

DISTRACTION

Brain on Board.ca It's Monday morning and you're late for work. You didn't have enough time to brew your morning coffee at home, so you have a full cup of bought coffee sitting in your cup holder. Although it's the morning rush hour on the highway, the speed of traffic has picked up since you passed a popular exit. You look down and notice your coffee is sloshing around in the cup and threatening to spill over the edges. Reaching down to secure your coffee cup forces you to briefly take your eyes off the road, so you do not notice that traffic has started slowing down again. When you finally look back at the road, your vehicle is dangerously close to the one ahead of you. You firmly push down on your brake pedal, but it's not enough. Your coffee spills as you knock the bumper ahead of you, causing a noticeable dent.

Distracted driving is a significant road safety issue that warrants the increased concern and attention it has received in the past few years. In a 2012 survey of Canadian knowledge of and attitudes towards modern vehicle safety features, TIRF found that a concerning 19.2% of Canadian respondents said that they would drive when distracted if their vehicle was fully equipped with safety technology. This is a



disturbing result because having safety features does not make distracted driving any less dangerous; in fact, driving while distracted has the opposite effect and seriously undermines the performance of your safety features. So although drivers believe that they are more protected with modern safety features – and are therefore more willing to drive while distracted – the result is that they may actually be less protected than they would be if they had no safety features but were not distracted.

WHAT IS DISTRACTED DRIVING?

Distracted driving is a diversion of the driver's attention while driving. In other words, any time an object, person, task, or event that is not related to driving takes your attention away from your driving, you are driving while distracted.

A lot of the early focus on distracted driving was generated by concerns over cell phone use. For much of the driving public, distracted driving is synonymous with cell phone use, but the reality is that this is just one small part of the problem (TIRF 2011). Whenever a driver participates in a non-driving activity, this has the potential to distract from the primary task of driving (NHTSA 2010a). Any task that a driver performs while driving is called a secondary task (Tasca 2005). Examples of secondary task distractions include: eating/drinking; grooming; using and adjusting in-vehicle technological devices; using a cell phone; observing pedestrians; and talking with passengers.

WHAT TYPES OF DISTRACTIONS DO DRIVERS FACE?

Drivers face many different types of possible distractions. Given the large scope of potential

distractions, it is not surprising that road safety researchers have categorized sources of distraction differently. One useful way of grouping different kinds of distraction is to see them as falling into two categories:

- Internal distractions: these distractions occur in the vehicle and can involve the driver performing a secondary task. Some examples include talking to passengers, eating/drinking, smoking, or manipulating in-vehicle technological systems.
- External distractions: these distractions can be anything that lies in the vehicle's external environment. External distractions include road signs, construction zones, cyclists, billboards advertisements, accidents, animals, and pedestrians.



HOW DO DISTRACTIONS AFFECT TRAFFIC SAFETY?

Distracted driving represents a significant road safety risk. A survey published by the Traffic Injury Research Foundation (TIRF) in 2010 found that while relatively few drivers admit to having been involved in a distracted-driving related crash (7%), many more Canadian drivers reported having to

Your brain is your vehicle's most important safety feature.

Your brain is your vehicle's most important safety feature.

brake or steer to avoid a collision (TIRF 2010). Twenty-seven percent of drivers surveyed reported that they had to brake or steer to avoid a collision in the past year because they were distracted by something outside of their vehicle and 12.6% had to brake or steer because of something inside their vehicle. This is an increase from the Traffic Injury Research Foundation's (TIRF) 2006 report on distracted driving, where 20.2% of drivers reported having to brake or steer to avoid a collision because of a distraction outside their vehicle and 9.5% because of a distraction inside the vehicle (TIRF 2007).

Distracted drivers also commit a wide variety of driving errors, from control sloppiness (wandering/weaving, irregular speed), to loss of situational awareness (following too close, sign/signal disobedience). These errors increase the likelihood of being involved in or causing crashes. For example, distracted drivers are more likely to be involved in rear-end crashes or single vehicle crashes and approximately 70% of distracted driver crashes involve one of these two crash types (Ramney 2008).

HOW DOES DRIVER DISTRACTION INFLUENCE CRASH RISK?

Distraction contributes significantly to crash risk. An examination of 2008 national data in Canada collected by TIRF reveals that driver distraction was a factor in 13% to 16% of fatal crashes, and in 23% to 27% of injury crashes (TIRF 2011). In the United States, the National Highway Traffic Safety Administration (NHTSA) estimates that driver distractions contribute to between 25% and 30% of crashes (Stutts et al. 2005). Researchers have concluded that performing a complex secondary task (e.g., reaching for a moving object, applying make-up, or dialling) exposes drivers to

approximately three times the risk of involvement in a crash or near-crash; moderately complex secondary tasks (talking/listening, eating, inserting a CD) were approximately twice the risk (Klauer et al. 2006).

