

5

HARMFUL SUBSTANCES

Alcohol at the wheel →

Medicines, drugs, and driving →

Alcohol at the wheel

Alcohol is a factor in many accidents. And the risk starts well before you start to feel drunk. It's a fact that alcohol is part of our social and associative life. Pressure is sometimes very strong, and all too often we let ourselves get carried away.

What the law says

In the Grand Duchy of Luxembourg, the statutory maximum level of alcohol in the blood is **0.5‰**, and **0.2‰** for:

- learner drivers
 - recently qualified drivers during their probationary period
 - all drivers under the age of 18
 - the person accompanying a learner driver under the „accompanied driving“ scheme
 - drivers of taxis, buses, lorries, ambulances, break-down trucks, hire cars
 - driving school instructors
 - drivers of vehicles carrying dangerous goods
- ‰ = per thousand = grams of alcohol per litre of blood

Fines for high levels of alcohol in the blood

≥ **0.5‰ and < 0.8‰**

- A fine (issued by the police) of 145 euros, and the loss of 2 points

≥ **0.8‰ and < 1.2‰**

- A fine (issued by the courts) of up to 500 euros, and the loss of 2 points

≥ **1.2 ‰**

- A fine (issued by the courts) of up to 10 000 euros, the loss of 4 points, and immediate withdrawal of the driving licence for 8 days and/or a prison sentence of between 8 days and 3 years

The police use a breathalyser to check alcohol levels; it measures the alcohol content of air as it is breathed out.

- 0.5‰ corresponds to 0.25 mg per litre of air breathed out
- 0.8‰ corresponds to 0.35 mg per litre
- 1.2‰ corresponds to 0.55 mg per litre

Did you know?

- There is the same amount of alcohol in a glass of beer, a glass of wine, and a glass of whisky and soda, as served in a bar or restaurant.



