

Do I really have to ...

#2

Cut down on the booze?

Q: Is alcohol bad for me?

A: Depends on how much and what you mix it with.

Q: Why do I get so drunk on champagne?

A: It's a conspiracy of bubbles, ice and a tall glass.

Q: How do I sober up fast?

A: You can't. That ship has sailed.

Q: Can I avoid getting a hangover?

A: Only by not drinking.

Q: If the world was ending in five minutes, what would be the best thing to drink?

A: Ice-cold champagne or gin and tonic.

Q: Does drinking a little every day prolong life?

A: No, but those who do live longer.

Q: Is red wine a health drink?

A: You can drink to your health, not for it.

Since the late Stone Age, people have been drinking alcohol to make them feel better. For the most part, this has been in order to ‘remember their misery no more’ (*Proverbs 31:6–7*), to loosen up and come to life. But beyond simply drowning our sorrows or having a good time, it’s also widely believed alcohol has a range of positively medicinal virtues.

Yet, at the very same time, it is also flamingly obvious that alcohol can be an important cause of miseries and bad memories. Alcohol makes many people feel much worse than they already do. Overall, drinking too much alcohol contributes as much to poor health across the globe as obesity and smoking. Consequently, balancing alcohol in our lives is truly a matter of life and death.

Drink, drunk, drank

Alcohol is a tiny, innocent-looking chemical but it sure packs a punch. We can usually tell when we have had alcohol within a few minutes of taking it, especially when our stomach is empty. Because of its simple chemistry, alcohol is quickly absorbed, starting from the very moment it enters our mouth, from where it diffuses to every part of our body.

It was the mouthwash, Officer!



It is popular to use a mouthwash to freshen our breath and prevent cavities in our teeth. Mouthwash is supposed to be swished and gargled for about 30 seconds, then spat out. You are not meant to swallow it.

Many mouthwashes contain significant amounts of alcohol. For example, the classic mouthwash brand Listerine has about twice the alcohol concentration of a glass of wine, or about half that of a typical glass of whiskey.

In theory it is possible to fail a driver breathalyzer test after rinsing your mouth with an alcohol-laced mouthwash. This is not because you accidentally swallowed a little mouthwash, but more because some can hang around in the tiny crevasses in your mouth.

If you then blow it back into a breathalyzer it can be enough to make it seem that you are over the limit. But this could happen only immediately after using it. Within 15 minutes or so of using a mouthwash, any alcohol on your breath is safely below the detection limit. So there goes that alibi.

When we have a drink, a little alcohol is first absorbed directly in our mouth and maybe 20 per cent is absorbed across our stomach's lining. However, the majority is absorbed across the intricate convolutions of our intestines, where the enormous surface area is about the size of a tennis court. And a greater surface area equals more surface to absorb alcohol.

Blood alcohol levels reach their peak on average about 30 to 40 minutes after having a single drink. Because the peak alcohol concentration correlates with its maximal effects on our brain, it takes approximately this amount of time to get as drunk as we are going to get on a single glass. Of course, if we take a second and then a third and a fourth glass, each successive wave builds on the last, meaning our blood alcohol levels can still be rising over an hour after our last drink, when we may be thinking of heading home.

Although some people become more gregarious and/or volatile when they drink, alcohol is essentially a sedative. It inhibits the functions of the brain. However, the first parts to become inhibited are the brain cells at the front end whose job it is to think through what we are supposed to be doing. This is the same area of the brain where sleeping tablets also work.

Alcohol initially sedates those particular brain cells whose job it is to inhibit brain activity. And when you inhibit the inhibitory parts and sedate the sedators, the balance of brain activities initially tips towards excitement and euphoria. Woo hoo! This why when we feel tired (when the inhibitory part of our brain is slowing us down), a little alcohol sometimes feels more like a pick-me-up; more like a coffee than a sleeping pill.

But caffeine and alcohol have opposing effects in our brain. Coffee increases memory and focus and stops our mind from wandering. Alcohol, on the other hand, interferes with memory and concentration, but opens doors to let our mind out. Many people regard a little alcohol as a tremendous source of creativity and social lubrication. The jokes turn out better and the ideas seem to flow without the inhibitory restraints of a dulled brain. In fact, creative problem solving and lateral thinking can be modestly enhanced after a single glass, through helping our mind to wander. But then we go too far.

The big problem with booze is that as we take more and more we also progressively lose other inhibitions. Some of these are important for self-control and making safe choices, like dancing on tables or driving home. Broadly, the risk of sustaining an injury at least doubles in the six hours after consuming four bottles of beer or half a bottle of wine in a single sitting. If we drink any more than this, the risks increase exponentially. This is because other areas of our brain now start getting sedated, with further doses leading to disturbed balance, slurred speech, blurred vision, confusion and other symptoms that go with being drunk. Eventually we may just fall over.

