Statistics: Death Database (3233).

Drivers account for nearly 8 in 10 ATV-related fatalities

Among ATV-related fatalities, drivers accounted for 79% of reported fatalities, while passengers represented 9% of fatalities (in 12% of cases, the rider's position was not directly specified). For two-thirds of ATV-related fatalities, the driver was alone on the ATV.

Nearly half of ATV fatalities were the result of a rollover

ATV fatalities can result from single- (92%) or multi- (8%) vehicle events. Among all ATV-related fatalities, rollovers were reported in 45% of deaths, followed by collisions with a stationary object (16%), ejections (12%), collisions with a moving vehicle (7%), other and unspecified collisions (6%), submersions (3%), and other incidents (2%) (the event was not specified in 9% of fatalities).

Fatal ATV-related events occurred in a number of locations, including trails, roads, open fields and bodies of water, such as lakes, rivers and creeks.

In 79% of all cases, the final cause of death was reported to be an injury sustained during the incident, such as a fatal head, chest or spine injury. Compromised breathing was reported in 14% of cases and was often the result of the ATV landing on top of the deceased. Drownings were reported in about 5% of cases and other causes of death were reported in 2% of cases. These fatal events occurred throughout the year, with the majority taking place in the summer.

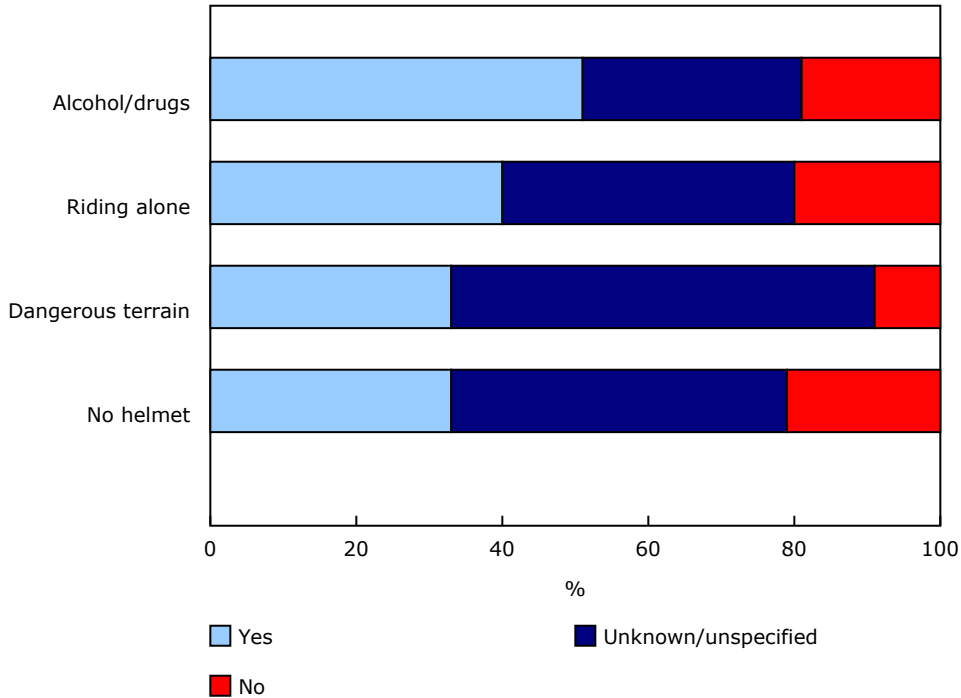
At least one risk factor reported in over three-quarters of ATV-related fatalities

Risk factors associated with ATV-related fatalities most commonly reported by coroners and medical examiners include alcohol or drug consumption, whether the ATV rider was travelling with a group or alone, the condition of the terrain or road and whether a helmet was worn.

At least one risk factor was reported in 79% of ATV-related fatalities (risk factor information was unspecified in 15% of fatalities). In 49% of fatalities, at least two factors were reported, and in 22% of cases, at least three risk factors were reported. All four risk factors were reported in 4% of ATV-related fatalities.

Of these risk factors, the consumption of alcohol, cannabis or other drugs was most commonly reported by coroners and medical examiners.

Chart 2
Presence of risk factors in ATV fatalities, Canada, 2013 to 2019



Note(s): Presence of alcohol or drugs was indicated when the coroner or medical examiner (C/ME) reported that the decedent was driving the all-terrain vehicle (ATV) and had consumed alcohol or drugs (in any amount) prior to the event. Riding alone was indicated when the C/ME reported that the decedent was not travelling in a group that included others riding ATVs. Dangerous terrain was indicated when the C/ME reported that the terrain was sloped, curved or otherwise hazardous. No helmet was indicated when the C/ME reported that the decedent was not wearing a helmet or was not wearing a helmet correctly at the time of incident. Data were not available for all jurisdictions for all years (see note to readers).