1 glass of wine
10 cl at 12°

1 glass of beer
25 cl at 5°

1 shot of spirits
3 cl at 40°

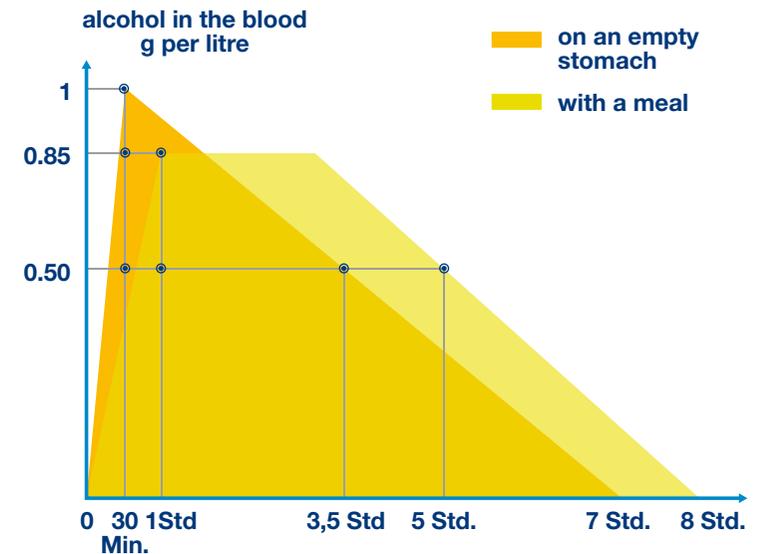
1 cocktail
5 cl at 25°

1 glass = 1 unit = 10 g of ethanol (alcohol)
= 0.2‰ on average

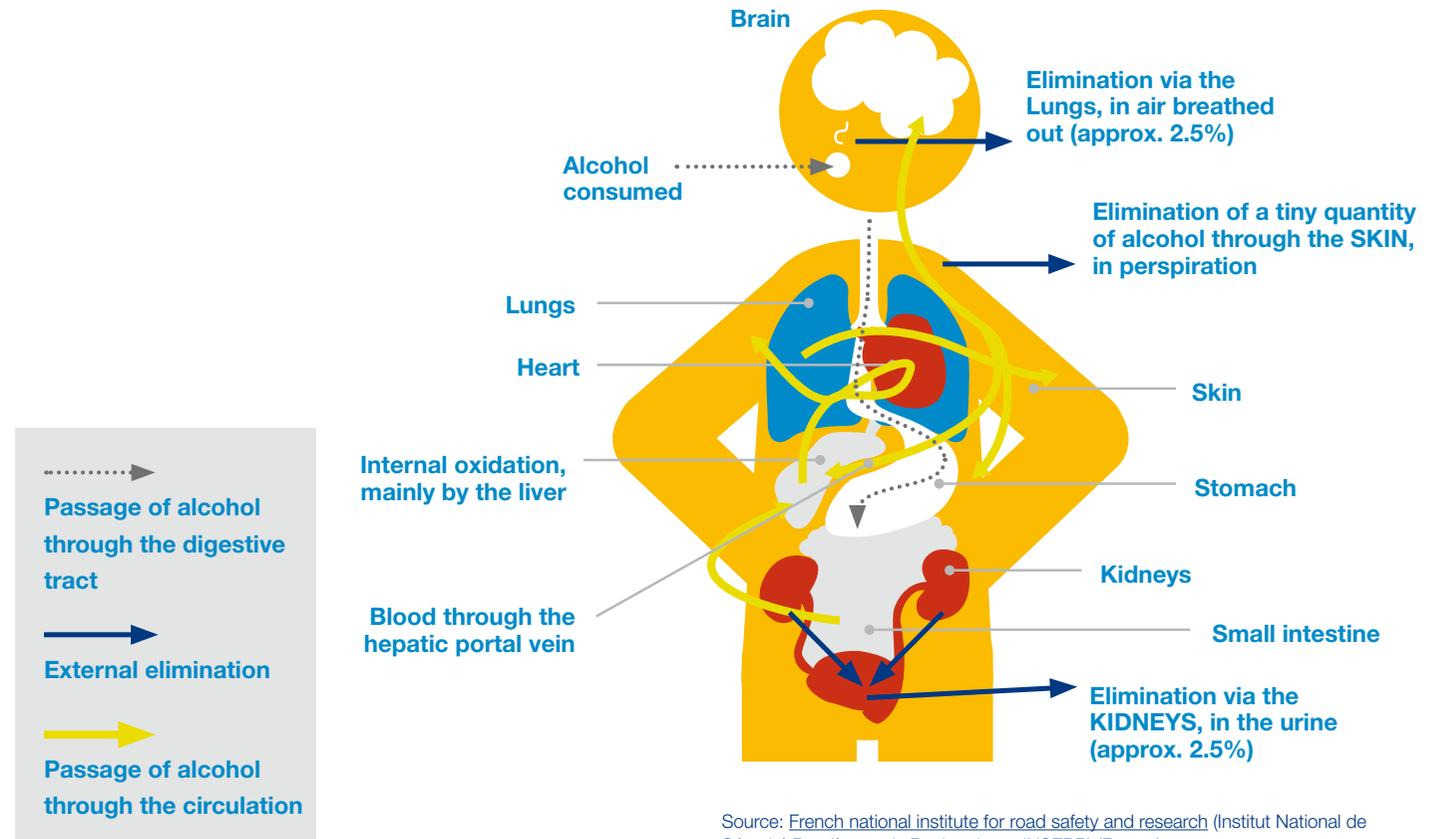


Note that at home, amounts vary according to the size of the glasses, and how full they are.

