

Ultimate Guide to Alcohol Misuse

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In simplest terms, alcohol is just the fancy name for ethanol or ethyl alcohol. It is formed by the fermentation of sugars and starches by yeast. When consumed in large enough quantities, it can have a variety of effects on the human body and mind, some of them very pleasant, others...less so.

No one knows exactly when human beings started drinking alcohol, but we do know two things.

- It was a long time ago.
- We're not the only animals to do it.

We know that our species' consumption of alcohol goes back to at least 9,000 years ago, even predating the invention of the wheel.

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Modern excavations of the Neolithic village of Jiahu in China revealed that the inhabitants [brewed a primitive form of mead from honey and fruit](#). This prehistoric plonk would have had an alcohol content of about 10%.

4,000 years ago, Mesopotamians began brewing and trading beer. After that, the evidence for alcohol use is everywhere (and we don't just mean wonky cave paintings and chariots lodged into the sides of pyramids!).

So important to humankind is the development of alcohol that it is likely that its invention even predates that of bread. Alcohol was probably a very important form of nutrition – possibly even medicine – to our early ancestors, helping them to negotiate hard lives in a hard world.

Fermentation, of course, is [a natural process](#). In fact, Swedish autumns are fraught with [drunken moose](#), a common annoyance to the country's inhabitants. The [moose](#) eat fermented apples that have fallen from nearby trees – and hilarity ensues.

In Malaysia, a [certain species of pentailed treeshew](#) is known to regularly sip the alcoholic nectar of the [Bertram palm](#) trees upon which it lives. Unsurprisingly, this gets it more than a bit squiffy.

In any instance, human beings aren't alone in our indulgence.

So whether you're teetotal or a total tippler, we're here to provide you with this stout, frothy little guide to alcohol and its effects.

How Alcohol Affects the Brain

Alcohol is [absorbed into the bloodstream](#) easily and quickly. Once it makes its way to the brain, it binds to the [GABA receptors](#).

GABA, in this instance, refers to gamma-aminobutyric acid, a type of amino acid that functions as a neurotransmitter, meaning that it passes specific chemical signals between the brain cells (better known as neurons).

These chemical signals open ion channels within the neuron, allowing charged ions to flow in and out of the cell. This converts the aforementioned chemical signal into an electrical one. If this [electrical signal](#) changes the overall charge of the cell, it can trigger an '[action potential](#)', which releases more neurotransmitters on the other side, creating a chain of neurons all firing towards a common goal.

GABA is an inhibitory neurotransmitter, which means that it makes the neuron less likely to fire an action potential. Alcohol consumption increases GABA activity, which in turn creates a 'sedative' effect within the brain. This makes you feel more relaxed.



It also tends to lower your inhibitions, making you feel more open and [less guarded](#). As it does this, alcohol is also boosting the levels of [serotonin](#) (a type of 'feel good' neurotransmitter) in your brain, creating a sense of euphoria.

Eventually, alcohol depresses the brain's cerebral cortex, which normally controls language and critical thought. It also wreaks havoc on the limbic system, which regulates emotions. This is why, whilst drunk, you may tell people you love them, or else pick fights with total strangers...And then tell them you love them.

Ever wonder why you can't remember everything the morning after a [night on the tiles](#)? Well, that's because alcohol prevents the hippocampus (the part of the brain responsible for learning and memory) from adequately retaining information. Once the drink reaches the cerebellum, movement, balance and coordination all start to fail.

That's not all. You pee more when you've been drinking alcohol because drink prevents your pituitary gland from secreting [vasopressin](#), or antidiuretic hormone (ADH), which regulates the amount of water your kidneys reabsorb from your blood. If this hormone is unable to do its job, then less water is reabsorbed, meaning that there's more to get rid of!

So [that's the basics](#) (if you can call them that), of alcohol use and how it affects your brain.