Alcohol doesn't just intoxicate our brain. It also has direct effects on our stomach. Everyone will know about feeling sick and possibly throwing up if we drink too much. This is partly because the alcohol slows and ultimately stops the stomach from contracting (and emptying) in a regular coordinated fashion. Drink too much and everything just sits there in our stomach, making us belch, hiccup, feel bloated and ultimately throw up. As they say, it is always the dose that makes the poison.

Food with drink

Everyone knows that the easiest way to get drunk is to drink on an empty stomach. Actually, the easiest way to get drunk is to drink lots of alcohol. But if alcohol is the limiting factor, then an empty stomach will not only allow more of the alcohol to reach our brain, but to reach it faster and achieve higher peak levels than if we had drunk it with or after a meal. So you get more drunk for your dollar on an empty stomach.

This is why we are always told to eat some food while we are out drinking. It works to some extent. The maximal alcohol levels achieved and their maximal effects on our brain *are* actually reduced when we mix wine and cheese, or have a beer with our fish and chips. This is not because the food in our stomach is able to soak up the alcohol. Rather, when we have a meal and our stomach is full, it pours out its contents much more slowly than when it is empty. And so the transit of any alcohol we drink with or after our meal is also slowed. Ultimately though, the same amount of alcohol still gets into our system, albeit at a slower rate.

Nuts to you



At the start of *The Hitchhiker's Guide to the Galaxy*, the ever-resourceful alien Ford Prefect buys six pints of beer, ostensibly as a relaxant, as the world is about to end. A far better option for Ford would have been gin and tonic, which has a far higher alcohol concentration to facilitate rapid diffusion across the stomach wall, ice-cold tonic bubbles to push it onwards, and quinine to further relax the muscles. However, if the world was ending anyway, choice of beverage is best a matter of taste and immediate availability.

To his beers, Ford Prefect also added several packets of salted peanuts from the bar. Most bars have nuts. Some are also edible. But their true purpose remains shrouded in mystery.

Eating small, protein-rich snacks (like nuts) before take-off in an aeroplane can reduce motion sickness. This may be because protein, more than any other nutrient, triggers regular, slow and smooth stomach contractions. These keep it busy and act to suppress any rapid irregular convulsive contractions of our stomach associated with feeling sick and ultimately vomiting.

At the same time, when we eat, stomach emptying is slowed down due to the presence of food, meaning the rate at which alcohol levels rise is also slightly slower. So it takes slightly longer (and more alcohol purchases) to get drunk when we are also eating nuts.

Adding to the conspiracy theory, some argue that the addictively salty nuts are only there to make us thirsty, so we'll have to buy more drinks. But this is not true. Pound for pound, salty nuts or salty pretzels don't make us drink more than if we ate unsalted ones.

Actually, the conspiracy works in reverse. It seems alcohol promotes snacking. It is no coincidence that most nuts and pretzels are displayed at just an arm's length behind the bar. Given the plentiful calories in most beverages we shouldn't be hungry or need to eat. But with a little disinhibiting alcohol on board, we just can't help ourselves.

It is not only food that slows the emptying of our stomach into our intestines. Smoking has a similar effect. Consequently, many smokers claim that having a smoke while drinking means they get drunk slower than their non-smoking friends, which is probably true.

Bubbly

While food can slow down the absorption of alcohol, drinking sweet, warm or fizzy alcoholic drinks can do the opposite, helping it to bubble along through our stomach and into our bloodstream. This is why alcoholic drinks are more rapidly intoxicating when they are bubbly than when they are served flat. It's part of the charm of beer, gin and tonic, rum and Coke and many other effervescent combinations. But the most famous and intoxicating bubbly of them all is champagne, or sparkling wine.

With the release of the cork, carbon dioxide dissolved in the champagne starts to escape, partly as gas bubbles and partly just wafting away from the surface of the drink. When we drink champagne it is still filled with dissolved gas, and this gas continues to be released inside our stomachs but now at a faster rate as it warms to body temperature and gets shaken about. This is when champagne really fizzes, filling our stomach faster and pushing the alcohol onwards in our intestine and into our blood.

As the champagne fizz fills our stomach, it forces the stomach to empty its alcoholic contents more rapidly, or efficiently, into our intestines, where alcohol absorption is faster because of the bigger surface area. So we get drunk faster on champagne than on the same amount of white wine.