- The alcohol level varies according to age, weight, gender, and state of health, and depends on whether you have an empty stomach, are taking medicines, or the alcohol is drunk with a meal
- Whatever the quantity of alcohol consumed, the maximum rate of impregnation of the body is reached:
 - half an hour after drinking if on an empty stomach, and
 - one hour after drinking if drunk with a meal
- 95% of the alcohol is eliminated by the liver, at a rate of between 0.10 and 0.15‰ per hour. There is no miracle remedy to speed up the elimination of alcohol. There is no point taking a cold shower, drinking coffee, or taking any other stimulant



- There is a difference between drinking on an empty stomach and after eating. The peak alcohol level, i.e. the maximum amount of alcohol present in the blood at any given time, is higher if you drink on an empty stomach. It's better to drink after you have eaten, as the food slows down the passage of the alcohol into the blood.
- Until the liver has finished doing its job, the alcohol stays present in the body, and particularly in the blood and the brain, and slows down and disturbs the brain's activity. After a short initial period of excitation, alcohol dulls the brain. If you drink a lot of alcohol, your movements are less well coordinated, your reflexes are slowed, and you find it difficult to concentrate.



Effects of alcohol on driving

Between 0.2 and 0.5‰

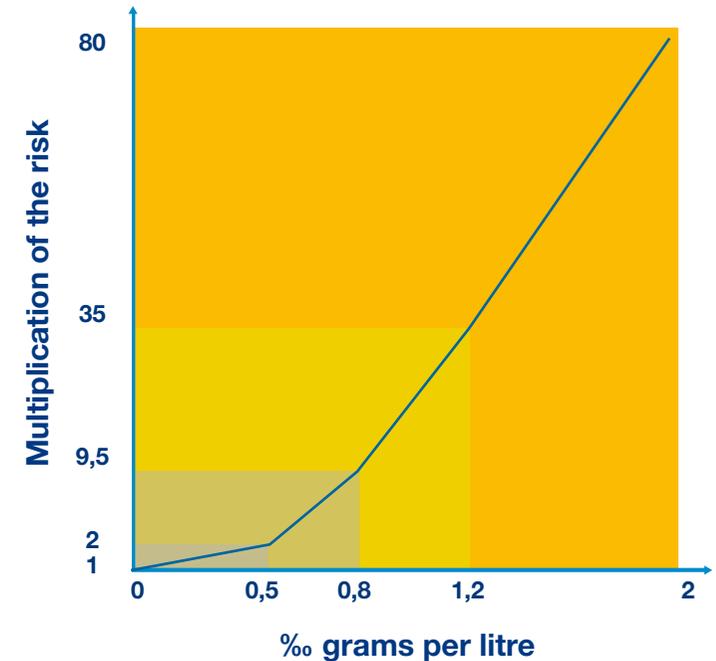
- The beginning of a feeling of euphoria - drivers take risks they wouldn't normally take
- Slight visual disturbance - vision at the sides is less clear and estimation of distances is altered, which is particularly dangerous when overtaking

Between 0.5 and 0.8‰

- Reaction times are longer
- Disturbed lateral vision - drivers have trouble seeing not only road signs but also pedestrians about to cross and traffic coming from perpendicular roads

0.8‰

- Difficulty in making decisions and adapting driving to surrounding conditions
- Coordination and synchronisation of movements ceases to be totally under control
- Alcohol increases the risk of an accident occurring



Source: "Grand Rapid Study", Robert F. Borckenstein

Some advice

- **Every time you go out, choose a designated driver (“Raoul”)**

Choose a designated driver who promises to not drink any alcohol, so that everyone can be taken home safely. This has to be decided before the evening starts, of course. The driver doesn’t drink.

- **If you are the host, you also have responsibilities**

Make sure there are always alcohol-free drinks on the table. If one of your guests has drunk too much, let him/her stay the night, or call a taxi or the Night Rider service.

- **Keep a check on how many glasses you drink**

At the restaurant or at a reception, glasses often get topped up. It’s important to count how many glasses you drink.

- **Respect other people’s decisions**

If someone doesn’t want to drink, or doesn’t want any more to drink, respect that decision. The person isn’t being a killjoy - he/she is being responsible and deserves to be encouraged.