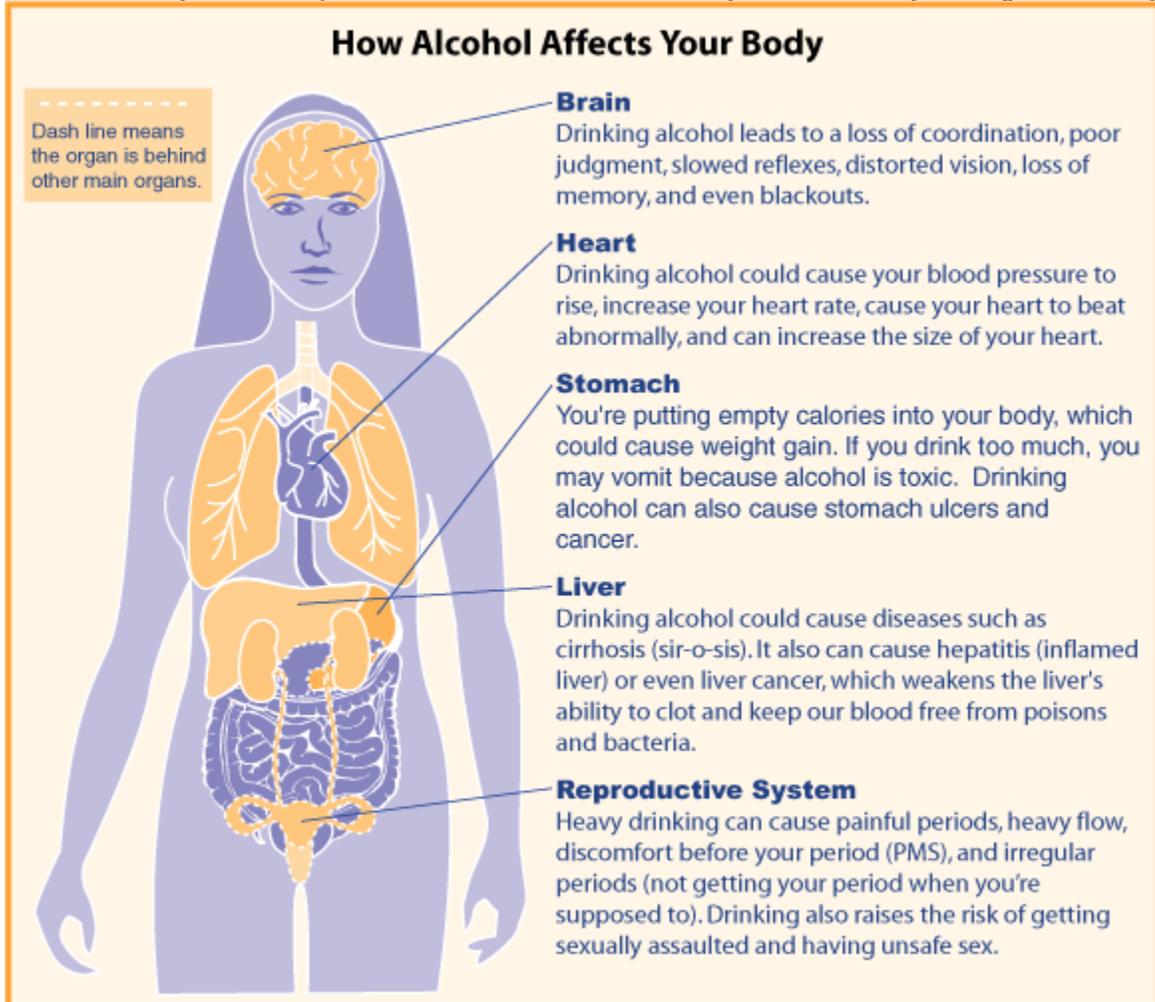
How Alcohol Affects the Body

Drinking to excess can damage [other areas of your body](#) as well.

