

# Alcohol and its journey through your body

Your first sip of wine, beer or spirits is the beginning of alcohol's adventure round your body.

## 1. Through the stomach, into the blood

First, it heads towards your stomach. Some alcohol will be absorbed by your stomach lining and make its way through into your bloodstream. Stronger alcoholic drinks tend to be absorbed more quickly, especially if you're doing shots. Fizzy drinks, like champagne or mixers, can speed up the process since the carbon dioxide they contain accelerates alcohol's journey to the small intestine. How recently you've eaten also makes a difference (that's why it's never a great idea to drink on an empty stomach – the less food, the quicker the alcohol will arrive in your bloodstream).<sup>(1)(2)</sup>

The rest of the alcohol (about two thirds) keeps on going, squeezing into your bloodstream through the walls of your small intestine.

It's your blood that carries the alcohol round your body. Here's what it does when it gets to each destination:

## 2. The brain

The amount of alcohol in your bloodstream (your 'blood alcohol concentration') will determine how much your brain is impaired – in other words, how drunk you feel and act.

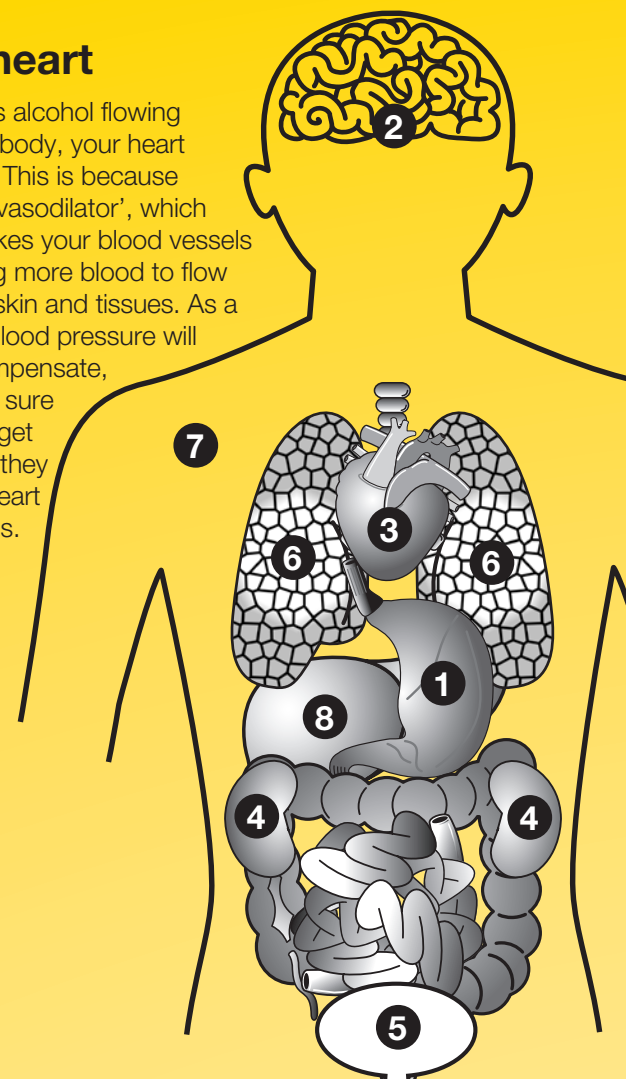
Alcohol is a depressant which takes its toll on different parts of your brain:

- **Cerebral cortex:** processes your thoughts. When it's function is depressed by alcohol, you can get the following effects:
  - You become more talkative, self-confident and less inhibited.
  - You can't judge or think as clearly as usual.
  - You can have trouble seeing or hearing.
  - You can't feel pain as clearly. (This is because the alcohol is affecting your brain's ability to process information.)

- **Limbic system:** controls emotions and memory. The effects of alcohol mean that emotions tend to be exaggerated (seriously, you're my best mate!) and your memory, er, lost. If remembering nothing from your big night out wasn't enough, there's also research to suggest excessive alcohol can impair the ability to create new memories too.<sup>(3)</sup>
- **Cerebellum:** coordinates the movement of your muscles. When the depressant effects of alcohol get here, you can become uncoordinated and your balance can be affected (ever wondered where the phrase 'falling down drunk' comes from?).

## 3. The heart

When there's alcohol flowing around your body, your heart beats faster. This is because alcohol is a 'vasodilator', which means it makes your blood vessels relax allowing more blood to flow through the skin and tissues. As a result, your blood pressure will drop. To compensate, and to make sure your organs get all the blood they need, your heart rate increases.



## 4 & 5. The kidneys and bladder

The kidneys are there to filter your blood. They make sure waste products are selectively expelled from your body, while useful things like proteins and amino acids are retained in your blood.

The kidneys also keep the amount of water in your body constant – until alcohol gets involved, that is. Alcohol is a diuretic (something that increases the amount of urine your body produces). When you drink too much your body ends up getting rid of more water than it absorbs, and you become dehydrated. As well as causing your parched throat the next morning, dehydration is also behind the headache, nausea and fatigue that makes up a hangover.<sup>(4)</sup>

Alcohol also has an effect on your body's production of antidiuretic hormone (also called vasopressin) that usually tells the kidneys to reabsorb water that would otherwise end up in the bladder. Without this hormonal signal, the bladder fills up with all the water from the fluid that you drink (and those frequent trips to the toilet begin...)