- **Be aware of your consumption of alcohol**

The maximum limit laid down by law is 0.5‰ alcohol in the blood. For many drivers, this is a very abstract notion. It depends on a certain number of factors - the quantity of alcohol, of course, but also the type of drink, the period of time over which it is consumed, whether or not food is eaten at the same time, gender, age, the

person’s build, etc. To understand and master all the factors involved in the alcohol level and its impact on accident risks, you can carry out a **test** on-line.

The “Sécurité Routière” organisation (Luxembourg association for road safety) also rents out a designated driver’s kit - called a “Raoul case” - containing an approved breathalyser so that you can test your alcohol level before you take the wheel, together with information material.



How to calculate the quantity of alcohol in a drink

Quantity of alcohol (in g)

$$= \frac{\text{volume of drink (in ml)} \times \text{Degree of alcohol} \times \text{Density of ethanol (0.8)}}{100}$$

Example:

How many grams of ethanol does a 15 cl glass of wine at 12° alcohol contain?

Quantity of alcohol (in g)

$$= \frac{150 \text{ ml} \times 12^\circ \times 0.8}{100} = 14.40 \text{ g}$$

Widmark's Formula

blood alcohol content

$$= \frac{\text{quantity of pure alcohol consumed}}{\text{weight in kilos} \times \text{diffusion coefficient} \text{ (= } 0.6 \text{ ♀, = } 0.7 \text{ ♂)}}$$



For more information, download the [leaflet](#) produced by the “Sécurité Routière” organisation and take the [test](#) to evaluate your consumption of alcoholic drinks.

Medicines, drugs, and driving

The use of medicines and drugs is dangerous when driving, as their effects have a direct impact on the driver's behaviour and reflexes.

We live in a world with an increasing quantity of medicines. For every minor complaint, for every symptom, we have a specific medicine at our disposal, and many of us make use of them all too frequently, without considering the potential risks and repercussions.

Apart from the recreational use of drugs, we also observe more and more frequently a pseudo-therapeutic use. Substances are being used to help cope with difficult moments, or else as doping products to stimulate physical and mental performance in order to cope with the constraints of a society that is increasingly demanding.

In recent years we have been able to see in the Grand Duchy and in neighbouring countries a significant increase in the consumption of psychotropic medicines and certain drugs. The probability that people are driving while under the influence of these substances increases in parallel.

This obviously concerns travel between home and work as well, particularly as the distances and commuting time are increasing and generally take place under time pressure, which encourages aggressiveness and behavioural changes.

What the law says

Driving while under the influence of drugs is an offence as soon as a person's body contains one of these substances in a quantity at least as high as the following limits:

- 2 ng/ml of tetrahydrocannabinol (THC)
- 50 ng/ml of cocaine
- 20 ng/ml of opiates

Did you know?

- As for alcohol, the risks connected with the consumption of medicines or illegal drugs are above all considered in a context of acute impregnation. However, it transpires that **the impact on fitness to drive may also last much longer.**

In the same way as an evening's heavy drinking leaves a definitely raised blood alcohol level the morning after, the effect of certain medicines and drugs can persist for sometimes more than 24 hours. While the effect of a cannabis joint fades after about 8 hours, certain stimulants, particularly certain amphetamine derivatives, may continue to have an effect well after 24 hours later, and the effect of some sleeping tablets and muscle relaxants may extend well beyond a night's sleep. We can see that **the potential impact of a medicine on fitness to drive and the period of time to wait between taking medicines and starting to drive are often not indicated**

clearly either on the prescription or when the chemist dispenses the medicine. The possibility of buying medicines via the Internet further increases this risk of not being aware of the potential risk to a significant extent.

Since the use of drugs is illegal, it is obvious that there is little likelihood of the consumer being properly aware of the potential risks, the duration of the effects, and particularly the impact on his/her driving. Using the Internet to obtain information on this is also risky, since the sources of information are often contradictory and not very reliable.