The heart may experience a number of negative conditions brought about by excessive alcohol consumption. These include cardiomyopathy (a stretching and drooping of the heart muscle), arrhythmias (irregular heartbeat), high blood pressure and strokes.

Alcohol can also cause the pancreas to produce toxic chemicals that can lead to pancreatitis, which negatively affects digestion.

The liver is perhaps the organ most at risk from alcohol, as it can face steatosis ('fatty liver'), alcoholic hepatitis, fibrosis (overdevelopment of fibrous connective tissue) and cirrhosis (scarring of the liver).



Nevertheless, [some longitudinal studies](#) have shown that people who abstain from drink entirely tend to live shorter lives than those who drink in moderation. In fact, statistically speaking, even heavy drinkers live longer than abstainers.

It turns out that there are some [health benefits to drinking alcohol](#) after all. Beer, for example, is rich in the B vitamins thiamine and riboflavin, while wine is actually kinder to your kidneys than sugary drinks, at least in terms of your likelihood to develop kidney stones. Cider is often full of antioxidants (but isn't as good for you as, y'know, actually eating apples) and [red wine contains ellagic acid](#), which slows the growth of existing fat cells, as well as the production of new ones.

Some studies have even suggested that the moderately inebriated have an edge over sober people when it comes to creative problem solving!

Alcohol, it seems, is very much a [double-edged sword](#).

What are Alcohol Related Diseases

According to [Public Health England](#), alcohol is the single greatest risk factor for death, ill health and disability among 15 – 49 year-olds in the UK. It is also the fifth biggest risk factor across all ages, from childhood to old age.

[Alcohol misuse](#) is the cause of more than 60 serious medical conditions, a list that includes aforementioned issues like high blood pressure and cirrhosis of the liver, as well as depression, alcohol dependency and an [alarming variety of cancers](#).

Alcohol consumption [has been linked to cancer](#) for quite a while now, yet this is far less widely known than the causal relationship between smoking and cancer. Basically, the more you imbibe, the greater the risk. Even those who only drink one glass of alcohol a day are putting themselves at an increased risk of developing cancer.

Cancers caused by drinking include head and neck cancers, oesophageal cancer, liver cancer, breast cancer and colorectal cancer.

In 2017, there were [7697 alcohol-specific deaths in the UK](#). Sadly, that number is rising, and figures are at their highest point since records began. This does not mean that all of these deaths occurred from disease; but alcohol was certainly the cause of each death.

However, if we [unpack the data](#), we find that alcohol is still only accounting for the deaths of around 12 people in every 100,000.

The Short and Long Term Affects of Alcohol Misuse

There are many [short-term effects of alcohol](#). These range from the unintentionally funny to the undeniably tragic. Short-term effects of alcohol consumption can include:

- Slurred speech.
- Distorted vision.
- Impaired judgement.
- Decreased coordination.
- Vomiting.
- Upset stomach.
- Drowsiness.
- Blackouts.

Of course, the effects of alcohol use depend on how much you drink in how short a period of time. [Other factors](#) include a person's age, weight, sex and body fat percentage.

The body [metabolises alcohol by converting it into acetaldehyde](#), a chemical that has a similar structure to the poison formaldehyde. Poison is not good for you, in case you wondered.

The liver can oxidise only about one drink an hour. If the body cannot eliminate the alcohol quickly enough (for example, if the drinker keeps topping up the supply), then the likelihood of getting sick increases, along with the severity of the effects.

As impairment of the senses increases, so too does the ability to accurately discern how much you've had and [how drunk you are](#). [Recent studies](#) have confirmed this.

The worst short-term side effect is probably [alcohol poisoning](#). This occurs when a person drinks a toxic amount of alcohol, usually over a short period of time (often by [binge drinking](#)). In extreme cases, alcohol poisoning can lead to long-term effects such as brain damage, alcoholic coma and even death. Injuries sustained while drinking can actually be severe. Car accidents caused by drunk drivers are all too common, but other accidents can involve mild – severe burns, falls, broken bones, assaults and drowning.

