

Accident Avoidance Training

The Missing Link
2000-2006 Data

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Question: Will training young drivers in the reactions to common accident causing situations improve the outcome of the incident? Driver's Education, in high school, teaches new drivers the basics of driving. Accident Avoidance teaches drivers the skills to be safer when driving.

Physical skills are learned and practiced in the environment where they are used. Therefore, accident avoidance skills are best learned driving a car on a normal road, facing commonly occurring emergencies.

A defensible scientific study of this type has not been attempted.

Summit Point and BSR have undertaken such a study.



Summit Point/BSR Training Center

Realistic Training Environment

Summit Point/BSR Training Center is located approximately 70 miles west of Washington, D.C. The facility contains three road circuits — 1.7, 2.0, and 2.2 miles long. Each replicates a normal road that has: two to three lanes, long and short straights, visible and blind curves of varying radii, and hills. Each shoulder contains grass or gravel which accurately represents road conditions on which highway emergencies occur.

Summit Point conducts motorsports events and BSR conducts specialty training such as Security Driving, Evasive Driving, Accident Avoidance, Off-Road, shooting tactical courses and Emergency Medical training. Students include US Governmental and military personnel, private companies and the public. BSR is a nation's leader and one of the oldest US Training Centers.

The Students

48 students were given free Accident Avoidance training. Enrollment was on a first-come, first-served basis. The first 48 to register formed the Trained Group and those enrolling afterwards formed the Control Group.



Training

Training is a total of eight hours with approximately 6½-hours hands-on driving and 1½-hours in the classroom. Training does not include any road-scene videos or simulators.

In car there is a three to one student-instructor ratio. Students learn and practice responses to highway emergencies such as skidding, avoiding objects, threshold braking, braking in corners and off-road recoveries. Also taught is proper driving position and focusing attention on a positive goal, such as an escape route, rather than a problem such as a tree or another vehicle.



Skid Control and Recovery



BSR Training Vehicles

What We Found

The study period is concurrent with the first five years of licensed operation. Accident data was kept through five years and not recorded thereafter. No consideration has been given to driver's attitude, peer group pressure, or other psychological factors. The 448 Trained and Control Group students form the sample group in Figure One. Through cooperation from West Virginia's Governor's staff, State Troopers' headquarters, and State Sheriff's Association, BSR has acquired crash reports of both groups.

Information used in the study was reported by the attending police officer in documentation from the incident. Accidents that were included in the study were highway emergency related where the driver that had very little time to analyze, decide and react to the situation. These accidents are termed "AA Relevant."

Accidents that occurred where the driver (control or trained) was a passive victim (i.e. struck from the rear while stopped at a traffic light) are not included.

The data in Figure One demonstrates the value of Accident Avoidance Training.

Figure One: Effect of BSR AA Training

Drivers Involved in “AA Relevant” Accidents	Trained Group (196 Students)	Control Group (226 Students)	Trained Group Advantage
Drivers Involved in Accidents	13.99%	26.11%	87%
Drivers Involved in Accidents-Vehicle had to be Towed ¹	9.47%	18.14%	92%
Drivers Involved in Injury Accidents ¹	2.88%	7.52%	161%
Drivers Involved in More Than One Accident	2.06%	4.42%	115%

¹ A measure of accident severity.

The facts in the two lines highlighted in blue were reported by the officers representing the *severity* of the accident. The data shows that the *non-trained* driver were more likely to be in a severe and injury-producing accident than the trained driver.

Presumably, the vehicles driven by our sample group have the normal range of safety features — air bags, crumple zones, and the like, all of which save lives. However, the data presented conclusively shows that training the driver has a large effect in reducing the severity and thereby the chance of injury or death in an accident.

Results of this study correspond closely to a similar study on high-speed safety for West Virginia Academy trooper rookies done during the period of 1993-2000 (See Figure Two on the following page).

Figure Two: West Virginia Troopers and BSR Training Vehicle



From 1993-1996, BSR, Inc. trained 60 rookies, in high-speed safety, from four academy classes of the West Virginia State Troopers. 60 untrained rookies from the same academy classes formed the control group. The two-day realistic driver training took place on the Summit Point Circuit and included day and night high-speed exercises, including pursuit. Trooper headquarters made five-years of driving records available for both groups. The results are presented below.

	Trained Group	Untrained Group
Number of Total Accidents	84	103
Number of Accidents Chargeable to Officer	41	41
Number of Officer Injuries	6	14
Number of Civilian Injuries	9	18
Repair Costs to Police Cruisers	\$198,419.84	\$350,965.32
Civilian Property Damage	\$79,200.00	\$136,050.00
Officers who Left Service	5	10
Savings to Department	\$209,395.48	

Whereas the number of accidents moderately favors the Trained Group, the severity of the accidents, as measured by crash damage and injuries, very strongly favors the Trained Group. We attribute this to the learned response of the Trained Group in avoiding the crash or reducing the impact.

Conclusion

If you are a trained swimmer, even not having been in the water for 10 years, and fall out of the back of the boat, you are still likely to make it back to the boat. In the similar circumstance, never having learned to swim, and then falling out of the back of the boat, you have a much higher probability of drowning.

What we have learned in this study can be compared to the swimming example. Learned responses in the category of physical skills may deteriorate over time but are never lost. The trained student will have the capacity to react more accurately and instinctively to a highway emergency than the untrained driver.

About the Authors

William (Bill) Scott had a varied career. After earning a PhD in geophysics from Yale University and working as a post-doctoral fellow at the Carnegie Institute, he became a professional road-racing driver. In a ten-year span he won three American, one European and two World Championships. After acquiring the Summit Point road-racing track, he developed a number of renowned driving schools, with international reach, as well as the Accident Avoidance School of this study.

Much of the data for this article was compiled and analyzed by Bill Reichardt, head of Business Development at the Summit Point Automotive Research Center (“SPARC”) until 2010. Prior to joining SPARC, Bill held executive positions in the automobile industry both domestically and internationally.