The same intoxicating effect can also be seen when drinking beer, cider or other fizzy drinks, although champagne has much more dissolved gas in it than all the others. This is why champagne bottles are made thicker than the average wine bottle and the cork must be reinforced. Champagne would simply blow a beer bottle apart. Even without shaking it, the pressure of gas inside a champagne bottle is over three times that found in the tyres of a car. And this explains its fizz as well as its reputation for putting us under the table.

Once a bottle is opened the gas starts to escape. The sooner you drink it the more gas there is. Drinking straight from the champagne bottle is impolite, except after winning motor races, but the first glasses poured from the bottle are more bubbly and more intoxicating than the last. The same phenomenon may also be observed with beer, although it is quite acceptable to drink straight from the bottle as soon as the cap is lifted. In this way the drinker gets most of the gas, and consequently drinking that cold beer straight from the bottle is

far more intoxicating than a glass of a warm beer from a jug sitting on the table. The counter-argument is that sometimes it's not about the alcohol: the full aroma and the frothy pleasure of beer is best experienced when drinking it from a glass.

The right temperature is also important for champagne to work its magic. The warmer the champagne the more it foams and bubbles in our glass. When we drink it there is less dissolved gas and so less intoxication. By contrast, ice-cold champagne doesn't explode out of the bottle in the same way, doesn't bubble as much or foam over the edge of the glass onto our hand or our clothes. When we drink it, there is much more dissolved gas left to be bubbled up inside us when it heats up to body temperature in our stomach. So on ice-cold champagne we get drunk a little faster.

If we didn't want to get drunk as quickly, we could drink wine or intolerably warm, flat champagne. But a more creative method may be to chase the bubbles from our champagne using a swizzle stick.

Mr Darcy's swizzle stick



In Regency England, champagne was all the rage. Yet the bubbles were considered a rude imperfection, cherished only by the wicked and depraved, like Lord Byron who extolled the virtues of:

'...champagne with foaming whirls

As white as Cleopatra's melted pearls.' (*Don Juan*, 1821)

Many drank expensive still champagne (known as Sillery) to avoid the dangerous 'spirituous parts'. Furthermore, at balls, it was propitious for men to carry a swizzle stick or bâtonnet (little stick) to swish any importunate bubbles out of a lady's drink.

And it worked. Getting rid of the champagne bubbles slows the punch of the alcohol, so their dance partner would at least make it through the set without it going to her head. Given the tight restrictions of corsets used by both men and women, it was also a good way not to fill up with gas and end up bloated and belching. This trick was later employed by Queen Victoria who stirred her own champagne.

Curiously there appears to be no mention of Darcy's swizzle stick in Jane Austen's novel. Either he didn't use one (in which case he was trying to get Elizabeth drunk), or morality precluded any mention of the one he kept deep in his pocket, which he only pulled out for special occasions.

There are many other tricks used to reduce intoxication from champagne. Because of their greater surface area, the traditional broad flat goblets for drinking champagne let the gas and bubbles, as well as the cold temperature, dissipate more rapidly. This style of flat champagne goblet was putatively modelled on Marie Antoinette's left breast, although it is still debated whether this was criticism or idolatry. And why the left and not the right? Was there a palpable difference? Or was it simply that designers could only choose one?

The modern narrow champagne flutes we use today have a very small surface area on top. This keeps the bubbly 'mousse' — or sparkle of champagne — much better, as well as the cold temperature. But it also means those tall glasses of ice-cold champagne are far more intoxicating at fancy parties or weddings.

Another simple trick is to add a strawberry to the drink. In the movie *Pretty Woman*, Richard Gere stresses the importance of the strawberries when drinking champagne with Julia Roberts. 'It brings out the flavour,' he says. But the only flavour that comes out is that of the strawberries. Strawberries will absorb a tiny amount of alcohol, but not enough to matter, especially if we eat them anyway. But they do provide a willing surface for bubbles to form on, so the recipient of the strawberry-filled champagne glass will get less intoxicated and less bloated (both intrinsic features of a pretty woman). In cross section, strawberries also form the shape of heart, to which lovers have toasted for centuries (kind of pretty too?).

As a last resort, leaving a remnant of detergent from when we last washed our champagne glass will also chase the bubbles away. However, this will also kill the taste!

Break it down

As soon as alcohol is absorbed into our bodies, it starts to be broken down into vinegar, and then to carbon dioxide and water. If we drink moderately, most of the alcohol is so rapidly broken down that only moderate amounts will ever reach our brain. This process is broadly known as **alcohol metabolism**. Metabolism is the process by which chemicals are converted into other chemicals by our body's enzymes.

Why humans possess the specific ability to break down alcohol is probably due to the fact that alcohol (or ethanol) is not a foreign substance to us, but a constant companion. Each day some of the

sugars we eat are fermented in our intestines, and this generates our own alcohol. Even for people who never touch a drop in their lives, their intestines deliver the equivalent of several beers every day.

