

## The Way Alcohol Affects Your Health (continued)

- Too much is bad for your heart, as it can cause the heart to become weak (cardiomyopathy) and have an irregular beat pattern (arrhythmias) and puts people at higher risk for developing high blood pressure.
- Alcohol causes the pancreas to produce toxic substances that can eventually lead to pancreatitis, a dangerous inflammation and swelling of the blood vessels in the pancreas that prevents proper digestion.
- Drinking too much puts you at risk for some cancers, such as in the mouth, throat, liver and breast.
- Drinking every day, or almost every day means you might catch frequent colds, flu or other illnesses than people who don't drink, as alcohol can weaken the immune system and make the body more susceptible to infections.

## Effects of Heavy & Long-Term Drinking (over 14 units a week)

- Long-term drinking can result in permanent brain damage, serious mental health problems and alcohol dependence or alcoholism.
- Drinking alcohol is the second biggest risk factor for cancers of the mouth and throat after smoking.
- It causes high blood pressure (hypertension), which increases the risk of having a heart attack or stroke, and chronic kidney disease.
- Fat deposition develops in the liver and with continued use - the liver may become inflamed, causing alcoholic hepatitis, which can result in liver failure.
- Alcohol can cause the stomach to become inflamed (gastritis) - prevent food from being absorbed and ulcers can develop in the colon and reduce your body's ability to absorb nutrients.
- Impotence (lowered libido/sex drive) and infertility can be seen in men and infertility affects women.
- Alcohol dehydrates your body and skin, and widens blood vessels, causing your skin to look red or blotchy.

## Health Benefits of Alcohol (less than 2 units daily) [As part of a healthy lifestyle]

- **Heart Health:** Moderate amounts of alcohol raises levels of high-density lipoprotein, HDL, or 'good' cholesterol and higher HDL levels are associated with greater protection against heart disease.
- **Brain Function:** Small amounts of alcohol might reduce chances of developing dementia, as it stresses cells and thus toughens them up to cope with major stresses down the road that could cause dementia.
- **Diabetes:** Alcohol increases levels of a hormone that improves insulin sensitivity, making it easier for your body to process glucose and use it as energy, which reduces the amount of sugar in the bloodstream and ultimately reduces risk for developing diabetes.
- **Increased Life Expectancy:** Little amounts, preferably during meals appears to be the right way, which is another feature of the Mediterranean diet, where alcohol (wine) is the ideal partner of a dinner or lunch, but that's all: the rest of the day must be absolutely alcohol-free.

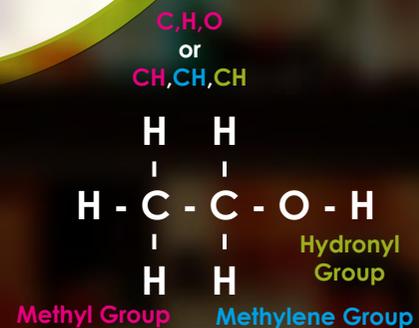
## The Bottom Line:

So... it's not all bad, moderate alcohol consumption does confer some health benefits. But unfortunately not many of us drink in moderation. The many mentioned ill effects are enough to warrant cutting back. The effects of alcohol can be lessened if you drink water between each drink, and lower calorie drinks are better choices to prevent weight gain. If you really want to lose weight, then stop drinking immediately, until you have reached your target weight, and remember that it will go on twice as quick if you carry on drinking like you did.

# FOOD *in* FOCUS

## ALCOHOL

### HOW IT AFFECTS YOUR BODY



## WELCOME

Each month our nutritionist  
**Gary Baverstock**  
provides some basic science  
and unbiased information, to  
help demystify certain  
popular foods in our diet.

## Alcohol

- In chemistry, an alcohol is any organic compound in which the hydroxyl functional group (-OH) is bound to a saturated carbon atom.
- The term alcohol originally referred to the primary alcohol ethanol (ethyl alcohol), the predominant alcohol in alcoholic beverages.
- The suffix -ol appears in the International Union of Pure and Applied Chemistry (IUPAC) chemical name of all substances where the hydroxyl group is the functional group with the highest priority.
- But many substances, particularly sugars (examples glucose and sucrose) contain hydroxyl functional groups without using the suffix.

## History of Alcohol

- Fermented grain, fruit juice and honey have been used to make alcohol (ethyl alcohol or ethanol) for thousands of years.
- Fermented beverages existed in early Egyptian civilization, and there is evidence of an early alcoholic drink in China around 7000 B.C. and in India, sura, distilled from rice, was in use between 3000 and 2000 B.C.
- In Greece, one of the first alcoholic beverages to gain popularity was mead, a fermented drink made from honey and water.
- Greek literature is full of warnings against excessive drinking.
- In the sixteenth century, alcohol (called "spirits") was used largely for medicinal purposes.
- At the beginning of the C18th, the British parliament passed a law for the use of grain for distilling spirits, gin consumption reached 18 million gallons and alcoholism became widespread.
- The C19th brought a change in attitudes and the temperance movement began promoting the moderate use of alcohol—which ultimately became a push for total prohibition.
- In 1920 the US passed a law prohibiting the manufacture, sale, import and export of intoxicating liquors.
- The illegal alcohol trade boomed and by 1933, the prohibition of alcohol was cancelled.