[Drinking to excess whilst pregnant](#) is also a spectacularly bad idea.

When your senses and judgement are badly impaired, you can become a target for drink spiking, [robbery](#), violence and sexual assault.

Alcohol misuse can also lead to bitter arguments, as well as violence between friends, family members and life partners. The physical and psychological scars left by these incidents can last a lifetime.

The long-term issues don't end there, however. Long-term alcohol misuse can lead to



- Memory loss.
- Diminished grey and white matter in the brain (impairing many of its functions).
- Vitamin B1 deficiency (which can cause amnesia, apathy and disorientation. This is known as Wernicke-Korsakoff syndrome).
- Pancreatitis.
- Reproductive problems (including stillbirth, miscarriage, foetal alcohol spectrum disorder, or FASD).
- Calcium imbalance (caused by low production of vitamin D. This causes bones to weaken, and puts the drinker at a greater risk of developing osteoporosis).
- Cardiovascular disease, cancers and the various other ailments mentioned elsewhere in this article.

Perhaps the most common and dangerous long-term effect of alcohol is alcohol dependency. Contrary to what you may be thinking, alcohol abuse and alcohol dependency are [not the same thing](#). The term 'alcohol abuse' essentially means drinking too much, too often. [Alcohol dependency](#) is the inability to stop. This will be discussed later on.

The Affects of Alcohol on Mental Health

Alcohol can have an extremely deleterious effect on a person's mental state.

[Alcohol is a depressant](#), meaning that it inhibits the functions of your central nervous system, both in terms of physical movement and mental function. Regular alcohol use can lower serotonin levels (after initially raising them) and negatively effect dopamine levels, both of which can alter a person's mood. Over time, these mood changes can become a lasting depression.

Alcohol can also cause (or worsen) mild tremors, insomnia and anxiety.

In addition, chronic liver disease can sometimes be the cause of a condition called [hepatic encephalopathy](#) (HE), which allows toxins to build up in the body, causing changes to a person's brain chemistry. This condition has many symptoms, but one of the most serious involves radical alteration of a person's personality. Driven in some [cases by anger, irritability and severe anxiety](#), a person can potentially be rendered almost unrecognisable to family and friends by this illness.

The Symptoms of Alcohol Withdrawal

As we've seen, a little alcohol every now and again can actually be quite beneficial to your health. However, we've also seen that too much alcohol imbibed too often can be absolutely ruinous to the human body. Worse still, are the complications that arise from the removal (or reduction) of alcohol from a body that has become used to (or dependent upon) it.

Symptoms of alcohol withdrawal include:



- Tremors.
- Profuse sweating.
- Hallucinations.
- Depression.
- Irritation.
- Anxiety.
- Insomnia.

[Kindling](#) is a particularly unpleasant outcome of alcohol misuse. It occurs when a person has previously endured a number of alcohol withdrawal episodes. The severity of these episodes worsens each time the person stops drinking, ultimately causing tremors, agitation and even seizures. Kindling is an especially cruel condition for a person to develop as they try to quit drinking. ws

Because alcohol suppresses a lot of brain function, when it is removed, the brain and nerve cells are reactivated, causing hyperexcitability and sometimes seizures.

These problems often lead to 'relief drinking', as the person attempts to cure their ailments by ingesting more alcohol. In cases of alcohol addiction, withdrawal symptoms add another challenge to an already Herculean task.

A person's alcohol withdrawal program must be carefully considered as a result of this. Many people who misuse alcohol delude themselves with the idea that they can just quit at any time. In fact, this is rarely the case.

What is Alcohol Addiction

"What I came to understand was that alcoholism is a very real thing. Alcoholics like me can't process liquor the same way other people can. It changes our chemistry and behaviour. It deforms our decision making. It makes us chemically insane. We can't make rational decisions"

That description of alcoholism appears in the autobiography of a professional wrestler named [Eddie Guerrero](#). This story of a [famous person's addiction to alcohol](#) is not a new one. Alcohol addiction affects people in all walks of life.