In some people who have major problems with their intestines, the endogenous production of alcohol can sometimes be markedly enhanced, meaning they have detectable blood alcohol levels even without drinking. This is known as the ‘**auto-brewery syndrome**’ and is an established legal defence.

Fortunately, most humans have little or no detectable alcohol in their blood, let alone levels enough to appear drunk. This is because our liver is able to efficiently break down alcohol. At its peak, it can get through about 7 grams per hour. One standard drink contains about 15 grams of alcohol so, on average, our liver can cope with one drink every few hours without the alcohol levels rising steeply in our bloodstream. However, the rate of alcohol metabolism varies significantly from individual to individual. Some can drink more. Some can only drink small amounts before feeling tipsy.

For example, women are usually a little more easily intoxicated than men. This is partly because the metabolism of alcohol by the stomach lining is a little less efficient in women and their stomachs are generally smaller. So women generally experience a faster rise in alcohol levels after a single glass when compared to men. This is one reason why it is usually recommended that women consume a third to half less alcohol than men, in order to remain equally sober.

Taller, heavier people are also generally less easily intoxicated than smaller individuals. As a rule of thumb, twice the weight means half the maximum concentration and half the intoxication. However, this is not due to their metabolism breaking down the alcohol. It is simply because alcohol dissolves equally into all body tissues, so the more body tissue we have the more the alcohol gets diluted across it.

Some of the differences in the rate of alcohol metabolism between different people are due to differences in their genes. In particular, Asian people are more likely to carry genes that allow them to break down alcohol at a much faster rate than Caucasian individuals. This means that not only do they get less buzz from alcohol, they also rapidly generate the by-products of alcohol at a rate too quick for their body to cope. This can lead to flushing of the skin, a racing heart and headaches in about one-third of all Asian people if they ever have a drink.

Undoing the damage



Once alcohol is in our blood, there is no going back. There is nothing we can do to speed up the rate at which it is broken down. Once it has been imbibed, only time can make alcohol go away.

However, this doesn't stop people from giving it a shot. We try going for a run, sweating it out or taking a hot shower. But resistance is futile; the effects are tiny, at best.

One of the most popular home remedies for sobering is Baker's yeast. Some pubs even sell it over the bar for emergencies. The idea is that yeast is normally used to make alcohol, so it must also have the capacity to un-make it, by reversing the process. So by putting yeast into an alcoholic environment (like our stomach during a party), instead of making alcohol it gets rid of it, like a second liver.

But while Baker's yeast may have the capacity to eat up some of the residual alcohol in our stomach, it has little effect on the alcohol that has already passed into our blood or how rapidly we sober up from it.

Black coffee is another popular alternative. However, coffee does nothing to our metabolism and actually speeds up stomach emptying which, like bubbles, can serve to increase our alcohol levels. At best, caffeine only turns a sleepy drunk into a wide-awake drunk.

Alcohol metabolism by the liver breaks down the alcohol we drink. It gets rid of it so that we don't get so drunk. The best example of how important this is for us is to consider what happens when the capacity for alcohol metabolism is taken away.

For example, the chemical chloral is a potent inhibitor of alcohol metabolism. Drinking a mix of chloral and alcohol, the inadvertent consumer quickly becomes intoxicated and eventually passes out. This devilish cocktail was used to great effect by the Chicago pub owner Michael 'Mickey' Finn to incapacitate and then rob some of his customers. This subsequently became known as 'slipping the mickey'.

Some mushrooms can also inadvertently interfere with alcohol metabolism, causing rapidly unpleasant symptoms for anyone mixing them with booze. These specific mushrooms are justifiably known as 'tippler's bane'. Fortunately, they are not the ones commonly available in supermarkets or used with red wine in our beef stroganoff.

Finally, the common painkiller paracetamol (known as acetaminophen in the United States) also slows the breakdown of alcohol by the liver. Not as much as with a Mickey Finn, but enough for more alcohol to end up in our bloodstream, making it easier to become drunk.

The beer belly

There is an obvious link between drinking and growing fat, especially around our waistline. We all know what this looks like. It is commonly known as a ‘beer belly’, ‘love handles’ or even a ‘muffin top’, a physique curiously resembling how muffins and cupcakes lavishly spill out over the sides of their paper case. It is widely considered to be the best part of muffins. But as we look at ourselves in the mirror, the excess fat spilling over the top of our tight pants is usually the first part we poke.