## 6. Lungs

As the alcohol in your blood travels to your lungs, some of it will evaporate into the air in the tiny lung sacs known as alveoli, and be exhaled from your body (your lovely 'alcohol breath'). That's why the next day some people can smell like a cocktail of last night's stale beer and this morning's toothpaste.

## 7. Skin

The blood flow to the skin increases, giving you that appealing sweaty, flushed look.

## 8. Liver

Your liver is responsible for breaking down (or 'metabolising') the alcohol in your body. Around 90% of the alcohol leaves your system this way. The liver breaks alcohol down into a chemical called

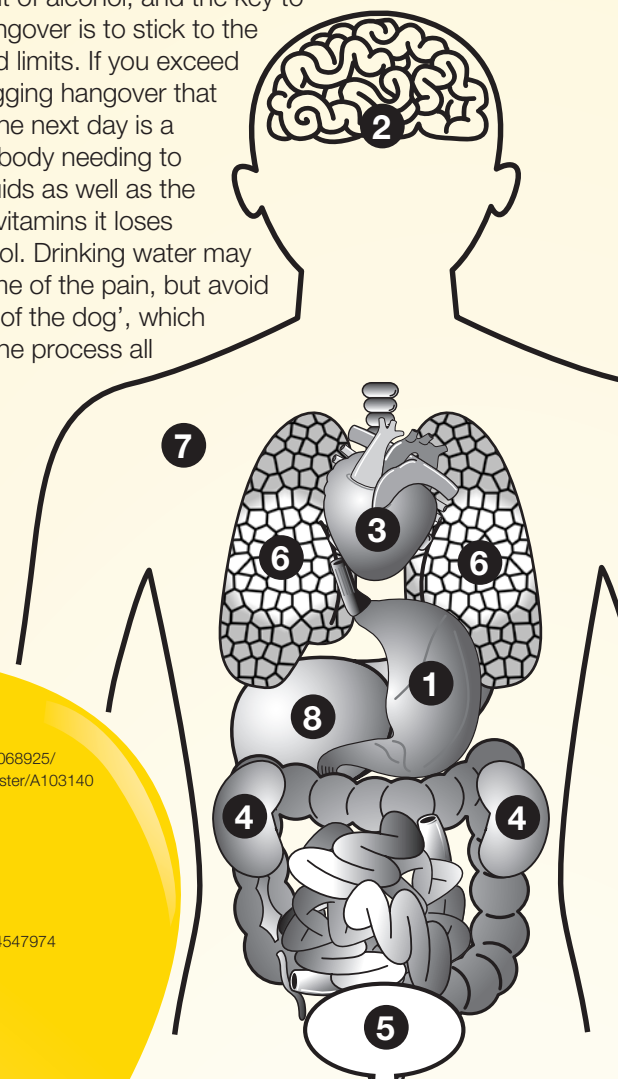
acetaldehyde, which the body recognises as toxic. This is then broken down further into carbon dioxide and water, which your body can then get rid of.

The liver can only metabolise a certain amount of alcohol per hour (usually around one unit). The rate your body breaks down alcohol depends on your body weight and gender. If you drink faster than your liver can get rid of it, the level of alcohol in your body rises – there's a 'topping up effect'. This means it isn't just the alcohol you drink there and then that's affecting you, it's what you've had over the last 12 hours or more as well. Alcohol keeps going through your body at the rate of one unit an hour. And as you continue drinking, you carry on 'topping up' the amount of alcohol in your body. Too much alcohol in your system can make you feel sick, slur your words or even pass out.<sup>(5)</sup>

The remaining 10% of alcohol that isn't dealt with by the liver, ends its journey round the body through sweat, breath or directly through urine.

## The morning after

As anyone who has ended the night throwing up in a pub toilet knows, your body can only handle a limited amount of alcohol, and the key to avoiding a hangover is to stick to the recommended limits. If you exceed these, the nagging hangover that often arrives the next day is a result of your body needing to replace the fluids as well as the minerals and vitamins it loses through alcohol. Drinking water may help ease some of the pain, but avoid having 'a hair of the dog', which will just start the process all over again.<sup>(6)</sup>



### Resources

- (1) [http://www.channel4.com/science/microsites/S/science/medicine/drug\\_faq.html](http://www.channel4.com/science/microsites/S/science/medicine/drug_faq.html)
- (2) [http://www.bupa.co.uk/health\\_information/html/healthy\\_living/lifestyle/alcohol/alcohol2.html](http://www.bupa.co.uk/health_information/html/healthy_living/lifestyle/alcohol/alcohol2.html)
- (3) <http://www.guardian.co.uk/society/2007/mar/22/drugsandalcohol.uknews>
- (4) [http://www.cks.library.nhs.uk/patient\\_information\\_leaflet/hangover](http://www.cks.library.nhs.uk/patient_information_leaflet/hangover)
- (5) Source Paton 2005. See <http://openlearn.open.ac.uk/mod/resource/view.php?id=293381>
- (6) [http://www.cks.library.nhs.uk/patient\\_information\\_leaflet/hangover](http://www.cks.library.nhs.uk/patient_information_leaflet/hangover)

### Additional resources

- <http://www.patient.co.uk/showdoc/23068925/>  
<http://www.bbc.co.uk/dna/h2g2/alabaster/A103140>

Drinkaware  
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