

The Effects of Alcohol on the Body

Alcohol has some immediate or short-term physical effects on: the body as a whole, as it processes the alcohol; the brain; the gut and pancreas; the heart and circulation; sleep control; and sexual functions.

Within the population, some groups are at greater risk from the effects of alcohol, including: women; unborn children; children and adolescents; older people; and people on medication or drugs.

Alcohol can affect the level of risk of particular conditions or diseases, including: cancer; cirrhosis of the liver; heart disease and stroke; cognitive problems (including memory and reasoning); and dementia.

How alcohol is processed in the body

Alcohol is quickly absorbed into the blood stream, and affects almost all cells and systems in the body:

- The effects of alcohol are evident within minutes in many parts of the body.
- The actual rate of absorption can vary: not only from person to person, but also from time to time for the one person. For example, absorption is slowed down by food in the gut, and is affected by the temperature of the drink and the strength of the alcohol in it.
- In the blood stream, alcohol is carried throughout the body and distributed in the body fluids (but not in body fat).
- After drinking has stopped, the blood alcohol levels fall slowly over time, as the alcohol in the blood is gradually broken down by the liver, and in the gut.
- The amount of alcohol in the blood at any time can be gauged by testing the “blood alcohol concentration” through the amount that is in the breath, blood or urine.

Immediate or short-term effects of alcohol on the body

The effects of alcohol on the brain are felt within about five minutes of being swallowed: Alcohol slows down or blocks many of the brain’s functions. This

may start by reducing tension or inhibitions, making the person feel more relaxed or excited, but the risk of accident or injury increases rapidly with increasing blood alcohol levels:

- With more alcohol, the person’s reactions become slower so that, for example, when driving, it takes longer to apply the brakes if the car ahead stops suddenly.
- With increasing alcohol concentrations in the body, movement and coordination rapidly become more difficult, speech, thinking and the senses are affected, and physical violence becomes more likely.
- If the blood alcohol concentration reaches a sufficient level, it leads to unconsciousness and eventually, because it slows down all systems of the body, it will inhibit breathing. This may be fatal, particularly as the person is also likely to be vomiting.

Alcohol can also affect:

- the pituitary gland at the base of the brain, which controls the body’s fluid balance, and can leave the person dehydrated and with a headache.
- the gut, by irritating the lining of the gut as the level of alcohol is increased, with diarrhoea as a possible outcome.
- the pancreas, which may become inflamed, sometimes chronically. This can cause severe pain and a highly unpleasant reaction to alcohol in the future.



ALCOHOL AFFECTS MANY BODY FUNCTIONS, AND SOME PEOPLE MORE THAN OTHERS

- the heart and circulation, where 1 or 2 standard drinks can affect the heart rate, blood pressure, the contraction of heart muscle and its efficiency in pumping blood, and blood flow throughout the body; and higher levels of alcohol may result in irregular heart rhythms, raised blood pressure, shortness of breath, and cardiac failure.
- the sleep function, where even if alcohol might help people to go to sleep in the short term, it can result in reduced sleep quality, and disrupt the later part of the sleep cycle, sometimes leading to early morning waking. Disruption of sleep can be a trigger for a variety of mental health problems.
- sexual functioning, particularly in men, who may find it more difficult to get an erection after drinking alcohol at risky or high risk levels.
- People on medication or drugs, because alcohol dampens activity in the brain, and it can be particularly dangerous, or even lethal, when used with medications or other drugs, legal or illegal, that have similar effects on the brain.
- People experiencing the 'flushing response' and other side effects due to the slower processing of alcohol (an inherited characteristic, most often in people of Asian descent).

Alcohol can affect the level of risk of certain diseases in the longer-term:**Some groups of people are more vulnerable to the effect of alcohol. They include:**

- Alcohol consumed at sufficient levels over time increases the risk of: some cancers, especially cancers of the mouth, throat and oesophagus; cirrhosis of the liver; cognitive problems (including memory and reasoning) and dementia; and some types of heart diseases and strokes.
- A regular pattern of drinking at a low risk level has been found to help prevent heart disease from middle age onwards.
- Women, because alcohol is distributed throughout the body's total water content, and women have proportionately more body fat and less water than do men, as well as being – on average – smaller than men. In addition, the ability to break down alcohol is limited by the size of the liver, and women on average have smaller livers than men.
- Unborn children, because when a pregnant woman drinks, the alcohol in her blood stream enters that of her unborn child, and, in sufficient quantities, this can cause problems for the unborn child.
- Children and adolescents, because they are usually physically smaller, and because they lack experience of drinking and its effects and have not yet built up any tolerance to it.
- Older people, because – as they age – their total body water tends to decrease, so that a given amount of alcohol produces a higher blood alcohol concentration.

Other relevant Fact Sheets:

- *Harms associated with alcohol*
- *Health benefits of alcohol*
- *Alcohol and medications*
- *Alcohol and women's health*
- *Alcohol and pregnancy*
- *Alcohol and older people*
- *Alcohol and heart disease*
- *Alcohol and cancer*

Information source

National Health and Medical Research Council (NHMRC) (2001). *Australian Alcohol Guidelines: Health Risks and Benefits*. NHMRC, Canberra.