The size of our waistline is largely explained by the food we over-consume and our lack of regular physical activity. This is discussed in detail in other chapters. But despite knowing this, most people find as their belt or their skirt slowly gets tighter round their waist, they will probably blame their drinking.

After all, we have to blame something. If it is not chocolate then alcohol is next on the list of usual suspects. Not only does it have a long criminal history, but it is also in the right place at the right time, for as we get older we tend not only to get fatter but also to drink more booze. There is more than circumstantial evidence or alcohol’s prior record of bad behaviour at play here, though; there is also biology to consider.

All alcoholic drinks contain calories, almost all of which are usually in excess of our physical requirements. Any calories in excess are stored away in the body as fat. The more (calories) we consume as drink or food, the more fat we store. Men are more likely to deposit fat around their waist than women, and so fat (beer) bellies are more common in, though not exclusive to, men. It’s not that women are protected from getting fat, but excess calories often go elsewhere first in women (usually to their bums, thighs and breasts).

Some of the calories in our beverages come from the alcohol itself. However, unlike other nutrients in our diet, the calories found in alcohol cannot be stored in the human body. Alcohol is toxic and so must take priority to be burned off, which is what our liver does.

But while our liver is busy burning excess alcohol when we drink, it doesn't have the need to burn fat. So a lovely waist is left behind.

The alcohol itself may be only a small part of the weight problem, if at all. In one enviable study researchers fed participants an excess of calories for two weeks either in the form of milk chocolate or as an equivalent amount of alcohol. Not surprisingly, the chocolate eaters gained 3 kilograms (6.6 pounds). But what was surprising was that the drinkers did not get fatter (at least in the short term), despite the fact that their calorie input was much the same.

Saint Bernard of the Snow



Crossing the Swiss Alps on foot is not something for the faint-hearted. So in 1049, Bernard of Menthon built a shelter to take care of travellers and provide a rescue base for those who became lost in the snow. Soon dogs were added to the party, and after centuries of breeding, a highly specialized dog for snow rescue was created. These heroic dogs later became known as Saint Bernards, after their founder.

The dogs' keen sense of smell could help detect buried travellers. They would then dig them out and lie on top of them to provide warmth until help arrived. They didn't actually carry a barrel of alcoholic brandy around their neck. This appears to be an artistic fiction, loosely based on what it feels like when we drink spirits.

Alcohol increases the flow of hot blood to our skin, causing it to produce sweat, look a little flushed and feel warm to the touch. Take a swig of spirits — it doesn't take long before we feel a tingling. On a cold night, this cosy feeling feels a bit like being wrapped in a blanket (or smothered by a Saint Bernard). And for the same reason, alcohol often mistakenly makes us feel immune to the cold, snug in our 'brandy blanket'.

The problem is that all the extra heat running to our skin makes our core temperature drop. Our core temperature is what keeps us alive in the cold. So alcohol and extreme cold are a dangerous combination, increasing the risk of hypothermia. Anyone lost in the snow who drank a barrel of brandy would suddenly feel a lot better, but would rapidly succumb to the cold before help arrived.

So if it's not actually the booze that maketh the belly, then maybe it's what comes with it that counts? After all, while beer drinkers have their obvious beer bellies, wine drinkers don't, even after adjusting for the amount of alcohol they consume.

A likely reason for the beer belly is that, along with alcohol, beer usually also comes with plenty of sugar added. For example, an average glass of beer contains as many calories as a can of Coke. We all know what too many soft drinks do to our waistlines. It should come as no surprise that our bellies are dancing.

A glass of red wine also contains about the same number of calories as a glass of beer. White wine has only slightly fewer. However, a beer drinker will generally drink a greater volume of beer than a wine drinker will drink wine. Consequently, for the same amount of alcohol, the extra volume of beer we drink and the calories therein explains the infamous beer belly.

The Hangover (Part I)

We all know that the adverse effects of a night of drinking can carry over into the next day. The unpleasant symptoms of a hangover are as familiar to drinkers as a common cold: feeling moody, lethargic, clumsy, headachey, nauseous and sensitive to bright light and noise. It is classically portrayed in the movies as having bloodshot eyes, wearing dark sunglasses, drinking endless cups of black coffee, and bumping into things. This is not just because we have our sunglasses on inside. In fact, all our brain functions go down when we are hung-over, causing impaired performance, lapses in concentration and errors of judgement. We may not have an ounce of alcohol left in our system, but accidents are significantly more likely to happen when we are hung-over. Some studies even show that driving with a hangover makes you just as impaired as driving (illegally in many countries) with a blood alcohol level of 0.08 per cent! So maybe it really is safer if we stay in bed.

