
When Motor Vehicles Hit Joggers: an Analysis of 60 Cases

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THE POPULARITY OF JOGGING for exercise increased enormously during the 1970s. Only 6 percent of the U.S. adult population (about 8 million people) were jogging in 1972 (1). Five years later, the number of joggers had increased to 11 percent of all adults, or about 17 million people (2).

Increased participation in jogging (the term is used interchangeably with running in this paper) has occasioned concern about the number and severity of jogger-motor vehicle collisions. How widespread is this problem? What factors increase the likelihood of collision? How could such incidents be avoided? These are becoming important questions as running becomes an increasingly popular form of exercise.

This study describes the circumstances of 60 jogger-motor vehicle collisions. These incidents happened most often after dark. Young males were involved in a majority of cases. And more often than not, joggers were struck while running on roads in the same direction as vehicles. In a substantial minority

of collisions, two or more persons were jogging together.

Only a tiny fraction of all joggers are killed or injured; they represent an extremely small proportion of the more than 8,000 pedestrians killed and the tens of thousands injured every year. The danger of jogger-motor vehicle collisions has, in fact, been exaggerated by the news media and professional journals. According to a New York Times report citing information from New Jersey highway safety officials, as many as 20 joggers were killed and scores injured on New Jersey roads in 1977 (3,4), but State highway officials could not verify this information (5). Similarly, it was reported in the American Heart Journal that "8,000 joggers in the U.S.A. have been killed by automobiles and over 100,000 injured during 1977" (6); these totals include all pedestrian deaths and injuries of which joggers are only a small minority. Published statistics do not distinguish joggers from other pedestrian casualty groups.

Method

Newspaper accounts of joggers struck by vehicles were obtained through a national newsclipping service for a 1-year period, from mid-August 1978 to mid-August

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1979. The service screens all U.S. daily and weekly newspapers that are available by subscription. Police reports on collisions were obtained whenever possible.

Results

Newspaper articles were received on 60 jogger-vehicle collisions in which 65 joggers were struck. Police reports were obtained for 54 of the incidents. The collisions occurred in 28 States throughout the country.

Movement of joggers and vehicles before collisions

	Number of collisions	
1. Running with traffic between intersections	29	53%
a. Hit from behind	25	
b. Hit by oncoming vehicle	4	
2. Running against traffic between intersections	13	24%
a. Hit from behind	6	
b. Hit by oncoming vehicle	7	
3. Running across roads between intersections	4	7%
4. Running across roads at intersections	3	5%
5. Other	6	11%
Total	55	100%

Note: information missing on 5 collisions.

Extent of injuries. Thirty joggers were killed, and 35 were injured. Details about the nonfatal injuries were not always given in newspaper accounts or police reports but, for at least 19 of the 35 persons, the injuries were serious or critical, and at least 12 joggers sustained 1 or more broken arms or legs, usually legs.

Sex and age. Males accounted for 43 (66 percent) of the 65 joggers, 18 (60 percent) of the fatalities, and 25 (71 percent) of the nonfatally injured.

The peak age group involved in collisions was the 15- to 24-year-olds. This was true for both males and females as well as for fatally and nonfatally injured joggers. Following is the distribution of the joggers by age group:

Age group (years)	Number	Percent
Under 10	2	3
10-14	2	3
15-19	14	22
20-24	14	22
25-29	8	13
30-34	8	13
35-39	7	11
40-44	3	5
45-49	1	2
50 or older	4	6
Total	63	100

¹ Information missing for 2 joggers.

Presence of other joggers. In 22 (37 percent) of the collisions, 2 or more persons were jogging. In 17 instances, only 1 jogger was struck; in 5 collisions, 2 were struck.

Hour of day and light conditions. Although collisions occurred during all hours, almost half took place between 3 and 9 pm, as the following tabulation shows:

Hour	Number	Percent
12 pm-2:59 am	2	4
3-5:59 am	5	9
6-8:59 am	6	11
9-11:59 am	4	7
12 m-2:59 pm	5	9
3-5:59 pm	14	25
6-8:59 pm	14	25
9-11:59 pm	7	12
Total	57	102

¹ Information missing on 3 collisions.

^a Percentages do not equal 100 because of rounding.

Less than half of the collisions occurred in daylight; 45 percent occurred in darkness and 10 percent, at

dawn or dusk. Thirty-five percent of the fatal collisions and 53 percent of the nonfatal collisions were in daylight. The collisions by light conditions follow:

<i>Condition</i>	<i>Number</i>	<i>Percent</i>
Daylight	26	45
Dark	26	45
Dawn	3	5
Dusk	3	5
Total	¹58	100

¹ Information missing on 2 collisions.

Driver negligence. Overall, 23 (38 percent) of the 60 collisions involved driver negligence. Fifteen collisions, or 25 percent, were attributed to hit-and-run drivers, and at least five of them were eventually identified. Ten persons, including four hit-and-run drivers, were charged with driving while intoxicated or driving under the influence of drugs. Charges of vehicular homicide or negligent injury were placed against six drivers.

Collision responsibility. Information on the movements of joggers and vehicles before impact was available for 55 of the 60 collisions (see chart). In 15 cases (27 percent) it appeared that drivers were primarily responsible for initiating collisions—for example, their vehicles went off the road and hit joggers running on the shoulder. In 17 instances (31 percent) joggers appeared to be primarily responsible—for example, they ran across the road between intersections.