Historically, alcoholism has affected kings, such as [George IV](#) of Great Britain, US Presidents like [Franklin Pierce](#) and [Ulysses S. Grant](#), great writers like [Edgar Allen Poe](#), [Jack Kerouac](#) and [O. Henry](#) as well as a [large number](#) of [famous actors](#) ([Peter O'Toole](#), [Richard Burton](#), [Errol Flynn](#)) and [musicians](#) ([Jim Morrison](#), [Steven Tyler](#), [Billie Holiday](#)). Even [Alexander The Great](#) is said to have been an alcoholic.

However, for every one alcoholic numbering among the great and the good, there are hundreds, more likely thousands, of alcoholics struggling with their respective addictions. Alcohol addiction impacts people from all walks of life. It transcends gender, social class, profession, race and creed. In many cases, it destroys lives.

Alcoholism is a disease, but it is [an invisible one](#), at least at first. The body undergoes many physical changes – both internal and external – after years of hard drinking.

Many of the effects of alcoholism are present in the depiction of 'Simpsons' character Barney Gumble. This may seem like a weird, or even offensive, point of reference when discussing such a serious subject. However, Barney is a more-or-less accurate caricature of 'the drunk', a man whose disease has caused

him to be overweight, flatulent and uncoordinated, to gain dark lines under his eyes and live his life in a perpetual state of confusion and dim regret. The fact that he is a comedy character also highlights misconceptions in the public consciousness about the disease of alcoholism.

Alcoholism can cause (among [other things](#)),

- Significant weight gain.
- Ruinous relationships with family, friends and colleagues.
- Heart problems.
- Unpleasant body odour (caused by the body's desperate attempt to expel excess toxins through the pores of the skin).
- A plethora of neurological disorders, including Alzheimer's disease.
- Bad skin.
- Gastrooesophageal reflux disease.
- Peptic ulcers.
- Irritable Bowel Syndrome (IBS).
- Hair loss.
- Depression/Anxiety.
- Cirrhosis.

Alcoholism is part physical compulsion, part mental obsession. [Alcoholics Anonymous](#) calls alcoholism "one of the oldest problems in man's history". There are even ancient Greek texts that warn of the [dangers of abusing alcohol](#). It seems that for as long as alcohol has been widely available, there have been alcoholics.

To again quote the AA website,

"We understand now, that once a person has crossed the invisible line from heavy drinking to compulsive alcoholic drinking, they will always remain alcoholic. So far as we know, there can never be any turning back to "normal" social drinking. "Once an alcoholic – always an alcoholic" is a simple fact we have to live with."

Yes, alcoholism is a disease, but it is an especially tragic and misunderstood one.

Alcohol, the Night time Economy & Antisocial Behaviour

In 1598, during the reign of Elizabeth 1, German lawyer Paul Hentzner travelled to England. He would later [publish an account](#) of his time in the country, making special mention of the Englishmen's apparent penchant for heavy drinking and rowdy behaviour.

"They (the English) are vastly fond of great noises that [fill the ear](#), such as the firing of cannon, drums, and the ringing of bells; so that in London it is common for a number of them, that have got a glass in their heads, to go into some belfry and ring the bells for hours together for the sake of exercise"

Apparently the only major difference between then and now is the recording, for posterity if nothing else, of such exploits onto Facebook.

OK, there are some other differences as well. For one, there is now such a thing as a [Public Spaces Protection Order](#) (PSPO), which legally acknowledges a public space and prohibits [certain things](#) being done there in the interest of the public good (with particular emphasis on drinking). A PSPO may be obtained if the following conditions are met.

(i) activities carried on in a public place within the authority's area have had a detrimental effect on the quality of life of those in the locality; and

(ii) it is likely that activities will be carried on in a public place within that area and that they will have such an effect.



