

## Alcohol, Drugs & Driving Impaired

Every year in British Columbia, thousands of people operate a motor vehicle while under the influence of alcohol and other drugs which impair their ability to drive. This is a serious concern because impaired driving significantly increases the risk of motor vehicle collisions that result in injuries and/or fatalities. In B.C., from 2005 to 2008, 531 people were killed in alcohol and/or drug related road crashes.

### What Causes Impairment

Most commonly, impairment is caused by the use of alcohol and other drugs. While alcohol is the most prevalent drug involved in impaired driving, other drugs are well known to cause impairment, including over-the-counter medications, recreational drugs and other illegal narcotics. Impairment can also be caused by a wide range of factors including stress, fatigue, fitness, and other physical, mental and emotional conditions.

### How Impairment Affects Your Ability to Drive

Alcohol and drugs can make it more difficult to react, judge distances and make decisions. While under the influence, you may find it harder to steer, stay in your lane or apply the brakes. You become much more impaired when you use two or more drugs. And the combined effects of even a little alcohol and drugs can be much greater than the effect of either one alone.

### How Alcohol and Drug Impairment is Determined or Measured

Police officers are trained to recognize signs of driver impairment. Examples can include erratic driving, slurred speech, bloodshot eyes and unsteady balance. If an officer has reasonable suspicion to believe a driver may be under the influence, he or she can require the driver to perform certain coordination tests, submit to an evaluation, or provide samples for analysis.

Failure to comply with these requests can itself be an offence.

In the case of alcohol, an officer with reasonable and probable grounds can demand a driver to take a breath-test to determine Blood Alcohol Content (BAC). Depending on the circumstances, the test may be taken at the roadside and/or at the police station. Administrative sanctions and/or criminal charges may result.

In the case of drugs, an officer with reasonable and probable grounds can demand a driver to submit to an evaluation and/or provide samples of blood, oral fluid and/or urine. Samples can be analyzed to indicate the presence of a drug at prescribed impairment levels. Depending on the circumstances, administrative sanctions and/or criminal charges may result.

### What is Blood Alcohol Content

When alcohol is consumed, it becomes absorbed into the bloodstream. The amount of alcohol in the blood is measured in milligrams of alcohol per 100 millilitres of blood - this is called Blood Alcohol Content (BAC). For example, a person with 20mg of alcohol per 100mL of blood would have a BAC of "20mg%" or, more commonly written as "0.02 per cent BAC" or simply "0.02 BAC".

As blood flows through the body, it releases alcohol into the lungs in proportion to its content in the blood. When a person takes a deep breath, they exhale alcohol from their lungs which is in proportion to their BAC. Thus, BAC can be determined by measuring breath alcohol using a breath testing device.

At **0.15 BAC** your likelihood of being in a collision where **somebody dies** increases by more than **65 times!**

## The Factors That Can Affect a Person's BAC

There are many factors that can affect a person's BAC to greater or lesser extents. However, the most commonly significant factors are listed and explained below.

Keep in mind that the explanations are meant to give you some understanding about the relationship between alcohol and the human body. These factors are not mutually exclusive from one another, and the information provided here represents an average and should not be applied literally to any given person. Each person's body and experience with alcohol is different.

### Consumption (amount of alcohol):

The volume and concentration of alcohol consumed. The greater the amount of alcohol consumed (volume  $\times$  concentration), the greater the BAC.

### Time (period of time, rate of consumption):

The time period during which the alcohol was consumed, as well as the rate at which it was consumed; and the amount of time that has passed since consumption. It takes time for alcohol to be absorbed into the blood, and it takes time for it to be eliminated as well.

### Absorption Rate:

The rate at which alcohol is absorbed into your blood. For many people, it takes about half an hour to absorb the alcohol in one standard drink. Absorption can increase (and raise BAC more quickly) when:

- you drink on an empty stomach
- you have other substances in your system when you drink (e.g. caffeine, some medications, etc)

### Water Content (lean body mass):

Once alcohol is absorbed into the bloodstream, it dissolves into water throughout the body. The more water in the body in which to dissolve, the more "diluted" (less concentrated) the blood alcohol content (BAC) will be; and therefore, the less it may affect the brain and nervous system. Some sub-factors are listed below:

### Weight:

Generally speaking, the more you weigh, the more water content your body has. Thus, after one standard drink - keeping all other factors the same - a 75kg (165 lb) person will generally have a higher BAC than a 90kg (198 lb) person.

### Anatomy (fat content versus muscle content):

Fat tissue does not absorb alcohol. Alcohol will be absorbed into other tissues which are rich in water such as muscle. If two people weighing 90kg, one a tall thin person and the other a small obese person, consumed the same amount of alcohol - at the same rate and over the same time period - the small obese person would generally have a higher BAC than the thin person.

