

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1981 REPORTS**

II. HAZARDOUS SPORTS IN THE UNITED STATES

This section of the report provides statistics on the accidental fatality experience of various sports and sports-related occupations.

The statistics were obtained largely from private sources outside the insurance industry, although some governmental sources were also used. Except for several of the aviation-related activities, which are continuously monitored by the federal government, no claim is made for the completeness or accuracy of any data. Essentially this section summarizes the actual data found in a search conducted by the Committee. The information given below for each sport is primarily for clarification or enlargement of the basic fatality and participation statistics as shown in the table at the end of this report.

Statistics for earlier periods and for other sports can be found in the *1976* and *1978 Reports* numbers.

ACROBATICS

Circus Acrobatics

Circus acrobatics include high-wire walking and cycling; perch pole, teeter board, and ladder balancing; and trapeze performing. Most of the performers are European or Mexican citizens; only about 500 are United States citizens. All fatalities in the last ten years occurred from high-wire walking or trapeze performing.

Sports Acrobatics

Sports acrobatics include tumbling, gymnastics, and trampoline.

AIR SHOW/RACING

Air-show flying is mostly stunt flying, although some precision team aerobatics is also included. There are about 100 air-show pilots.

Air racing includes flying closed course, around pylons, or drag.

AMATEUR/HOME-BUILT AIRCRAFT FLYING

Approximately one-fourth of the registered amateur/home-built aircraft pilots fly rotorcraft.

BICYCLE RACING

The participants are those that are registered, including the one fatality.

BOBSLED AND LUGE RACING

Lake Placid, New York, remains the only location in the Western Hemisphere with both a bobsled and luge run. Montana contains the only other luge run.

BOXING

All fatalities occurred among professionals, while the number of participants includes some amateurs.

DOWNHILL SKI RACING

This type of skiing involves the most extreme speeds of about 120 miles per hour.

FOOTBALL

Amateur Football

Amateur football includes sand-lot, high school, and college football. Most of the fatalities have occurred among high school players, as did the two deaths recorded in 1980. All fatalities included were the direct result of football injuries. Indirectly caused deaths (for example, from aggravation of an already existing condition) were excluded.

Professional and Semiprofessional Football

The last recorded death occurred in 1972.

GLIDER FLYING

Deaths to nonpilots are excluded; one passenger died in 1978.

HANG GLIDING

The statistics include pilots who use portable engines on their gliders but excludes the pilots of ultra- and micro-lite aircraft.

HORSE RACING

Flats Racing

Horse racing on flats, generally known as thoroughbred horse racing, is one of the very few nonaviation sports with very accurate death and participation statistics.

Harness Racing

Documentation of harness racing fatalities is much less reliable than that of flats racing.

Steeplechasing

The 400 steeplechase riders can be split into 150 professionals and 250 amateurs. One death probably occurred among the professionals as well as the amateurs.

HOT-AIR BALLOON FLYING

Participants and deaths include only pilots. During 1980 the approximately 2,000 registered balloons were flown an estimated 50,000 hours.

MOTOR VEHICLE RACING

Championship and Formula Car

With approximately 3,000 participants, Formula Vee car racing was the largest branch of championship and formula car racing in 1980.

Drag Racing

The 20,000 participants in 1980 included both professionals and amateurs who race on a regular basis under legal regulations. There may be as many more who race occasionally or who compete at illegal drag strips. The recorded deaths occurred only to the regular racers.

Kart Racing

Kart racing is often considered a scaled-down version of sprint car or midget car racing. Although the karts are lighter and have less power than the sprint and midget cars, the maximum speeds of all are much the same.

Midget Car Racing

Midget cars can be subdivided into quarter, half, three quarter, and full midgets. There were no deaths among the drivers of quarter and half midget cars during the three-year period. Most of the deaths occurred among the drivers of full midget cars.

Snowmobile Racing

There are five types of snowmobile racing: drag, enduro/marathon, hill climb, sprint, and closed course. Most snowmobiles are raced on snow, although a grassy terrain is sometimes used.

Sports Car Racing

Participants in sports car racing are about evenly divided between professionals and amateurs.

Sprint and Modified Car Racing

Without the mandatory roll bars, sprint and modified car racing would very probably be the most hazardous form of motor vehicle racing.