Source(s): Canadian Coroner and Medical Examiner Database (5125) and Canadian Vital Statistics: Death Database (3233).

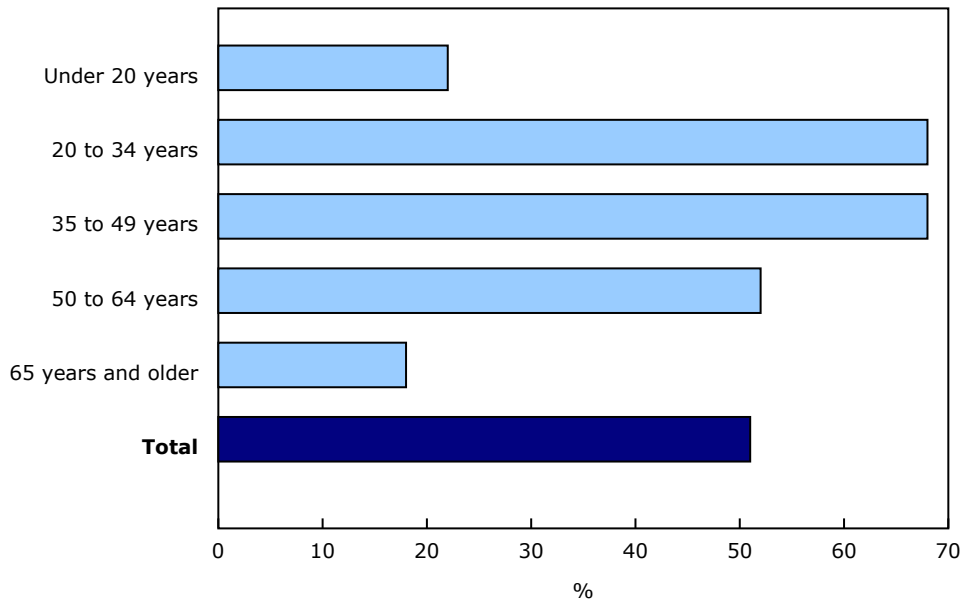
Alcohol, cannabis or other drugs were reported in more than half of ATV-related fatalities

The Canadian Quad Council recommends that all ATV drivers ride sober. In at least 51% of ATV-related fatalities from 2013 to 2019, the driver had reportedly consumed alcohol, cannabis or other drugs, while in 18% of fatalities, these substances were reportedly not consumed (the involvement of alcohol or drugs was not specified in 31% of fatalities).

The involvement of alcohol or drugs in ATV-related driver fatalities varied by age group and sex. Among those aged 20 to 49 at the time of death, alcohol or drugs were reported for 68% of fatalities. Alcohol or drugs were less frequently reported in those aged 65 and older and those aged under 20. Among ATV-related driver fatalities, more males (52%) were reported to have consumed alcohol or drugs than females (42%).

Chart 3

The proportion of ATV driver fatalities where alcohol or drug use was reported, by age group, Canada, 2013 to 2019



Note(s): Presence of alcohol or drugs was indicated when the coroner or medical examiner reported that the decedent was driving the ATV and had consumed alcohol or drugs (in any amount) prior to the event. Data were not available for jurisdictions for all years (see note to readers).

Source(s): Canadian Coroner and Medical Examiner Database (5125) and Canadian Vital Statistics: Death Database (3233).

The deceased was riding alone in 4 out of 10 ATV-related fatalities

The Canadian Quad Council recommends against riding alone. In at least 40% of ATV-related fatalities, the deceased was reported to be riding alone. When riding in a group is not possible, the Canadian Quad Council recommends that the rider inform another person of their activity and time of return.

Dangerous terrain, slopes or curves reported in one-third of ATV-related fatalities

In at least 33% of ATV-related fatalities, the coroner or medical examiner reported that the deceased had been riding on dangerous terrain, a slope or in a curve at the time of the fatal event. Dangerous terrain can mean snow or ice, loose gravel, slippery conditions, potholes and uneven terrain, among other things, and may influence a driver's ability to safely manoeuvre the ATV.

Helmets not worn in one-third of ATV fatalities

Wearing a helmet is recommended to prevent head injuries while riding an ATV. At least 33% of riders were not wearing a helmet during the fatal ATV event. Even when a helmet is worn, fatal injuries may still occur, such as injuries to the spine, injuries to internal organs, as well as compromised breathing caused by the ATV rolling onto the rider.

Spotlight on youth

Among ATV-related fatalities, 7% of riders were aged under 16. Although the legal age for driving an ATV is 16 in some jurisdictions, in others it is legal for a youth aged 12 or older to drive an ATV off-road. Among youth aged under 16, drivers accounted for 67% of fatalities and passengers accounted for 22% (the position of the youth was not specified in 11% of cases).

