

Accident Avoidance Training

The Missing Link
2000-2006 Data

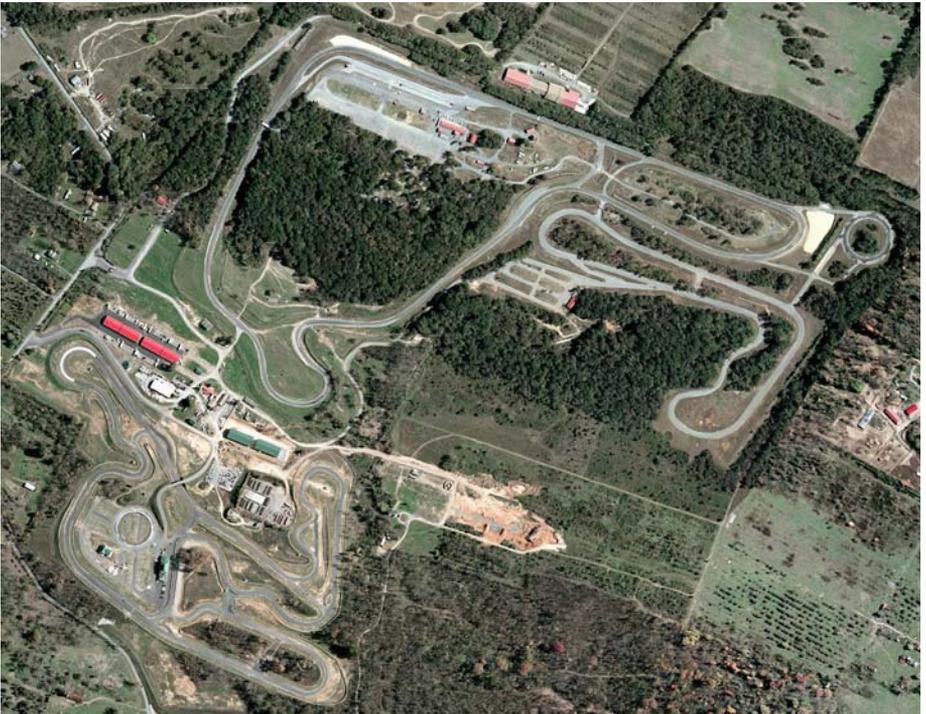
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Summit Point, West Virginia
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Would the training of young drivers in the practical reactions to the commonly occurring highway situations that lead to accidents be beneficial? One would think so, but those who have mandated large resources and energy in bringing us ever-safer cars, seem to ignore, or consider of little value, any training past high school drivers ed.

Physical skills are learned and practiced in the environment where they are used; bicycle riding on the sidewalk, bowling at a bowling alley, skiing on the slopes. It follows that learning accident avoidance skills would be best learned driving a car, on a normal road, facing commonly occurring emergencies with an instructor in the passenger seat.

Or maybe it isn't logical, only making young drivers go faster without any real effect on accident rates, reflecting an official position. A defensible scientific study, employing realistic training, a valid control group, official driving histories, and statistical confirmation would go a long way to settling the debate. No study of this type has been attempted.

Summit Point and BSR have undertaken such a study.



Summit Point Training Circuit Complex

Realistic Training Environment

Summit Point Motorsports Park is located approximately 70 miles west of Washington, D.C. The facility contains three road circuits — 1.1-, 2.0-, and 2.2-miles long. Each replicates a normal road, two- to three-lanes wide, with long and short straights, visible and blind curves of varying radii, and hills. With shoulder material of grass or gravel, each accurately represents road conditions on which highway emergencies occur.

Summit Point conducts motorsports events on weekends and BSR, Summit Point's training division, conducts specialty driving schools weekdays. The majority of training is for antiterrorist procedures for US Governmental agencies and military, for which BSR is the nation's leader. On some Saturdays, BSR conducts Accident Avoidance (AA) training for young drivers.

The Students

Each year, 48 students from our local Jefferson County High School are given free Accident Avoidance training. Enrollment is on a first-come, first-served basis. Yearly, the first 48 form the Trained Group and those enrolling too late form the Control Group.



Students and Instructors

Training

Training is eight hours; 6½-hours hands-on, and 1½-hours in classroom. Classroom focuses on what's coming next. No extended road-scene videos or simulators. You can't learn to ride a bicycle from a video.

For hands-on, three students and one instructor are in the car all day. Students learn and practice responses to highway emergencies, one at a time, all day. For example, the first attempted off-road recovery, poorly executed. Keep practicing with instructor help until the best proficiency is attained. Thus, throughout the day students learn and practice responses to skidding, swerving to avoid objects, threshold braking, off-road excursions, and having to brake in corners. Also taught is proper driving position and ocular driving – look where you want to go (back on the road) rather than where you're headed (the tree).



Skid Control Training on Wetted Skid Pad

At the end of the day, each student has a final exam consisting of a one to two-mile drive (parents in the back seat, if permitted by the student!) facing new emergencies that, however, require responses learned during the day.



BSR Instructors and Training Vehicles

What We Found

The study period is concurrent with the period young drivers are most likely to get into an accident – the first five years of licensed operation. Accident data were 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 469 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, spearheaded by Jefferson County Sheriff Ed Boober, BSR has acquired crash reports of both groups.

Most accidents used in the study were described in prose and many diagrammatically by the attending police officer. These descriptions permit the reader to see how the accident developed and gauge its relevance to training. Those accidents that occurred where the subject driver (control or trained) was a passive victim (struck from the rear while stopped at a traffic light) are not included.

For the remaining accidents, highway emergencies unexpectedly happen and in the seconds or fraction of a second between the onset of the emergency and the accident, the driver does not have time to analyze the situation and decide what to do. Instead, he or she must react immediately with a response or non-response. These accidents we term "AA Relevant."

The BSR trained driver will have faced similar situations in training and thereafter have learned and practiced corrective responses. Thus his or her immediate response, based on learned procedures, will more likely avoid or mitigate the accident. The data in Figure One clearly demonstrates the value of BSR 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 two data lines highlighted in blue appear in every attending officer’s report. In the first, did the vehicle need to be towed from the scene or not? In the second, was a participant injured or not? The officer simply recorded these facts.

Both of the highlighted lines represent the *severity* of the accident. The data shows that the *non-trained* driver is more likely to be in a severe and injury-producing accident than the trained driver.

Presumably, 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 show 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 1993-2000 (See Figure Two on the following page).

Figure Two: West Virginia Troopers and BSR Training Cruiser



From 1993-1996, BSR trained 60 rookies, in high-speed safety, from four academy classes of the West Virginia State Troopers. Sixty 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-year 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 swimmer, not having been in the water for 10 years, and fall out of the back of the boat, you are 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 are likely to sink.

What we have learned makes the same kind of sense as 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 act more positively and instinctively to a highway emergency than the untrained driver.

This study and the accumulation of data will continue.

About the Authors

William (Bill) Scott has 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. Since acquiring the Summit Point road-racing track, he has 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”) since 2002. Prior to joining SPARC, Bill held executive positions in the automobile industry both domestically and in London; had successful retail experiences with Porsche, Audi, and BMW; and has played key roles in several private, nonprofit fundraising activities.