Roughly three out of every four people who drink to the point they are intoxicated will have some degree of hangover the next morning. But even if they drink themselves into a stupor, some lucky sods are spared. Conversely, some unfortunate people can get a hangover after only one or two glasses.

The usual explanation for differences in our sensitivity to excess alcohol is that some people must break down the alcohol they drink less efficiently or differently, leading to the accumulation of toxic chemical by-products in the body that cause the displeasing symptoms associated with a hangover. Drink enough and we all will produce enough of these toxic chemicals to make us feel ill the next morning. But some people might rapidly make enough of them to cause them to feel sick after even a single glass.

The problem with this theory is that by the time our hangover symptoms are at their worst (i.e. the next morning) all of the alcohol and its various chemical metabolites have completely left our body. So having a slow or fast metabolism doesn't explain why some people are feeling fine and others are having a doozy!

Another theory is that hangovers are due to **dehydration**. And certainly, that might be part of it. Alcohol interferes with the signal normally coming from the brain telling the kidneys to conserve water and prevent it from being lost into our urine and down the toilet. By blocking the message, the kidneys instead allow water to spill over into our urine and our bladder. This makes us pee more with an alcoholic drink than we might expect just from the amount of fluid we have drunk.

We normally pee more when we are drinking anything, simply because of the volume of water we are taking in. A typical beer is 96 per cent water and about 4 per cent alcohol. This 4 per cent is eventually turned into about the same mass of water by our liver. Consequently, a glass of beer and a glass of water are about the same in water content in the end.

Besides the amount of water in our drink, for every alcoholic drink we have, the alcohol in it will cause us to lose around half a cup more than if we had drunk the same volume of water. Have four drinks and we may well be down by almost a litre. By the next morning our skin and throat feels dry, our eyes are sunken and our head and body ache as if we had just got off a long-distance flight. In fact, many people describe the same hangover symptoms after travelling long distances in a plane even if they haven't bothered with the drinks cart.

It is often thought that drinking extra glasses of water during a night out will prevent dehydration the next morning. The ancient Romans always added water to wine. But this was not to prevent a

hangover. Most likely, the unsanitized water was undrinkable on its own and more palatable and far safer to drink when sterilized with some alcohol in it. As a hangover cure, water will also help, but only a little. Most of the extra water we'd try to drink to compensate for the booze will simply make us pee even more or then have to get up in the night to go to the bathroom. Regardless, we will still end up feeling dry, thirsty and hungover in the morning.

Liquorice sorts all



One innovative hangover cure is to use natural chemicals to make our kidneys retain more fluid, instead of alcohol causing us to pee it out.

One of the most well-known is a chemical naturally found in liquorice (licorice).

Today we mostly know liquorice as a sweet treat. But by far its biggest use is as an additive to tobacco to sweeten its flavour. The chemical that provides liquorice's sweetness also has another string to its bow. At least temporarily, it will trigger our kidneys to make less urine, which is the opposite of what alcohol is doing. So in theory by taking liquorice we'll feel less dehydrated in the morning.

Eating liquorice doesn't work the morning after; by then it's too late. So if you don't mind munching on liquorice between beers it may be worth a shot. Liquorice is also found in a wide variety of drinks, from absinthe and anisette to ouzo and sambuca.

However, like all our favourite panaceas, take too much and there is always a catch. With liquorice, if you eat too much your kidneys can retain so much fluid that your blood pressure goes up. As a consequence of water retention you also lose potassium, which is important for your health.

Purveyors of the perfect hangover cure simply solve this problem by recommending people eat liquorice through the evening and finish the night with a glass of fresh juice, a handful of nuts or a banana, all excellent sources of potassium. This cure is also recommended before long-distance flights for the same reasons (as well as the inconvenience of having to get up, step over other people and get to the cramped toilets).

The Hangover (Part II)

Another important contributor to the hangover is how poorly we have slept when we have been out drinking the previous evening. This is not just because we were late to get to bed, although this doesn't help how we feel the next morning, but also because alcohol itself can impact how well we sleep.

Firstly, the alcohol in grog is a sedative (hence the term groggy). Many people use a little alcohol in the evenings to help them get to sleep. This is commonly known as a 'nightcap'. And it actually works to relax and sedate us, if this is what we want, especially for non-drinkers or people who don't drink too much or too often. Of course, large amounts of alcohol are enough to tranquilize a large elephant.

The problems occur after we fall asleep. Too much alcohol suppresses our dream sleep. This is also known as REM (rapid eye movement) sleep, as our eyes are often rapidly moving during this phase of sleep as if we were watching a dream movie projected onto the inside of our eyelids. We need our REM sleep to feel refreshed in the morning. But the booze takes it away.