The overall presence of risk factors in youth ATV-related fatalities was similar to, but slightly lower than, the presence of risk factors for all fatalities. In 60% of cases, at least one of the following risk factors was present: alcohol or drugs, dangerous road conditions, travelling alone, and not wearing a helmet.

Although it is illegal in Canada for a youth aged under 16 to consume alcohol or drugs, in 11% of fatalities, the consumption of drugs or alcohol prior to the fatal event was reported. The Canadian Quad Council recommends the supervision of young riders and travelling in groups; however, travelling alone was reported in 33% of youth cases. Dangerous terrain was reported in 22% of cases and riding without a helmet was reported in 33% of cases.

Additional factors that may influence an ATV-related event

Other factors could possibly influence an ATV driver's ability to safely manoeuvre the vehicle or may increase the chance of survival from unintentional injuries resulting from an ATV event. These could include the driver's experience with the vehicle (vehicle size), training, weather conditions and signage (speed limits, sharp turns and intersections). In addition, the full circumstances surrounding ATV fatalities are not always known, such as the behaviours of the other driver in a multi-vehicle collision.

From 2013 to 2019, risk factors were reported in over three-quarters of ATV-related fatalities. In some cases, more than one risk factor was present. Being aware of the recommendations concerning riding an ATV is key to preventing deaths from these unintentional injuries.

Note to readers

The Canadian Coroner and Medical Examiner Database (CCMED) was developed at Statistics Canada in collaboration with the 13 provincial and territorial Chief Coroners and Chief Medical Examiners and the Public Health Agency of Canada. Currently, it combines data from all provincial and territorial databases, with the exception of those for Manitoba and Newfoundland and Labrador.

For the provinces and territories included in the report, data are not available for all years. Data for Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan, Alberta, British Columbia, Yukon and the Northwest Territories are available from 2013 to 2019. Data for Prince Edward Island are available from 2013 to 2016 and data for Nunavut are available for 2013. All data are considered preliminary and include only closed cases. Closed cases refer to those whose investigation and inquest are complete and whose identification of the manner of death is final.

The Canadian Vital Statistics – Death database (CVSD) includes death information reported to Statistics Canada by the provincial and territorial Vital Statistics Offices. The latest data available for Yukon are for reference period 2016.

Unintentional fatalities include deaths where the coroner or medical examiner determined the manner of death to be accidental. Deaths from natural causes (heart attack), where the coroner or medical examiner deemed the manner of death to be natural, are excluded. Pedestrian deaths from a collision with an all-terrain vehicle (ATV) are excluded. Fatalities among passengers in other types of vehicles involved in a collision with an ATV are excluded. In this report, ATVs are defined as four-wheeled off-road vehicles and include utility terrain vehicles. Specified two- or three-wheeled off-road vehicles were excluded from this report.

At the time that this report was written, 705 ATV fatalities were documented in the CVSD and CCMED from 2013 to 2019. This value was used for reporting on the average annual number of ATV fatalities, and the breakdown by age and sex.

At the time that this report was written, 615 ATV fatalities were documented in the CCMED from 2013 to 2019. This value was used for reporting on the circumstances surrounding ATV fatalities. CCMED data coverage varies from one variable to another.

In this report, when referring to an ATV's collision with a stationary object, stationary objects included trees, rocks, fences and docks, and excluded other vehicles and people.

The proportion of missing data by variable is as follows:

- Position of rider on machine: 12%
- Youth (under 16 years old) position on machine: 11%
- Type of incident leading to fatality: 9%
- Presence of risk factors: 15%
- Alcohol or drug consumption: 30%
- Riding alone or with a group: 40%
- Riding on dangerous terrain: 58%
- Helmet use: 46%
- Presence of risk factors (under 16 years old): 40%
- Alcohol or drug consumption (under 16 years old): 67%
- Riding alone or with a group (under 16 years old): 44%
- Riding on dangerous terrain (under 16 years old): 67%
- Helmet use (under 16 years old): 56%

The recommendations for safe ATV riding from the [Canadian Quad Council](#) are described on the council's website.

Information on snowmobile, all-terrain vehicle, and other off-road vehicle ridership was taken from the General Social Survey, presented in table 45-10-0030-01.

Counts referenced in this report were rounded to a neighbouring multiple of 5.

Definitions, data sources and methods: survey number [5125](#).

Available tables: [13-10-0386-01](#) and [13-10-0387-01](#).

The infographic "[All-terrain vehicle fatalities in Canada, 2013 to 2019](#)" is also now available as part of the series *Statistics Canada — Infographics*.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; STATCAN.infostats-infostats.STATCAN@canada.ca) or Media Relations (613-951-4636; STATCAN.mediahotline-ligneinfomedias.STATCAN@canada.ca).