In another 17 cases, both drivers and joggers contributed to the collision—for example, joggers ran on roadways and were struck from behind. In the remaining 6 cases (11 percent) primary responsibility for collision could not be determined. In each of these 17 collisions involving shared responsibility, joggers were on the roads in or near the paths of vehicles traveling legally in the lanes where joggers were struck. Although it appeared that drivers could have avoided some of these collisions, 8 of the 17 incidents occurred in darkness, and in two instances joggers were coming around blind curves.

Collision types. The chart illustrates the reported movement of joggers and vehicles before impact. In 29 of the 55 collisions, the runners were moving with traffic and in 13, they were jogging against traffic. Runners crossing roads between or at intersections occasioned seven collisions. Six collisions occurred under other circumstances. One jogger stopped in the middle of the street at 3:19 am, tried to flag down a motorcycle, and was struck and killed by the vehicle.

A jogger reportedly running in darkness on the center stripe of a U.S. highway was killed by an oncoming car. A jogger running with traffic reached an intersection, turned around, and proceeded to run with traffic in the opposite direction, then crossed back over and was hit from behind and injured nonfatally by a car that had moved out to pass him. A car reportedly passed a jogger on the road, then turned around and came back at high speed. The jogger tried to escape by running up an embankment but was struck and sustained two broken legs. In two cases, joggers running on private dirt roads in daylight were injured by motorcycles. One jogger was hit from behind; the other was hit by an oncoming motorcycle that came around a blind curve.

Comments

The 60 collisions reported during 1 year underestimate to an unknown degree the actual number of such incidents. Some, even those resulting in fatalities, are probably not reported in newspapers, particularly in big city newspapers that typically do not cover all motor vehicle crashes. Of the 60 reported collisions, 75 percent took place in towns with less than 50,000 population (7); only 16 (27 percent) were reported in 1 of the more than 100 newspapers in the United States with daily circulations greater than 100,000 (8). Moreover, the collisions in this study are probably weighted toward the serious cases, since vehicle collisions causing only minor injuries are less likely to be reported in the press.

In two detailed investigations of pedestrian collisions, including a study of about 6,000 such events in Los Angeles during 1976–78, researchers found that jogger involvement was considerably less than 1 percent (5). This proportion suggests that the numbers in this study, although minimum estimates, may be close to the actual total. If the true number of deaths and injuries were two to three times higher than the 65 recorded in newspapers for 1 year, jogger-vehicle collisions would remain a relatively small, though important, aspect of pedestrian injuries.

Few of the reported incidents involved joggers crossing roads at or between intersections, but the majority of collisions involving walking pedestrians occur when people cross roadways (9). Driver negligence is frequently involved in both jogger- and walker-vehicle collisions (10).

In the majority of collisions in which joggers were hit from behind, more than one jogger was present. Joggers in groups often run abreast rather than single file, and one runner is likely to be on or very close to the roadway. If the joggers were reported to be

running abreast and only one was struck, the injured person was nearest the traffic stream.

In this study, male joggers were struck by vehicles more often than females. But since females account for only 30 percent of all joggers (2) and they probably jog less per outing than males, it is possible that females have a higher fatal collision rate per unit of exposure than males.

Protecting Joggers

Analysis of the reported collisions indicates the circumstances surrounding jogger-motor vehicle incidents. Risk factors include jogging after dark, jogging with other people, and jogging on roadways in the same direction as vehicles.

Measures applicable to pedestrians in general (11-14) could significantly reduce the injuries resulting from joggers colliding with motor vehicles. For example, attractive off-road jogging trails could separate joggers and vehicles.

Yet even if off-road running facilities were ample, joggers will continue to use the roads and to jog during nonwork hours, including nondaylight hours, when the risk of being struck by a vehicle is highest. Therefore, some guidelines for running on roadways could be useful because they recognize that joggers and vehicles will be sharing the roads.

First, joggers should not run on roads after it is dark; if they do so, they should wear light colored clothing and reflective materials. Legislation prohibiting jogging after dark, or requiring joggers to wear reflective apparel, has been discussed in some jurisdictions (15,16), but to my knowledge, no such requirements have been enacted. According to the police reports acquired during this study, several joggers wore dark clothing and none wore reflective materials.

Second, joggers should run against traffic, because they are better able to anticipate and react to the movement of vehicles in the lane nearest them. Only when the jogger approaches a blind curve on a road that has no shoulders would it generally be prudent to run on the other side of the road. All joggers, including those running against traffic, should be especially alert to vehicles crossing over into the wrong lane.

A third guideline is that, whether running with or against traffic, joggers should run on the shoulder or close to the edge of the road so that vehicles in the nearest lane do not have to alter their paths. Joggers should run single file if the shoulder is not wide enough for more than one person.

Joggers and drivers need to be alert to each other.

Joggers should recognize that, whether running with or against traffic on or alongside the road, they are susceptible to being struck both from behind and by oncoming vehicles. In turn, drivers should recognize that joggers may be on the roads at all hours and in all weather conditions.

These guidelines call for no new technology nor do they require changes in our traffic laws. They involve common-sense adjustments by drivers and joggers to the fact that they are sharing the roadways. Although jogger-motor vehicle collisions do occur, the expected benefits of running far outweigh this danger (17,18).

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