Units and Calories in Selected Alcoholic Beverages

Beverages	Measure	Calories	Units	Beverages	Measure	Calories	Units
Beer/Lager (4%)	1 Pint (568ml)	182	2.3	Alco pops (4%)	Bottle (275ml)	170	1.1
Beer/Lager (5%)	1 Pint (568ml)	224	2.8	Champagne (12%)	Flute (125ml)	89	1.5
Beer/Lager (5%)	1 Bottle (330ml)	142	1.6	Wine (13%)	Small (125ml)	114	1.6
Cider (4.5%)	1 Pint (568ml)	216	2.6	Spirits (40%)	Single (25ml)	61	1.0
Port/Sherry (18%)	(50ml)	65	0.9	Spirit (40%) + Mixer	Large (50ml)	167	2.0

Source: Drinkaware.co.uk

## Metabolism of Alcohol

- Alcohol is absorbed into the bloodstream via small blood vessels in the stomach and small intestine.
- Chemicals called enzymes help to break apart the ethanol molecule into other compounds (or metabolites), which can be processed more easily.
- Some of these intermediate metabolites can have harmful effects on the body.
- Most of the ethanol in the body is broken down in the liver by an enzyme called alcohol dehydrogenase, which transforms ethanol into a toxic compound called acetaldehyde, a known carcinogen.
- However, acetaldehyde is generally short-lived; it is quickly broken down to a less toxic compound called acetate by another enzyme called aldehyde dehydrogenase.
- Acetate then is broken down to carbon dioxide and water, mainly in tissues other than the liver.

## Alcohol Intoxication

- Alcohol intoxication is the result of alcohol entering the bloodstream faster than the liver can metabolise it.
- Some effects of alcohol intoxication (such as euphoria and lowered social inhibitions) are central to alcohol's desirability as a beverage and its history as one of the world's most widespread recreational drugs.
- Despite this widespread use and alcohol's legality in most countries, many medical sources tend to describe any level of alcohol intoxication as a form of poisoning due to ethanol's damaging effects on the body in large doses.

## Toxicity

- Any toxicity is largely caused by its primary and secondary metabolites acetaldehyde and acetic acid.
- Ethanol is thought to cause harm partly as a result of direct damage to DNA caused by its metabolites.

## How Alcohol Affects Your Body

- Within minutes of drinking alcohol, it travels from the stomach to the brain, where it quickly produces its effects, slowing the action of nerve cells.
- Approximately 20% of alcohol is absorbed through the stomach and most of the remaining 80% is absorbed through the small intestine.
- The liver can only metabolize a certain amount at a time leaving the excess circulating in the body.
- Thus the intensity of the effect on the body is directly related to the amount consumed.
- Alcohol interferes with the brain's communication pathways, affecting the way the brain looks and works.
- These can change mood and behaviour, and make it harder to think clearly and move with coordination.
- When the amount of alcohol in the blood exceeds a certain level, the respiratory (breathing) system slows down markedly, because oxygen no longer reaches the brain.

## Alcohol & Weight Gain

- Your body cannot store alcohol, so it metabolises it straightaway, stopping the metabolism of fats and sugars and will ultimately slow down your metabolism, meaning you will store the fat you have just eaten.
- As alcohol enters into digestion it is split into two compounds: fat and acetate - fat is taken through the bloodstream and stored - the acetate is taken into the bloodstream and used as the primary energy fuel.
- Alcohol also temporarily inhibits "lipid (fat) oxidation" - in other words, when alcohol is in your system, it's harder for your body to burn fat that's already there.
- Alcohol increases your appetite by suppressing leptin, the hormone that normally tells your brain to stop eating and negatively effects many other brain chemicals that are involved in appetite suppression.
- Alcohol is very high in calories (7cals/g) - containing almost as many calories as fat (9cals/g) - a 750g bottle of 13% wine contains 684 cals while four pints of 4% lager contain 728 cals.

## The Way Alcohol Affects Your Health

- Once you take a drink, your body makes metabolising it a priority - above processing anything else, which is why it affects your liver, as it's your liver's job to detoxify and remove alcohol from your blood.
- Abusing alcohol causes bacteria to grow in your gut, which can eventually migrate through the intestinal wall and into the liver, leading to liver damage.