ARE THERE LAWS AGAINST DISTRACTED DRIVING IN CANADA?

The focus of Canadian legislation on distracted driving has been on the use of cell-phones and other electronic communication devices. With the exception of Nunavut, and the Northwest Territories, Canada has banned the use of hand-held communication devices, and enforces the ban with fines ranging from \$115.00



in Quebec to \$280.00 in Saskatchewan (Transport Canada 2011, Alberta Transportation 2013). In addition to fines, Canadians caught using hand-held devices will be issued between three and six demerit points (except in Manitoba, where no demerit points are issued) (Transport Canada 2011).

Penalties for using a hand-held electronic communication device can be even more serious. Depending on the circumstances, Canadian drivers may also be charged with Careless Driving or Dangerous Driving, and face licence suspensions and/or jail time (Transport Canada 2011)

HOW MANY MOTORISTS DRIVE WHILE DISTRACTED?

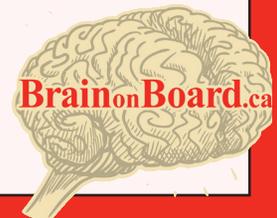
Distracted driving is a very difficult problem to measure, and data sources are limited for a couple of reasons. People may under-report the extent to which they engage in distracting activities,

distraction may not be reported to the police or noted in crash reports, and distractions can be difficult to directly observe in traffic. Nevertheless, the results of a TIRF survey published in 2010 of Canadian drivers shows that Canadians frequently engage in many distracting activities while driving:

- 85.7% read road signs;
- 67% talk or interact with passengers;
- 54.8% think about things other than the driving task at hand;
- 45.8% change the radio station or CD;
- 40.9% read billboards or advertising;
- 32% eat or drink;
- 19.9% talk on their hands-free phone;
- 17.4% use GPS to navigate;
- 8% talk on their hand-held phone;
- 7.4% use technical devices such as blackberries, palm pilots, or laptops;
- 5.2% text message, and;
- 3% read a newspaper, put on make-up, or shave (TIRF 2010).

WHO IS MOST LIKELY TO DRIVE WHILE DISTRACTED?

While distractions can affect drivers of any age and experience level, distracted driving seems to pose an elevated crash risk for younger drivers. The Traffic Injury Research Foundation (TIRF) found that the younger a driver is, the more likely it is that they had to steer or brake to avoid a collision in the past



year due to a distraction inside their vehicle (TIRF 2007).

Studies conducted in the United States confirm that younger drivers are more at risk when distracted. In the U.S., about 985,000 drivers under the age of 21 were involved in a distracted-driving related crash between 2004 and 2009 (NHTSA 2010b). This is 13% of all drivers involved in a crash, yet young drivers make up just 6% of the driving population. In comparison, during the same period of time, 592,000 drivers over the age of 64 were reported to be involved in a crash caused by distracted driving (NHTSA 2010b).



Though younger drivers are involved in more distracted-driving crashes, older drivers seem to have more distractions to deal with when they drive, including taking care of children and thinking about marital, family, or financial problems. One reason why adult drivers crash less despite coping with increased distractions is that adult drivers tend to slow down when distracted, while younger drivers tend to maintain the same speed (Smiley 2008).

HOW DOES DISTRACTION AFFECT MY ABILITY TO BENEFIT FROM MY SAFETY FEATURES?

Distracted drivers commit a wide variety of driving errors that limit their ability to benefit from vehicle safety features. Many safety features rely heavily on you to supply the right kind of braking and steering input at the right time. Your ability to supply this input will be hindered if you are distracted by something inside or outside of your vehicle. To illustrate, if you are looking at something on the side of the road, you may not notice a car that is attempting to come over into your lane. By the time you do notice this car and slam on your brakes, it may be too late for your brake assist to help you stop in time and avoid a collision. A distraction that causes a delay in brake application may result in being involved in a collision that, had there been no distraction, could have been avoided with the help of safety features.

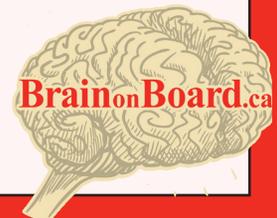
Another consequence of distraction that impacts your ability to use your safety features is the loss of situational awareness. This means that when you are distracted, you are less able to see the “big picture” of what is going on around you. You may not notice speed limit signs, pedestrians waiting to cross, cars pulling out of driveways, or other potential hazards. Since you are unable to anticipate possible dangers, losing sight of the big picture may cause your reaction time to become longer. A delayed reaction time limits your ability to supply the appropriate, timely brake and steering input that your safety features rely on to work properly.

WHAT SAFETY FEATURES ARE DIRECTLY AFFECTED BY DISTRACTION?