### Gender (male versus female):

Females generally have higher proportions of body fat than males. This means that a 75kg female who drinks exactly the same amount of alcohol as a 75kg male - at the same rate and over the same time period - will generally experience higher BACs.

### Elimination Rate (metabolism):

Metabolism varies from person-to-person and can also change over time and due to other conditions. However, the average person will eliminate about 15mg of alcohol in 100mL of blood per hour (-0.015 BAC/hr). However, some people - due to medical conditions, genetics, etc - have metabolisms that eliminate alcohol more slowly than average.

### Age:

Getting older can affect many of the factors mentioned above. People's bodies change over time. For example, metabolism tends to slow down with age; muscle mass tends to increase over time in young people but then deteriorates over time in older people; weight also changes over time.

## Alcohol affects your . . .

**visual abilities**

*reaction time*

**coordination**

**ability to make decisions**

**muscle control**

**CONCENTRATION**

**ability to focus**

**ability to track objects**

## Is it Possible to Lower your BAC?

The only thing that will lower your BAC is time. You may have heard that you can sober up faster by dancing, taking a shower or drinking black coffee; this is simply not true. Neither is eating or drinking water a factor. Once alcohol has been consumed and absorbed, the only factor that affects BAC becomes the elimination rate - which, unlike some of the other factors listed above, cannot be controlled.

## Does BAC Affect Everyone the Same Way?

Two people may have the same BAC, but how they act and the risks they take may differ for a host of reasons such as mood and emotions, mental health, level of fatigue, who they are with and where they are. Additionally, the effects of BAC are often amplified with the presence of drugs.

As the level of alcohol in your blood rises, its effects follow a pattern. The first drink often relaxes you, but less pleasant effects occur as more alcohol is consumed.

The first thing you might notice is that it will become more difficult to do things that involve accuracy and decision-making. Your thinking actually slows down. You may not be able to focus when talking with people and even simple tasks will seem more difficult. As you continue to drink, your movements will become sloppy, your words slurred, your balance will be off, and your reactions will be even slower. You may find it difficult to focus your eyes. You may become sad or start to feel depressed. Your system slows down, including the nerves that control your muscles.

If you consume excessive amounts of alcohol, you run the risk of passing out. Once the alcohol in your system reaches 0.25 BAC you may die of alcohol poisoning – if it reaches 0.40 BAC, it will almost certainly be fatal.

**NOTE:** It is beyond the scope of this document to discuss the long term effect of alcohol misuse.

If you are **35 years old** driving with a blood alcohol content of between **.08 and .099 BAC**, you are **4 times more likely to be killed** in a crash than you would be if you were sober . . . and if you are **19 years old** driving with the same level of alcohol in your system, you are **20 times more likely to be killed**.

## How BAC Levels Affect Your Ability to Drive

Alcohol, even at low doses, significantly impairs the judgment and coordination required to drive a vehicle safely. Alcohol affects visual abilities, reaction time, muscle control, coordination, ability to track objects such as pedestrians and other cars, judgement and ability to concentrate, focus and make decisions.

Driving requires intense focus, and even a small amount of alcohol makes that more difficult. After just one drink, it becomes more difficult to judge distances between stationary objects; so, something as easy as driving through a parking lot can be a problem. And even with very little alcohol in your system, it is much more difficult to judge the distances between moving objects. Sober drivers scan the road often, looking for pedestrians, traffic and signs - while impaired drivers do this much less often. After drinking, your visual gaze will tend to fix on one object for longer than usual; this impacts your ability to visually scan, which is critical for safe driving. Alcohol makes it harder to see things a little outside your direct line of sight and you'll also pay less attention to what you do see – even a child running into traffic.

When you have consumed alcohol, you may not respect your normal margins of error and your reaction time will increase. For example, you are more likely to make a poor decision about making that traffic light before it changes - and even if you decide to stop, you won't be able to communicate that to your leg muscles as quickly to apply the brakes.

The more you drink, the greater your risk of causing a crash: the statistics are conclusive. Even drivers with little alcohol in their systems are more likely to be involved in a crash causing death than the average sober driver. A study in the United States found that while there is partial evidence of impairment at 0.02 BAC, by 0.04 BAC, all measures of impairment that are statistically significant were in the direction of degraded driving performance.

## For more information:

- Visit ICBC website at: [www.icbc.com](http://www.icbc.com)
- Visit the OSMV website at [www.pssg.gov.bc.ca/osmv](http://www.pssg.gov.bc.ca/osmv)
- Phone OSMV in Victoria at **250 387-7747**