

Alcohol Harm Reduction Supplementation Guide

Alcohol is one of the most common mind-altering compounds on the planet - and one of the most insidiously damaging psychoactive substances to have in your system on a regular basis. Having some tools to minimize the damage done can help you and your friends when you choose to partake.

This guide was created to introduce you to a variety of evidence-based dietary supplements, which, when taken in the right combinations at the right times, can reduce your hangover through the power of SCIENCE!

We're going to start with all the geeky rationale for our supplement recommendations, but if you want to skip straight to the shopping list where we tell you what to take and when, head to the end of the document.

Alcohol Hangovers: Why Do We Have Them?

Few things are as ubiquitous across cultures as the notoriety of hangovers (fancy clinical word: *veisalgia*.) Yet, they are still poorly understood, with research still in its infancy to unpack what's happening when you're drinking that results in people feeling so utterly miserable the next day.

A lot of commercial hangover "cures" rely on unproven claims and have even been [cited by the FDA](#) for marketing themselves as such without approval.

If anything, studies indicate that there is no *one* cause of the many symptoms of alcohol hangovers, but rather *many*. This makes creating a harm reduction approach - other than simply moderating your intake in the first place - a tricky prospect.

Fortunately, scientists have been busy, and there is *some* preliminary research that provides some hints. Here's the list, and we'll dig into each - plus some solutions - in a bit:

- Acute withdrawal state
- Acetaldehyde toxicity
- Sleep disturbance

- Dehydration
- Electrolyte imbalance
- Congener effects

That's a lot of ways that alcohol fucks you! Let's look at how to unfuck yourself.

Hangovers *typically* start 6-8 hours after you've stopped drinking, once your blood alcohol level (BAC) approaches 0. Hangover symptoms can linger for a day, or more if you're unlucky, after the party is over. Part of this is that you'll be experiencing **acute withdrawal** if you've been making a habit of significant alcohol use recently.

Alcohol is a potent diuretic - meaning that it **dehydrates** you, on top of whatever other fun poisons you might be consuming that your body needs extra water in order to process. Drinking water along with the alcoholic concoctions is therefore of critical importance. This also means you need to be taking a corresponding amount of **electrolytes** to keep your body in balance. Alcohol also disrupts your **REM cycles**, and *no one* does great after not-so-great sleep.

Even if you're hydrating with electrolytes regularly and leave the party early enough to get a full night's sleep, alcohol can still make you feel like trash. That's because there are other compounds in alcohol that create effects beyond just dehydration and electrolyte imbalance.

One significant contributor is that alcohol metabolizes into **acetaldehyde**, an inflammatory agent that causes tissue damage. Acetaldehyde also prevents your body from absorbing the minerals it needs to keep your brain at peak efficiency. Worse - it's *also* a potent carcinogen (ie, cancer-causing), and not great for your long-term health either.

When you start drinking, your brain also produces several other types of compounds that not-so-helpfully add to your hangover, including **cytokines**, histamines, and prostaglandins.

Many alcoholic drinks include flavoring agents called **congeners**, which make hangovers worse. This includes methanol, which metabolizes into - yikes! - formaldehyde. Not something you want in your body.

Tips & Tricks For Less Harmful Drinking

Alcohol hangovers appear to be correlated to the peak BAC (blood alcohol concentration). That is to say: if you drink a lot, all at once, you're going to feel worse than if the same amount of alcohol is spread out over the course of the night. Whatever you can do to lower that peak BAC is helpful - including drinking (electrolyte-infused) water, and eating foods (the fatter the better) between drinks to slow the absorption of the alcohol. You're probably also a lot less likely to make dumb, potentially dangerous decisions.

While no alcohol manufacturer is about to start publishing the exact amount of **congeners** in their products - the recipe to make your favorite boozahol is often a closely guarded trade secret - as a good rule of thumb, clearer beverages tend to have fewer congeners, and therefore, less likely to cause hangovers. Vodka and gin are noted as being among the least offensive, and watch out for richly colored confections containing red wine, whiskey, or cognac.