Also, it should always be borne in mind that **certain substances take a certain amount of time before their effect starts to be felt.**

For example, a painkiller taken in the morning at breakfast time will not take effect for about 30 to 45 minutes, just when the driver is likely to be on his/her way to work. At the time of taking the wheel, the driver may still feel perfectly at ease.



Watch out for the duration of the effects of certain substances!

- The effects of drugs and medicines may **vary from one person to another, and even from one administration to another.** It depends on the product, each person's particularities, and sometimes the way in which the medicine is taken.

How these effects manifest themselves

Quite often, a driver who is under the influence of medicines or drugs **is not aware that his/her faculties are diminished.** This is particularly true in the case of the repeated consumption of a substance. For many substances, we see in fact a "tolerance" effect (by repeating consumption, the user ceases to feel the effects with the same intensity as initially). This tolerance effect may exist for the effect being immediately sought, but not necessarily for other effects, which may directly or indirectly affect fitness to drive. The result is often a gradual increase in the level of consumption.

On the other hand, there are some people who (almost) never take any medicine or drugs. For these people, the consumption of a quantity deemed inoffensive may nevertheless have a considerable impact on their fitness to drive.

Here we may draw a parallel with the consumption of alcohol where for a person who is not used to alcohol, drinking just one beer or glass of champagne may seriously affect the person's fitness to drive, even though the blood alcohol level remains substantially lower than the maximum allowed by the Highway Code. In practice, situations of this kind can often be observed at celebrations at work, with a drink offered at the end of the day before driving home. Conversely, there are also very regular drinkers who, even with a blood alcohol level of more than 1 gram per litre, give the impression of being perfectly all right in terms of speech and behaviour, but whose fitness to drive is seriously diminished.

In society these days, we can unfortunately observe a **trivialisation of the consumption of certain drugs** that results in an insidious movement away from use at parties, in a context not related to driving, towards regular or even daily use. The uncertainties of an increasingly intense, fast-moving lifestyle that sets much store by performance push some people, like some top-level athletes, to dope themselves with drugs or medicines to be able to cope with these constraints, or just to be able to better put up with the negative impact of such a lifestyle. In such a context, the consumption of these substances is obviously directly related to the risk of being involved in a commuting accident, just as overwork, worry and stress also have an impact on our ability to concentrate, think and react.

Similarly, we are also able to observe an **increased tendency to consume a number of different psychotropic substances** (illegal drugs, alcohol and medicines), often alternating the consumption of stimulants and relaxants. Consuming a number of different psychotropic substances substantially increases the risk of being involved in a road accident. The various substances consumed may have a cumulative effect, or even a mutually enhancing effect.

The main effects of drugs or medicines that may diminish fitness to drive are:

- Drowsiness
- Longer reaction times
- Loss of coordination
- Disturbed vision
- Thoughtlessness
- Over-estimation
- Aggressiveness

Some advice

- When taking any medicine, it is very important to **always ask the health professionals (doctors, dispensing chemists) for information on the potential effects of the medicine on driving**, including how long the effects are likely to last
- Read carefully **the indications given on the medicine packaging**. This information used to be limited to a barely legible note on the instruction leaflet, but in recent years packaging includes a specific pictogram that makes it much easier to see which medicines make driving unsafe



Level 1

Be careful

Do not drive without having first read the notice



Level 2

Be very careful

Do not drive without obtaining the opinion of a health professional



Level 3

Warning - danger! Do not drive

Ask a doctor's opinion before resuming driving

- **Don't be too quick to use over-the-counter medicines.** All medicines carry the risk of unwanted side effects and treatment must always be carefully considered, with a clear assessment of the relationship between benefit and risk
- **Medicines should only be taken in the quantity and for as long as strictly necessary for achieving their effect**
- **Build up personal skills and resources** (for example, by learning relaxation techniques that will help you handle stress more effectively) that can often take the place of sleeping tablets, tranquilisers and muscle relaxants
- **Don't buy medicines on the Internet**
- **Using medicinal plants carries its own dangers**
- Avoid consuming any drugs as recreation or to dope yourself. **The vast quantity of information on drugs available on the Internet should be regarded very circumspectly;** it is better to visit sites that offer reliable references (such as government or university sites)

Effects of the most frequently used drugs on driving

Cannabis alters coordination and perception; the response to an emergency is diminished. Certain forms of cannabis with a high active content (THC) may cause sensorial distortion similar to a state of drunkenness.