Stock Car Racing

It is suspected that deaths and participants are underreported.

Other Motor Vehicle Racing

Examples of some types included in this category are ice and desert racing; hill climbing; and tractor, truck, taxi, snowmobile-on-grass and -on-sand, and all-terrain vehicle racing. Desert racing was responsible for all of the deaths. Specialized automobiles, trucks, and motorcycles are used in desert racing, but motorcycles account for most of the deaths.

These activities can be even further subdivided into smaller units, such as racing in eight-wheel supermodified all-terrain vehicles, with less than 100 participants and no recorded deaths.

MOTORCYCLE PRECISION AND STUNT DRIVING

Of the 250 motorcycle precision and stunt drivers in 1980, approximately 50 were professionals. None of the fatalities occurred among professionals.

MOUNTAIN CLIMBING

Of the 50,000 mountain climbers in the United States, only about 5,000 are competent and experienced climbers. Included in the fatality experience are 30 deaths that occurred in Canada; some of the victims were Canadian nationals. Some deaths may never have been recorded.

POWER BOAT RACING

The general categories of power boat racing are cruiser, drag, inboard, outboard, offshore, stock, and unlimited.

RODEO

Rodeo events include bareback bronc riding, calf roping, saddle bronc riding, steer wrestling, steer roping, and team roping. Clowning, trick riding, and wild horse racing are also included but are not considered pure rodeo; fewer than 500 participants engage in these peripheral activities. It is quite likely that the fatality experience shown represents deaths only among the approximately 5,000 professional cowboys who appear at rodeos.

SCUBA DIVING

Although a crude estimate of the number of recreational scuba divers in the United States can be made, it is impossible at the present time to distribute that number according to age, location, or diving experience. The annual number of diving fatalities is based on relatively more accurate and complete data.

SPELUNKING

Most deaths have been attributed to exposure or to drowning inside the cave.

SPORT PARACHUTING

Sport parachutists generally jump from aircraft. In recent years, however, balloons, mountain ledges, and towers have been used. Some parachutists wear skis to take off from very high ski slopes. The number of fatalities among parachutists during the 1978-80 period can be distributed according to jump experience as follows:

Total Number of Jumps	Fatalities
1-24	24
25-74	24
75-199	36
200-499	29
500 and over	32

STUNT PERFORMING

There were about 250 professional stunt men and women in 1980. Most of these performers worked in the motion picture and television industry. Others performed at state fairs and at special locations such as waterfalls, mountain ledges, deserts, and canyons. Those in the latter group are considered "daredevils," as they try to break records or to satisfy a desire for public attention.

FATALITIES IN SPORTS

UNITED STATES, 1978-80

TYPE OF SPORT	NUMBER OF PARTICIPANTS IN 1980	NUMBER OF ACCIDENTAL DEATHS		
		1978	1979	1980
Acrobatics:				
Circus	3,000	1	1	0
Sports	5,500	0	0	0
Air show/racing	500	4	1	1
Amateur/home-built aircraft flying	9,000	46	34	42
Bicycle racing	10,000	1	0	0
Bobsled and luge racing	150	0	0	0
Boxing	5,000	4	3	3
Downhill ski racing	60	0	0	0
Football:				
Amateur	1,000,000	9	4	2
Professional and semiprofessional	1,500	0	0	0
Glider flying	19,000	11	2	7
Hang gliding	30,000	26	30	24
Horse racing:				
Flats	2,100	4	2	2
Harness	12,000	4	4	4
Steeplechase	400	0	2	0
Hot-air balloon flying	3,600	1	3	2
Motor vehicle racing:				
Championship and formula car	5,000	3	1	2
Drag	20,000	8	8	9
Kart	20,000	1	1	1
Midget	4,000	3	3	4
Snowmobile	10,000	1	1	1
Sports car	10,000	2	1	2
Sprint and modified	5,000	4	5	5
Stock car	20,000	6	6	10
Others	6,000	1	1	1
Motorcycle precision and stunt driving ..	250	1	0	1
Mountain climbing	50,000	52	55	38
Power boat racing	8,000	5	5	5
Rodeo	35,000	1	1	1
Scuba diving	2,000,000	116	128	120
Spelunking	10,000	4	4	4
Sport parachuting	30,000	47	53	45
Stunt performing	1,000	2	2	2