At the same time, if we've been drinking, the non-dream, non-REM part of our sleep cycle is longer and deeper. This period of deep sleep is when our body is at its most relaxed and floppy and the time we most often snore (as the muscles holding our airways open are also deeply relaxed). This is why when we are drunk we snore an awful lot more and end up sleeping on the sofa.

Even as the excess alcohol wears off, our sleep is further disrupted in the second half of the night. We are more likely to wake between our sleep cycles and find it harder to get back to sleep. By the time morning comes around, we are still trying to catch up on the missed sleep and are left feeling unrefreshed and hungover for the rest of the day.

Our brain desperately tries to make up for the lost dreams. So, after a night out drinking, the last dream just before we wake up can often be longer, more vivid and more likely to be remembered. Unless, of course, we wake up early because our bladder is full. Then we miss the end of the movie, and are left forever wondering what was going to happen next.

Getting drunk also interferes with our body clock, producing a state akin to jet lag, when our body clock is out of alignment with the actual time in the place we have just landed. We feel like it's

night but it's actually midday or vice versa. Something like this also happens in a hangover and some researchers believe they may have similar origins. Consequently, desperate people use many of the same cures for both, including coffee, melatonin, vigorous exercise and, of course, sunglasses. Actually, staying in the dark does really help the unpleasant sensation of a hangover and reduces the recovery time. Whether it helps to synchronize our body clock is a moot point. The light always seems much too bright the following day.

The hair of the dog



Another theory — the repeatedly drunk often have many theories — is that a hangover is really a kind of drug withdrawal. After all, the unpleasant symptoms only start after the alcohol leaves our system. And you can't really be drunk and hungover at the same time, can you?

Taking this impeccable logic to its obvious conclusion, as with any other withdrawal we must take the thing we are missing, which in the case of a bad hangover means having another drink. This is the rough rationale for starting the morning with what is known as a 'counter-beer' in Germany (as in counter-act), a 'repair beer' in Scandinavia, or a *richiamino* in Italy. In the English-speaking world it is known as taking the 'hair of the dog'.

This striking phrase originates from the idea that the hair of the dog (that bit you) could help heal the wound it had just inflicted. And it is perfectly true that if you are going into alcohol withdrawal, taking the hair of the dog temporarily gets rid of the symptoms. However, alcohol withdrawal and a hangover are definitely not the same beast. Anyone can get a hangover after a single bout of drinking, whereas alcohol withdrawal only happens with chronic alcoholics. Of course, alcoholics can and often do have a hangover too, making the hair of the dog a notable cure-all.

Another hangover theory says that it's something else in the drink other than alcohol that really causes the problem. Some Russians swear that they never get a hangover drinking vodka, while others claim that only red wine is the problem (and not their drinking habit).

Other than pure water, every drink we have is a complex mix of chemicals that contribute to its unique flavour, aroma and appearance. These so-called congeners may also partly determine how the drinks

affect our health, and how easily they cause a hangover. For example, some patrons protest that ‘pure’ drinks like gin and vodka (because they have no colour) are less likely to cause a hangover than more complex colourful brews like wine or whiskey, that have visibly more congeners. Another theory is that some drinks (like brandy, bourbon and whiskey) actually contain small amounts of methanol! Yes, that’s right, methanol, the dangerous moonshine chemical that makes us sick and sends us blind.

The problem with the congener theories is that even 100 per cent pure alcohol mixed with 100 per cent pure water can cause a hangover. So even if the congeners or methanol played a small role, the problem is mostly drinking too much alcohol in the first place. Go figure!

The magic of moderation

Temperance is more than a virtue. Many studies have documented that those unique individuals who regularly consume a small amount of alcohol every day (one or two drinks for a man, and half this for a woman) have significantly better health. And not just because they have fewer hangovers. Regular moderate drinkers have a lower risk of all sorts of major diseases, including heart attacks, stroke, diabetes and some cancers. In fact, regular but moderate tipplers even seem to have, on average, a longer lifespan when compared to those who don’t drink at all or drink only occasionally.

This almost certainly has nothing to do with the booze. But rather, it is all about the kind of people who can pull this kind of (moderate) drinking off. Getting drunk is very easy. On the other hand, drinking small amounts every day without ever falling off the wagon or going for days without a drink is an art. It takes real self-control, sobriety, discipline and self-awareness. It’s hardly surprising that these are exactly the kind of people who have better health and also live longer.

Moderate drinkers are also pretty funny. As Garrison Keillor says, ‘There is nothing funnier than a man beginning his second drink.’ Maybe it is also the laughter and sociability that is the remedial ingredient for moderate drinkers, and keeps them healthy and long-lived.