There are lots of home remedies for hangovers out there - some of which don't hold up when compared to available scientific research. For example, people sometimes suggest caffeine as a way to reduce any impairments you might experience from the alcohol. Scientists have spent a lot of time fact checking this myth, and it turns out, it's just that. Folks tend to fool themselves into thinking the caffeine justifies *more* alcohol consumption, making the hangover *worse* the next day. Other than making you less sleepy in the moment, it doesn't make you perform any better on the battery of cognitive tests scientists love to run on their drunk college student study samples: don't think it's any safer to drive after you've been drinking just because you had a red bull with your vodka and you *think* you're more sober than you actually are. And that alertness you're chasing with the coffee-infused cocktail? Might mean you sleep less well - worsening that hangover.

Supplementation

So now we know some things about why the day after some indulgence sucks. Is there some way we can enjoy our boozy cake... and not regret eating it afterwards?

Here's some supplements which show some promise - based on actual (albeit nascent) scientific evidence, and not some clever marketing campaign by an enterprising capitalist trying to take advantage of your bleary, hungover ass.

Pre-Game Your Pre-Game

If you're looking to minimize how impaired you'll be by an anticipated large amount of alcohol, certain probiotics, most notably ***Lactobacillus gasseri***, helps speed up alcohol metabolism and therefore minimizes how long it'll be in your system causing you trouble.

Remember what we said earlier about alcohol impairing mineral absorption? If you make a point of taking an extra big dose of those minerals the day before and after, you might be able to mitigate some of that damage. Selenium, Magnesium, Niacin and Zinc have been particularly highlighted as ones that are helpful beforehand, to reduce the likelihood of your brain not having everything it needs. Here's the rundown:

- ❖ **Selenium** reduces oxidative stress & inflammatory response. Many folks who aren't eating brazil nuts on the regular already are running a deficiency. Making sure you've got either a good dietary source of selenium - or a pill - will go a long way.
- ❖ **Magnesium & Zinc** are both antioxidants that also reduce activity in the glutamatergic system, and therefore reduce likelihood of developing a dependence or experiencing withdrawal effects. Zinc in particular helps reduce alcohol-induced damage to your intestinal tract.
- ❖ **Niacin (vitamins B1 & B6)** helps you metabolize alcohol more efficiently - meaning, all these inflammatory effects have less of a time to linger in your system.
- ❖ **Vitamin E** is a potent antioxidant that scavenges free radicals created in the metabolism of alcohol to protect your liver against inflammation - and cancer.

There are several traditional plant medicines that have also been shown in clinical research to be helpful - though the quantities needed are substantial due to low metabolic efficiency. **Chinese raisin** (*Hovenia dulcis*) has been shown to speed up the metabolism of acetaldehyde and reduce overall liver damage and cell death - most potently when taken in advance of a round of drinks. **Prickly pear** (*Opuntia ficus-indica*), as well as **turmeric** (curcumin + piperin), are potent anti-inflammatory *and* antioxidant agents that are also shown to be protective of the liver specifically with regards to alcohol-induced damage.

Another vitamin to add to your stack? **L-cysteine** - a precursor to glutathione, necessary to efficiently metabolize the acetaldehyde and get that toxic waste out of the way. Taking it

throughout your alcohol adventure will give your body what it needs to take out the trash as you down more. While **alpha lipoic acid (ALA)** hasn't been clinically studied *specifically* with regards to alcohol hangover prevention, we *do* know that it also helps your body produce this essential glutathione.

Your Biology May Vary

There are many factors that impact how you metabolize alcohol that you have absolutely no control over, such as your chromosomes and certain genes. Genetics is still a relatively fresh field of study when it comes to how it impacts the metabolism of different psychoactive substances, but we've got some ideas from the research so far.

As an example, we know folks with the variants in their genes for the production of the enzymes that metabolize acetaldehyde - overwhelmingly folks from East Asian communities - generally experience worse hangovers than the rest of us. This is because acetaldehyde lingers in their system longer than those without these gene variation, causing even more damage. These folks therefore particularly benefit from the use of ADH & ALDH-stimulating components of our stack, and might want to add **korean pear juice**.

Beyond genetics, your diet, body mass index (BMI), and age all play a role in how you metabolize alcohol. How much you drink may also set up your body to have an adaptive response to alcohol use vis-a-vis tolerance and other biological mechanisms. This means you suffer your very own unique hangover that is a representation of your unique biological variables.

