

THE EFFECTS OF ALCOHOL ON THE BODY

Alcohol has some immediate or short-term physical effects on the body as a whole, including the brain, the gut and pancreas, the heart and circulation, sleep control and sexual functions. The most obvious and immediate effects of alcohol are on the brain.

The effects of alcohol on the brain are felt within about five minutes of alcohol being swallowed.

Alcohol slows down or blocks many of the brain's functions. The initial effect might be a reduction in tension or inhibitions, making the drinker feel more relaxed or excited.

However, as the intake of alcohol increases, these effects are counterbalanced by less pleasant effects, such as:

- Drowsiness
- Loss of balance
- Poor coordination
- Slower reaction times (critical when driving or operating machinery)
- Slurred speech
- Slowed thought processes
- Nausea and vomiting

As more alcohol is consumed and the blood alcohol concentration (BAC) rises, performance and behaviour deteriorate progressively. The risk of accident, violence or injury increases rapidly with increasing blood alcohol levels. If the BAC reaches a high enough level, it can lead to life-threatening events such as:

- Unconsciousness
- Inhibition of normal breathing—this may be fatal, particularly as the person may vomit and can suffocate if the vomit is inhaled.

HOW ALCOHOL IS PROCESSED IN THE BODY

Alcohol is absorbed into the blood stream within minutes, and affects almost all cells and systems in 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 by drinking low alcohol content beverages. Higher levels of gas molecules in alcohol (fizzy drinks) increase the rate of absorption.
- 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 liver gradually breaks down the alcohol in the blood.
- **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.

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.
- **The heart and circulation**, where one or two 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; 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 beyond low-risk levels.

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.

SOME GROUPS OF PEOPLE ARE MORE VULNERABLE TO THE EFFECT OF ALCOHOL. THEY INCLUDE:

- **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 alcohol.
- **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.

- People experiencing the 'flushing response' (reddening of the skin) and other side effects (including nausea) due to difficulties in breaking down (metabolising) alcohol (an inherited intolerance or allergy to alcohol, most often found in people of Asian descent).

COMBINING ALCOHOL WITH OTHER DRUGS

It can be very dangerous, even lethal, to mix alcohol with medications or recreational drugs. Alcohol is a sedative drug that dampens activity in the brain and when combined with other drugs that are classified as sedatives or depressants can lead to stupor, coma and death.

Mixing alcohol with stimulant drugs can lead to highly aroused and prolonged (less likely to get drowsy or fall asleep) states of intoxication with very unpredictable behaviour. A growing trend amongst younger drinkers is to consume caffeinated alcoholic beverages. This can lead to extreme binge drinking because of a reduced perception of intoxication, increasing the risk of adverse outcomes from impulsive risky behaviour. Many will not even recognise caffeine as a stimulant drug.

RECOMMENDED CONSUMPTION LEVELS FOR LOW-RISK DRINKING

For healthy men and women, drinking **no more than two standard drinks on any day** reduces the **lifetime risk of harm** from alcohol-related disease or injury.

Drinking **no more than four standard drinks on a single occasion** reduces the risk of alcohol-related **injury** arising from that occasion.

For children and young people under 18 years of age, not drinking alcohol is the safest option.

For women who are pregnant, planning a pregnancy, or breastfeeding, not drinking is the safest option.

Further reductions in the lifetime risk of alcohol-related disease or injury can be achieved by reducing the number of occasions of drinking across a lifetime, for example through regular alcohol-free days.

You can find more information on the recommended levels of alcohol consumption in the Guidelines for Alcohol Consumption Fact Sheet.

Adapted from Australian Department of Health and Ageing, Australian Alcohol Guidelines Fact Sheets www.alcoholguidelines.gov.au

Guidelines source: National Health and Medical Research Council (NHMRC) (2009). *Australian Guidelines to Reduce Health Risks from Drinking Alcohol*, Commonwealth of Australia, Canberra.

Other sources: Heinz, A., et al (2013). The combined effects of alcohol, caffeine, and expectancies on subjective experience, impulsivity, and risk-taking. *Experimental and Clinical Psychopharmacology*, Vol 21(3), 222-234.

Alcohol affects many body functions, and some people more than others.

YOUR HEALTH AND ALCOHOL