

Class 1 apprentice training



Commission scolaire
de la Rivière-du-Nord

CHAPTER 2 FACTORS THAT INFLUENCE DRIVING



FATIGUE

Fatigue while driving is one of the main causes of accidents on our roads, along with speed, distraction, and alcohol.

Its effects on driving:

- Decreases vigilance, concentration, and attention;
- Impair judgment and the quality of decisions made;
- Reduces reaction time;
- Affects memory;
- Leads to drowsiness, episodes of microsleep, and falling asleep.

FATIGUE

Learn to recognize the signs

You should never take the warning signs of fatigue lightly when you are behind the wheel. **Stop in a safe place to rest as soon as these signs appear.**

- Yawn frequently and blink your eyes
- Hit the rumble strips
- Unintentionally change lanes
- Brake late
- Drive at an inconsistent speed
- No longer remember the last few kilometers traveled
- Miss an exit
- Have difficulty finding a comfortable position
- Feel irritable
- Have hallucinations
- Stop looking in the rearview mirrors

Three categories of factors influencing the state of fatigue

These factors are related :

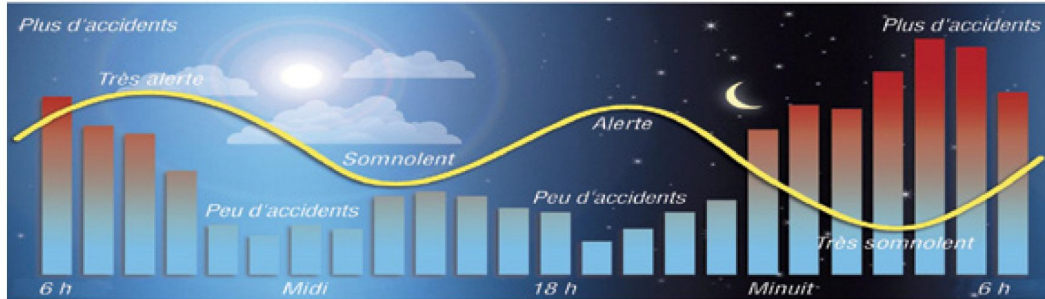
To the driver: Your health status and, in particular, the presence of a sleep disorder, the quality of your sleep, your typology (early riser or night owl), your age, your emotional state, your diet, your physical fitness, your family or emotional life, the fact that you hold more than one job, etc.;

At work: Frequent schedule changes, long commutes, split shifts, night work, waiting times, the length of the workday, physical effort, the company culture regarding fatigue management, etc.;

To the environment: Road and weather conditions, availability of rest areas, the effects of noise, lighting, and cabin temperature, vehicle ergonomics, etc.

Aggravating factors

Les accidents liés à la fatigue en fonction de l'heure de la journée – influence de l'horloge biologique



Source: Mitler, MM., et coll. (1988).

The time of day

It is in the early afternoon (between 1 PM and 3 PM) and especially at night (between midnight and 6 AM) that the risks of falling asleep at the wheel are highest. The body follows a daily cycle that includes "lull" periods during which metabolism slows down, vigilance decreases, and fatigue is felt.

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Awake time

After 17 hours of wakefulness, physical and mental performance declines rapidly, which affects driving. Between 17 and 19 hours of wakefulness, physical and mental abilities are equivalent to those of a person with a blood alcohol **concentration of 50 mg/100 ml of blood (0.05).** After 24 hours of wakefulness, they are comparable to a level of 100 mg of alcohol/100 ml of **blood (0.10).**

Noise

Noise, which can vary depending on the environment and the type of vehicle, is an aggravating factor that increases driver fatigue. Noise can come from the engine, tires, exhaust system, radio, and the cabin itself. Thus, insufficient soundproofing of the cabin, the speed of the vehicle, and, of course, the high volume of the radio also contribute to increased noise and, consequently, driver fatigue.

INATTENTION

Fatigued drivers can make mistakes and cause serious accidents. Therefore, you must remain attentive to the signs of fatigue that your body sends you.

Inattention caused by driving on a monotonous road that requires little maneuvering can lead to highway hypnosis and may even cause you to fall asleep at the wheel.

DISTRACTION

Distraction reduces the driver's vigilance and performance. Therefore, you should avoid external distractions such as smoking, eating, drinking, using electronic devices, or any other activity that may divert your attention from the road. A distracted driver processes only half of the information provided by their environment. They look without seeing what is happening.

SPEED

Driving at high speed causes various phenomena that can increase your stress and influence your driving behavior. Thus, speed produces the following effects:

- The driver's field of vision gradually narrows, and their vision becomes similar to that of a driver crossing a narrow tunnel. This sensation is caused by the very high speed at which objects pass by on either side.
- The distance the vehicle travels during the reaction time increases.
- The braking distance increases.
- The ability to perform evasive maneuvers is reduced.

Alcohol

Alcohol consumption affects the brain and acts on the central nervous system, which is the center of decision-making and coordination in the body. As the blood alcohol concentration increases, a gradual deterioration in driving ability is observed.

If you drive under the influence of alcohol, it:

- Alters the quality of your visual perception;
- Impairs your judgment;
- Increases your reaction time;
- Reduces your resistance to fatigue;
- Decreases your coordination.

Under the Criminal Code, the legal limit is 80 mg of alcohol per 100 ml of blood (0.08). Driving with impaired faculties due to alcohol is subject to increasingly severe penalties and serious consequences.

DRUGS AND MEDICATIONS

The consumption of illicit drugs is on the rise in Canada, and the main drug consumed is cannabis. The effects of cannabis consumption on your driving could include the following:

- Difficulty concentrating and staying attentive to the road environment;
- Risk of misperceiving the environment;
- Loss of coordination;
- Difficulty maintaining a straight trajectory;
- Difficulty driving at a constant speed and judging distances;
- Longer reaction times, slowed reflexes, and hesitant driving;
- Risk of being unable to handle the unexpected.



A study conducted in Quebec between 1999 and 2002 showed the presence of drugs in nearly 25% of deceased drivers. Among them, nearly half had also consumed alcohol. Combining alcohol and drugs significantly increases the risk of being involved in a fatal road accident. This is a very dangerous behavior and should be avoided at all costs.

SOME VEHICLE CHARACTERISTICS AND THEIR EFFECTS ON DRIVING

The dimensions and weight of the vehicle

The dimensions and the total loaded weight of a vehicle can affect driving behavior, travel speed, as well as stopping distance. You must take these factors into consideration and remain ready to react to unexpected situations that may arise.

The condition of the tires

Heat affects certain components of the vehicle; for example, tires wear out quickly due to heat. The internal temperature of the tire, which rises significantly, makes the rubber less resistant to cuts and tears while increasing the risk of a blowout.



In hot weather, you should also regularly check the following indicators:

- The engine oil pressure indicator;
- The engine coolant temperature indicator;
- The transmission fluid temperature indicator;
- The differential fluid temperature indicator.

Checking fluid indicators in hot weather

DRIVING IN A HIGH-RISK ENVIRONMENT

Night driving

At night, as a precaution, it is strongly recommended to drive at a speed lower than the permitted limit. Indeed, if you drive at a speed that is too high, your field of vision is reduced, which can have a major effect on perception time, decision-making, and reaction time in an unexpected situation.

Therefore, you should drive at a speed that allows you to stop your vehicle smoothly within the area illuminated by your headlights.



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