Unlike alcohol, the consumption of cannabis is thought to produce a more careful style of driving. Unfortunately, this reduction in risk-taking is far from enough to counter the weakening of the faculties already mentioned.

The increase in the consumption of cannabis, with more frequent use, in larger quantities, and with higher-dose products, means that users may also have longer-term problems, including difficulty concentrating, memory problems, and even the development of psychiatric illnesses.

Effects:

- Difficulty concentrating and remaining attentive to road conditions
- Diminished perception of surroundings
- Loss of coordination
- Difficulty in keeping the vehicle in a straight line
- Difficulty in maintaining a constant speed and in judging distances
- Increased reaction time, slower reflexes and hesitant driving

- Risk of not being able to cope with the unforeseen

Cocaine may have a stimulant effect that momentarily improves mental performance, but it also acts by provoking a feeling of euphoria and omnipotence. This euphoric stage is rapidly followed by depression.

Other drugs, including **amphetamine and its derivatives** (such as Ecstasy), act as stimulants, producing a temporary state of wakefulness and excitation that masks fatigue and can even provoke highly irrational behaviour while driving. An additional factor is that Ecstasy tablets often include a number of active ingredients, thereby combining the effects of several drugs. Regular users of cocaine and amphetamines are often physically exhausted and cease to have full control of their senses.

Effects:

- High-risk behaviour: speeding, aggressiveness
- False sense of self-confidence, self-control, overestimation of capacities
- Drowsiness, depression, inattentiveness (after the euphoric phase)
- Dilated pupils, making it harder for the eyes to adapt to ambient lighting

Heroin has disastrous effects on behaviour, to such an extent that happily users often are totally unable to drive. On the other hand, **substitution drugs** (such as methadone) used to wean addicts off heroin and

increase their chances of resuming a normal socio-professional life have a negative effect on fitness to drive, particularly as people in this group often take other psychotropic substances at the same time.

Effects:

- Diminished physical and mental abilities
- Slow driving, loss of control of the vehicle
- Loss of coordination
- Increase in reaction time
- Drowsiness
- Disturbed vision

Medicinal plants are not without their own dangers. Treatment using remedies of this kind is increasingly in vogue, but it should be borne in mind that these natural medicines contain active ingredients that are sometimes extremely effective and may provoke side effects similar to those produced by synthetically produced medicines. Unfortunately these products are often not properly checked, and there are generally no specific instructions given for their use.

Certain **medicines**, whether they are prescribed by a doctor or bought over the counter, may also alter fitness to drive by disturbing vigilance, attention, vision, behaviour or balance. It is estimated that 3% of road accidents are caused by the consumption of medicines.

These are the main classes of medicines that may alter fitness to drive:

- Tranquilisers, relaxants, sleeping tablets
- Muscle relaxants
- Antidepressants
- Neuroleptics, treatment for Parkinson's, treatment for epilepsy
- Certain cold and cough medicines
- Medicines to counter vomiting and nausea
- Anti-allergy medicines
- Painkillers
- Treatment for diabetes
- Ophthalmological medicines
- Medicines for high blood pressure

These families of medicines can be divided into two groups:

- those with a risk that is obvious to both the doctor and the patient; the doctor or the dispensing chemist usually gives the patient information, or the product comes with an information leaflet that refers to driving
- those with a risk that is substantially less obvious; in these cases, information is not usually given and the patient does not necessarily feel any effect on his/her fitness to drive, although it is very real

Sources: [La Sécurité Routière \(Luxembourg\)](#) (Association for road safety), [ArcelorMittal](#)