35% of all Accident & Emergency (A&E) attendance and ambulance costs may be alcohol related

In 2016, it is estimated that there were 230 fatal drink drive accidents.



Alcohol misuse is a factor in 30% of suicides each year.

In England, there were 337,113 estimated admissions where an alcohol-related disease, injury or condition was the primary diagnosis in 2016/17



alcoholeducationtrust.org

It is considered an offence to [defy a PSPO](#). Nevertheless, [it is still true](#) that 35% of all England's A&E and ambulance costs are incurred due to alcohol consumption or abuse. In 2017, 40% of violence victims in England and Wales asserted that their attackers were affected by alcohol at the time of the attack. In Scotland, this number was 42%. Alcohol related crime is a [major problem facing the UK](#) right now. The big question is what do we do about it?

Earlier this year, a [pan-European project known as The STAD](#) (Stockholm Prevents Alcohol and [Drug problems](#)) produced a guidance resource for those operating in and around the night time economy. Titled 'STAD in Europe: a manual for communities preventing alcohol related harm', it is full of insightful commentary and innovative solutions to age-old problems. The manual is well worth a read if you make a living from the night time economy.

What is the Law about Underage Drinking

Of course [young people sometimes experiment with alcohol](#). However, [the law](#) is not as opposed to this as you might think. On [young people using alcohol](#) in the UK, [the law states](#),

A retailing strategy known as 'Challenge 21' was launched in 2005. Deemed to be a success, a second strategy, '[Challenge 25](#)' was launched in 2007. The scheme was the brainchild of the [British Beer & Pub Association](#) (BBPA) and allows for participating retailers and establishments to demand ID from anybody their staff feels might be under 21 or 25.

If an ID cannot be produced, then the sale is considered forfeit. In extreme cases, all members of a group must prove themselves to be over 25 before a sale is allowed.

The genesis of such stringent measures lies in heavy-handed government administration aimed at preventing underage drinking. Establishments such as pubs were specifically targeted, with [police sending people who appeared underage](#) to order drinks, then penalising those landlords whose bar staff did not ask for ID.

- It is illegal for anybody to sell alcohol to a person who is under 18
- It is illegal for a person over 18 to buy alcohol for a person who is under 18
- It is illegal for a person under 18 to attempt to buy alcohol
- It is illegal for a person under 18 to drink alcohol on a licensed premises (such as a pub or bar), unless the person is aged 16 or above, is accompanied by an adult and eating a table meal. Even then, it is illegal for them to buy the alcohol themselves
- If a person under 18 has alcohol in a public place, UK police have the power to confiscate it. If a young person is caught three times with alcohol, they could face arrest. Police may also confiscate alcohol from an adult if they have reason to believe that it will be supplied to a person under 18
- Within reason, it is not illegal for a young person (aged 5 or above) to drink a small amount of alcohol when on private property
- The police have the power to ID anyone if they feel that person may be underage.

In response to pressures like this, the pubs adopted the 'Challenge' system, as did off-licenses (which still tend to use 'Challenge 21') and most major supermarket chains.

The system does appear to unfairly target the poor and disenfranchised, specifically people who may not have the money to buy a passport, qualify for a driver's license or obtain another form of identification. It has also been suggested that the 'Challenge' scheme is being used to soften resistance to the notion of national ID cards, an unpopular scheme once proposed by the UK government.

[Statistics do show](#) a decrease in underage drinking, however. In England, only 6% of 11 – 15-year-olds drink alcohol on a week-by-week basis, whereas in 2003, before 'Challenge 21' came into effect, this was as high as 20%. According to recent data, 56% of 11 – 15-year-olds have never even tried alcohol, which has increased from 41% in 2000. Of 16 – 24-year-olds, only 16% of men and 17% of women admitted to

'binge drinking', or drinking to excess, suggesting that the average drinker in today's Britain drinks more or less responsibly and is aware of their limits.