A glass before or during the largest meal of the day is often said to be the most beneficial for our health. Possibly because this is precisely what moderate drinkers usually do, this observation may have simply come about because it captures their healthier, angelic parameters. Or it could be the other way round — that moderate drinkers seem to have health benefits simply because they drink at meal times.

Drinking at meal times is certainly less intoxicating, and is easier to regulate and habituate. A little alcohol also helps to slow the emptying of our stomach, which helps to promote a sense of fullness and reduces overeating. The right drink can also add significantly to the experience, flavour and social-bonding aspects of a meal. The sheer pleasure of drinking a nice drop also offsets the hedonistic desires to find pleasure in our food by over-eating.

Another cogent theory surrounding the health effects of regular moderate drinking is that any beneficial effects of alcohol on health are real but only short-lived. Much like any drugs prescribed by a doctor, we might need to take them at the same time every day for us to see any benefit. As the former US Surgeon General once quipped, ‘Drugs don’t work in people who don’t take them.’ The same might be true for alcohol. But obviously if we take too many prescription pills or too much alcohol, we open ourselves up to toxicity.

It has long been thought that red wine is the only regular tippie that provides any benefits to human health. This myth is widely promulgated by wine-loving physicians and their vintner colleagues but has little basis in fact. Actually, the overall health outcomes in moderate wine drinkers are much the same as those in moderate beer drinkers or those who have a glass of scotch or gin every night. Equally moderate, equally healthy.

Of course, the lifestyle factors that permit a regular-but-limited intake, or drinking alcohol with meals, may be more common with wine drinkers. So there may be more moderate wine drinkers than moderate whiskey drinkers, for example. This is one obvious reason that wine gets all the kudos for good health. However, in the end it is the people and their behaviour (not the beverage) that allows for moderation.

Wine is not without its problems. The half-empty bottle of wine is so very tempting. So even if wine was good for us in moderation, it may still be bad for us because we are immoderate with it. At least with a beer we can safely finish the bottle.

It's the antioxidants!



The health benefits of red wine are often attributed to its non-alcoholic components, and especially the antioxidant qualities of its **polyphenols**, including caffeic acid, gallic acid and resveratrol. Each of these chemicals has been shown to have potent effects in experiments, but their medicinal qualities remain controversial, especially in the doses delivered to moderate wine drinkers. Besides, if these antioxidants were so good then drinking much more would be even better for us. And it isn't.

Some physicians reluctantly admit that beer also contains its own unique antioxidants (e.g. isohumulones from hops). Some of these antioxidants may be better absorbed into our body than those found in wine. There are also more B-vitamins in beer.

Desperate to validate their predilections, scientists have performed head-to-head trials, showing that red wine's antioxidants slightly outperform those found in beer for some parameters linked to health outcomes. The difference is small, and at the end of the day, the antioxidants we'd get in our regular use of either are highly comparable. Regrettably, in these doses they are also both totally unimportant for our health.

The dark side of drinking

Before we start thinking that a glass of our favourite beverage might be just what we need right now for our health (cheers), it is literally sobering to remember that binge drinking and excessive chronic intake of alcohol are leading causes of preventable death, particularly in young adults and men, but also, increasingly, in women. Its individual and social costs are even more significant.

In the end, moderation is mostly magical because heavy drinking is so fundamentally bad for our health. Heavy intemperate drinkers have more heart disease, high blood pressure, dementia and some cancers (especially of the breast and the colon). It is little wonder that the one-drink-a-day angels seem like health nuts by comparison.

Even episodic excessive alcohol intake (also known as **binge drinking**, amounting to more than four drinks within a few hours, often with intent of becoming intoxicated) is associated with an increased risk of an early death. Why this should happen is impossible to tease out from the reasons that someone might want to become

intoxicated in the first place (e.g. their mood, their stress, their lifestyle, their self-control, etc.). All of these are important determinants of bad health. Mix in some alcohol and you have a dangerous cocktail.

The bottom line

Alcohol is a regular part of many lives. About two-thirds of all adults drink alcohol at least occasionally, two-thirds of whom will have at least one drink every week, mostly on the weekends. Only about 10 per cent of adults will drink every day. These proportions are much the same in men and women, although women will generally drink half as much, and half as often as men, on average.

In essence, alcohol is a test of self-control and self-awareness. For those who pass the test, alcohol can be one of life's shared pleasures, a source of domestic bliss. It's not something we want to or need to give up. It won't make us physically healthier, but that doesn't matter. It can help us to feel happy, relaxed and sociable. And that at least *feels* like good health.

But it is a very delicate balance. A little glass can easily become more, especially if the bottle is already open. Sometimes, it's far healthier for us not to drink at all and to give up the booze than go down this slippery slope.