The performance of every safety feature currently available is diminished to some extent by driver distraction. Features that work off of your brake and steering input – including anti-lock braking systems (ABS), electronic stability control (ESC), brake assist, and electronic brake-force distribution (EBFD) – may not be able to help you as much if you are distracted because of the extra strain caused by later braking and exaggerated steering commands.

Adaptive headlights assist you by making you aware of potential hazards or obstacles that you would not normally have been able to see. If you are distracted, however, you may not react to illuminated hazards as quickly as you would have if you had not been distracted. Even if you are looking at the road, simply letting your mind wander and thinking about things that are not driving-related could cause you to react slower to an obstacle illuminated by adaptive headlights, and a collision may be unavoidable. In these cases, although the technology worked properly, being distracted may undermine the potential benefits of having the technology in the first place.

Finally, even warning systems that sound alarms when a possible danger presents itself (like forward-collision warning and lane-departure warning systems) will be undermined if you are distracted. In order to avoid a dangerous situation, you must react quickly to these alarms. However, if you are distracted, you will be slower to react and may not



Your brain is your vehicle's most important safety feature.

be able to avoid a collision. If you are distracted, you will require time to assess the reason why the alarm went off. Your loss of situational awareness adds an extra step between hearing the alarm and reacting to the sound. This extra step takes up precious seconds that could mean the difference between avoiding a collision or not.

Many of the accidents that result from distraction are rear-end crashes. However, many safety features have design limitations that prevent their activation in the types of situations that result in rear-end crashes. Specifically, brake-related safety features (ABS, brake assist, EBF) and forward collision warning systems do not activate below certain speeds. This means that none of your safety features are designed to help in a situation where, for example, you are expecting a line of cars at a traffic light to start moving and, while changing the radio station, you hit the car ahead of you. Low-speed, rear-end collisions are a common result of distracted driving that safety features are not designed to help you prevent. The best way to ensure that you are not involved in these types of crashes is to pay attention to driving and nothing else.

WHERE CAN I FIND OUT MORE INFORMATION ABOUT DISTRACTED DRIVING?

In recent years distracted driving has garnered growing media attention and rapidly emerged as one of the most high-profile, talked-about issues in road safety today. As such, there is a significant amount of research available on distracted driving.

Every year, the Traffic Injury Research Foundation (TIRF) publishes The Road Safety Monitor (RSM), a survey designed to gauge public opinion on a range of key road safety issues. TIRF has released three RSMs dedicated to distracted driving: in 2002,

2006, and most recently in 2010. In addition, TIRF has released a review of distracted driving trends for 2011, and a summary of key issues in distracted driving (2011). TIRF participated in the 2005 International Conference on Distracted Driving, and, in collaboration with CAA, has prepared a summary of proceedings and recommendations from that conference. All these materials are available on this website, and on the TIRF website at www.tirf.ca. For more information about the International Conference on Distracted Driving, you can visit www.distracteddriving.ca.

The National Highway Traffic Safety Administration (NHTSA) in the United States has also published extensively on distracted driving. NHTSA's resources on distracted driving have been compiled and are available at www.distraction.gov. Finally, Transport Canada has researched the prevalence of distracted driving and effective countermeasures. This information, as well as more information about Canadian laws against distracted driving, can be found online at www.tc.gc.ca.

REFERENCES

Visit www.brainonboard.ca/program_resources/references.php for a full list of references.

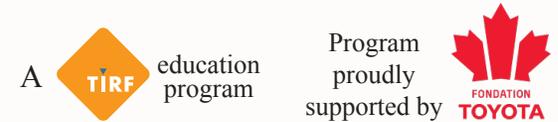
WANT TO LEARN MORE?

Visit www.brainonboard.ca to learn more about vehicle safety features:

- Active Safety Features
- Passive Safety Features
- Driver Assistance Technologies
- Safety Technologies in Development

Driving instructors, road safety educators, car dealers and service providers can download and order program resources and materials through the

Brain on Board website. www.brainonboard.ca/program_resources/.



The advertisement has a textured, light-colored background. At the top, the word 'DRIVING' is written in large, bold, orange letters, with a stylized eye graphic integrated into the letter 'I'. Below it, the words 'TAKES MORE' are in black, 'MENTAL' is in large black letters with a graphic of two men in suits, and 'EFFORT THAN' is in orange. At the bottom, the word 'YOU TH' is in orange, with a graphic of a brain and a spilled liquid. Below the main text, there is a red banner with white text: '64.8% of Canadians think it's important to pay careful attention to driving, even with advanced safety features like brake assist.' Below that, it says 'Your brain is your vehicle's most important safety feature.' At the bottom of the banner, it says 'Visit Brain on Board to give it a tune-up.' and includes logos for TIRF, Toyota, and AC&T.