In fact, the numbers for underage drinking in the UK are down right across the board. Whilst it would be erroneous to dismiss the effect of the 'Challenge' scheme entirely, it would be equally foolhardy to suggest that this is entirely due to the scheme itself. After all, young people who wish to drink will find a way to do so.

It seems instead that, aided by education and their own good judgement, the incumbent generation have simply employed their own [good sense](#), something they are rarely given credit for in the UK.

Should Alcohol be Banned

Because of its propensity for chronic misuse, alcohol was [banned in the United States](#) from 1920 – 1933. The social and political experiment, commonly known as prohibition, is often seen as a failure, but many argue that it actually was [a success](#)

[Many theories](#) have been put forward as to why prohibition didn't work, but perhaps the simplest is that once he gets out, it is rather hard to put a genie back in his bottle.

What does that mean? Well, ask the average person what a heroin high feels like and they have no idea, no frame of reference beyond the vaguely romantic impressions left on their psyches by the books of Burroughs or the music of Nirvana. Heroin is illegal – and a silent, almost unanimous social consensus keeps it that way.

In 1919, however, when America was preparing to 'go dry', alcohol was already a major part of people's lives. They had toasted their victories with it and drowned their sorrows in it. Working men, then as now, enjoyed a cold beer [after a long day](#). In effect, people knew what they were missing when it was banned.

It is often deemed a success because,

The arguments for it actually working are strong, during the time of Prohibition the records show that suicide rates decreased by 50%, along with a 10% decrease in admissions to mental hospitals for alcohol psychosis. There was a decline of nearly 20% in the deaths of cirrhosis of the liver. In terms of health benefits, prohibition was a successful experiment.

Some interesting and conveniently neglected facts about Prohibition:

- The movement can really be traced to Native Americans who were exhausted by the harms being done to their communities, as early as 1880's
- Corruption in the Police forces, particularly in big cities, with high Irish and/or Catholic members was rife
- Highest levels of government overseeing this space were also corrupt with bribery systemic
- There were significantly less than 400 'Prohibition Agents' within the entire continental United States, to try and deal with an uncooperative (at best) and down right obstructionist police sector at worst. All hindering the effective regulatory and enforcement processes growing success.
- Of course the personal and private production and consumption of alcohol was completely legal. Consequently the Bath Manufacturing Industry had a boon era. The sale of baths for home brewing skyrocketed.

Consumption of alcohol was never illegal under the 18th amendment (which banned the "manufacture, sale or transportation of intoxicating liquors" anywhere in the United States). So, if you could find somewhere to buy a beer, the barman was committing a crime, not the drinker.

This was seen by many to contribute to an unprecedented rise in organised crime, and this is shown in the data of the time. But when you look more closely, the increase was an increase in deaths within the African-American community, and at that time, they weren't in a position to traffic in Alcohol.

With the abolishment of prohibition in 1933, it is easy to assume that it wasn't a success, but many will argue it actually was. The ending of prohibition was actually financially motivated, resulting in [nearly 9 percent of the government's tax revenue](#), the year it ended, helped to finance Roosevelt's New Deal programs in the ensuing years.

Returning to more familiar shores, in his book 'Tickling the English', Irish comedian Dara O'Briain writes,

“The fact is that England has a long and distinguished history of heavy drinking. Before there was a plentiful supply of clean water, beer and ale were staple, healthy parts of the English diet for hundreds of years. Monks in the middle ages, for example, had an allocation of around ten pints of ‘small beer’ – a weaker beer made with leftover mash – every day. In the sixteenth century, it’s estimated that average beer consumption in England was around 850 pints of beer per person per year”

So by that (admittedly long) yardstick, it would seem that we’re doing OK.

Alcohol has been used in human cultures for almost as long as there have been human cultures, so banning it seems completely impossible today.

Regulation and taxation, tempered with education and a sense of moderation, seems to be the [only way of tackling the problems](#) that alcohol can cause.