

ALCOHOL

CONCERNING YOUR HEALTH

Alcohol and Health: the Good, the Bad and the Ugly

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We've been getting a lot of mixed messages about alcohol. On one hand, moderate amounts have been linked to health benefits. On the other hand, it is addictive and highly toxic when we drink too much of it. The truth is that the health effects of alcohol are actually quite complex. They vary between individuals, and depend on the amount consumed and the type of alcoholic beverage. So, how does alcohol affect your health? Let's have a look...

What is Alcohol and Why do People Drink it?

The active ingredient in alcoholic beverages is called ethanol. Generally referred to as "alcohol," ethanol is the substance that makes you drunk. Ethanol is produced by yeasts when they digest sugar in certain [carb](#) rich foods, such as grapes (wine) or grains (beer). Alcohol is the most popular recreational "drug" in the world. It can have very powerful effects on your mood and mental state. Alcohol can reduce self-consciousness and shyness, making it easier for people to act without inhibition.

At the same time, it can impair judgment and make people do things that they end up regretting (1, 2). Some people drink small amounts at a time, while others tend to binge drink. [Binge drinking](#) involves drinking large amounts at a time, in order to get drunk.

Alcohol is Neutralized by the Liver

The liver is a remarkable organ with hundreds of functions in the body.

One of its main functions is to neutralize all sorts of toxic substances we consume. For this reason, the liver is particularly vulnerable to damage by alcohol intake (3).



Liver diseases caused by alcohol consumption are collectively called [alcoholic liver diseases](#). The first of these to appear is [fatty liver](#), characterized by increased fat inside liver cells. Fatty liver develops in

90% of those who drink more than 16 g (about half an ounce) of alcohol per day and is usually symptomless and fully reversible (4, 5). In heavy drinkers, binge drinking may cause the liver to become inflamed. In worst case scenarios, liver cells die and get replaced with scar tissue, leading to a serious condition called cirrhosis (3, 6, 7).

[Cirrhosis](#) is irreversible and associated with many serious health problems. In advanced cirrhosis, getting a new liver (a liver transplant) may be the only option.

Alcohol and the Brain

Excessive alcohol consumption can have numerous adverse effects on the brain. Ethanol basically reduces communication between brain cells, a short-term effect responsible for many of the symptoms of being drunk. Binge drinking may even lead to a [blackout](#), a phenomenon characterized by memory loss (amnesia) during a heavy drinking episode (8).

These effects are only temporary, but chronic alcohol abuse may cause **permanent** changes in the brain, often leading to impaired brain function (9, 10, 11).

Alcohol and Depression

The association of alcohol intake and [depression](#) is close but complex (19). While alcohol intake and depression seem to increase the risk of each other simultaneously, alcohol abuse may be the stronger causal factor (20, 21, 22). Many people suffering from anxiety and depression drink intentionally to reduce stress and improve mood (23, 24). This may work for a few hours, but will worsen overall mental health and lead to a vicious cycle. Heavy drinking has actually been shown to be a major cause of depression in some individuals, and treating the alcohol abuse leads to big improvements (25, 26, 27).



Alcohol and Body Weight

Obesity is a serious health concern. Alcohol is actually the second most energy rich nutrient after fat, providing about 7 [calories](#) per gram. Beer contains a similar amount of calories as [sugary soft drinks](#), ounce for ounce, whereas red wine contains twice as much (28, 29, 30). However, studies investigating the link between alcohol and weight have provided inconsistent results (31).

Alcohol and Cardiovascular Health

Cardiovascular disease is the leading causes of death in modern society. It is actually a broad category of diseases, the most common of which are heart attacks and strokes. The relationship between alcohol and cardiovascular disease is complex, and seems to depend on several factors. Light to moderate drinking is linked to reduced risk of cardiovascular disease, while heavy drinking appears to increase the risk (37, 38, 39, 40).

Alcohol and Type 2 Diabetes

Type 2 diabetes is a common metabolic disease, currently affecting about 8% of the world's population (46). Characterized by abnormally high blood sugar, type 2 diabetes is caused by reduced uptake of glucose (blood sugar) by cells, a phenomenon known as **insulin resistance**.

Drinking alcohol in moderation appears to reduce insulin resistance, helping to fight the main symptoms of diabetes (47, 48, 49, 50).

As a result, drinking alcohol with meals may cut the rise in blood sugar by 16-37% compared to water (51). Blood sugar between meals (fasting blood glucose) may also go down (52). However, when it comes to heavy drinking and binge drinking, the risk is increased (53, 54, 55, 56).

Bottom Line: Moderate alcohol consumption may reduce symptoms of type 2 diabetes by enhancing the uptake of blood sugar by cells.

Alcohol and Cancer

Cancer is a serious disease caused by abnormal growth of cells.

Alcohol consumption is a risk factor for cancers of the mouth, throat, colon, breast, and liver (57, 58, 59). The cells lining the mouth and throat are especially vulnerable to the harmful effects of alcohol. Not surprising, since they are directly exposed to the stuff. Even light alcohol consumption, 1 drink per day, is linked to a 20% increased risk of mouth and throat cancer (59, 60). The risk increases with the daily amount consumed. More than 4 drinks daily appear to cause a five-fold increase in the risk of mouth and throat cancer, and also increase the risk of breast, colon and liver cancer (58, 59, 61, 62).

Drinking During Pregnancy May Cause Birth Defects

Alcohol abuse during pregnancy is the leading preventable cause of birth defects in the US (63). Binge drinking early in pregnancy is particularly risky for the developing baby (64). In fact, it may have adverse effects on

development, growth, intelligence, and behavior, which may affect the child for the rest of its life (63).

Alcohol and Risk of Death

Studies suggest that light and moderate consumption of alcohol may to cut the risk of premature death, especially in Western societies (65, 66).

At the same time, alcohol *abuse* is the third main cause of preventable death in the US (67), being an important cause of chronic diseases, accidents, traffic crashes, and social problems.

Alcohol is Addictive, Leading to Alcoholism in Predisposed

Some people become addicted to the effects of alcohol, a condition called **alcohol dependence** (alcoholism). Alcohol dependence is one of the main causes of alcohol abuse and disability in the US and a strong risk factor for various diseases (69). Numerous factors can predispose people to problem drinking, such as family history, social environment, mental health, and genes. Many different subtypes of alcohol dependence have been defined, characterized by alcohol cravings, inability to abstain, or loss of self-control when drinking (70).

Alcohol Abuse Can be Absolutely Disastrous For Health

Heavy drinking is the most common form of drug abuse.

Chronic alcohol abuse can have catastrophic health effects, affecting the entire body and causing a range of health problems. For example, it can cause liver damage (including cirrhosis), brain damage, heart failure, diabetes, cancer and infections, to name a few (9, 54, 58, 71, 72, 73). Getting into all the horrible effects of alcohol abuse is beyond the scope of this article. However, let's just say that *if* you are a heavy drinker, diet and exercise should be the least of your worries.

Getting your consumption under control, or abstaining completely in the case of alcoholism, should be priority number one.