Contraindications

If you've been following our content, you know contradictions are a Big, Important Thing to be thinking about. Many folks choose to combine alcohol with other substances, but More is not always Better, and there's few things less fun than a bad drug combination - and with alcohol, it can even be fatal.

Alcohol is a **central nervous system depressant**. That means it depresses, or lowers, your respiration and heart rate. Combining alcohol with other drugs that do the same can reduce them too much, and - too frequently - results in death as these systems shut down entirely.

Most psychedelics are stimulants, but you still want to be careful when combining alcohol with dissociative psychedelics like **ketamine**, with which the loss of situational awareness can result in everyday objects becoming significant hazards. Suffocating on your blanket because you're too blitzed to know you can't breathe? Not a good look.

There are also adjacent psychoactive substances, like **GHB**, which can combine with alcohol to disastrous effect due to the way they can both contribute to depressing your central nervous system - as well as impacting your inhibition and memory of what you do while your memory is inhibited. What's worse than a bad decision you made while too intoxicated? A bad decision you can't even remember making, leaving you ill equipped to deal with the consequences of.

Opiates? *Definitely* a bad idea to combine with alcohol, as this can result in a fatal overdose. Your best protection here will be to check what class of compound anything else you're planning on taking is, and if it's a depressant, it's safer to steer clear.

The Day After

Ooph. Maybe you weren't able to take the stack the day before, or maybe you just had a *lot* to drink. Either way, you're hungover, and you want to do something about it.

Your body is probably dehydrated, and needs electrolytes. Let's start there.

Ginger and **turmeric** not only helps reduce the day-after nausea, but its antioxidant properties can help clear your brain of any trash left in the wake of the alcohol metabolism, and can start the process of repairing any liver damage (the fancy word for that being *hepatoprotective*.)

Ginseng - specifically, *Panax ginseng* - is also shown to reduce damage to your organs from all that alcohol use, including your long-suffering liver.

These three can be combined into a delicious hydrating tea, or a comforting bowl of curry. Day-after thai food? Yes please.

Give yourself another dose of all those vitamins and minerals we mentioned earlier, too. You just dealt a big blow to your body's ability to absorb nutrients effectively, so you'll need to take more to get what you need to get through this with a minimum of pain and suffering.

Turns out, there's real science behind drinking **coffee** the day after a night of drinking - not just because the stimulant properties can help clear some of that brain fog, but **caffeic acid** also demonstrates some of those same liver-protecting powers through its antioxidant effect. (As always, though: use in moderation, like you should have the night before.)

The Shopping List

Without further ado, here are our recommendations for when and how much of all these supplements to take to help minimize hangovers:

PRE-STACK

Reducing alcohol in your system

Lactobacillus gasseri

Anti-oxidants and enzyme enhancers

Alpha lipoic acid - 250mg

Chinese raisin (*Hovenia dulcis*) - 300mg

Prickly pear extract - 1500mg

L-cysteine - 600mg

Replacing vitamins & minerals

Most of these you can find in a standard multivitamin, but read the back of the bottle just to make sure.

Selenium - 50 micrograms

Magnesium - 1000mg

Zinc - 50mg (remove if you are sensitive to zinc, or take with a light meal!)

Vitamins B1 & B6 - 200mg

Vitamin E - 500mg

Anti-Inflammation

Ginger - 1200mg

Turmeric (curcumin + piperin) - 1800mg

Ginseng - 4800mg

That's a lot of pills! As an alternative, you can either decant the powder of the pills into a liquid and drink up - questionable but efficient - or you can grab some ginger, turmeric, and prickly pear from your local grocery store and juice them for a freshly squeezed power-packed pre-shot.

POST STACK

Once more with feeling!

Replacing vitamins & minerals

Most of these you can find in a standard multivitamin, but read the back of the bottle just to make sure.

Selenium - 50 micrograms

Magnesium - 1000mg

Zinc - 50mg (remove if you are sensitive to zinc, or take with a light meal!)

Vitamins B1 & B6 - 200mg

Vitamin E - 500mg

Anti-Inflammation Post Stack

Ginger - 1200mg

Turmeric (curcumin + piperin) - 1800mg

Ginseng - 4800mg