A Harm Reductionist's Guide to GHB

Few psychoactive substances are as misunderstood at GHB - and with good reason. It's been used, abused, and spectacularly misused in ways that have gotten it a lot of bad press over the years, despite some potent legit medical uses. In this guide, we're hoping to demystify G for you, our fellow psychonauts, and provide some tips on how to keep you and your community safer if folks are choosing to use G.

Big thank you to Bay Area harm reductionists Andrew W and Ethan C, who provided some of the initial skeleton for the doc before you today. For more references on creating this document, check out our full bibliography on our GHB portal page.

A High Level Overview On How It Gets You High

GHB is a sedative - a nervous system depressant - with euphoric effects. It's variously also known as γ-hydroxybutyrate, or 4-hydroxybutyrate, depending on which academic you ask. In addition to having its very own special snowflake receptor sites, GHB is unique in that it is both a precursor *and* metabolite of GABA, the same neurotransmitter responsible for the fun part in a lot of other recreational compounds like alcohol. It's also in the same broad class of GABA-tastic compounds such as benzodiazepines, which are commonly prescribed for anxiety in clinical settings. Less anxiety makes for better parties, so it's not surprising to see such a popular party favor come out of this class of drugs.

GHB also has some bonus secondary effects on your oxytocin, serotonin, *and* dopamine systems that add to the good time. In fact, seasoned psychonauts sometimes describe this sensation as halfway between drinking and rolling - MDMA also being a substance that hits all of the above systems.

GHB is prescribed for narcolepsy most commonly under the trade name Xyrem, and to treat alcohol withdrawal symptoms under the trade name Alcover. It's almost universally taken orally, absorbing very rapidly with initial onset in 5-15 minutes, peak effects approximately 20-40 minutes after dosage, and a half life of about 30-50 minutes. For most folks, it's completely out of your system within 8 hours.

G is most commonly sold as a sodium salt sludge solution (sodium oxybate), but sometimes as a potassium salt sludge solution (potassium oxybate) - meaning the same drug can come in two very different flavors, depending on the manufacturing process used to create it.

When Solutions Become Problems

GHB is notorious for getting people into trouble. Here's the hot spots::

- Batches have different strengths, and dealers rarely know how much G is actually dissolved into the vial they're handing you. (Little of what you see in black markets is rerouted from medical prescriptions.)
- The difference between "too much" and "just right" is notoriously difficult to figure out, and varies from batch to batch. Seriously. How many mg are actually dissolved into your batch - who knows? Your dealer probably doesn't.
- G is only very briefly active - an hour - meaning you have to be impeccable with your timing on dosing and redosing.
- G is a central nervous system depressant. This means that overdosing can happen, and you can die. Specifically, if you take too much, you either go into a deep slumber, get nauseated, or both - and without monitoring, can suffocate on your own vomit while you're out of it. Not a good way to go.
- However, before G brings you down, it brings you up - its stimulating dopamine action mean that some people jump to redose prematurely, assuming they didn't take enough the first time.
- It's easy to get so high you can no longer provide meaningful consent. That, plus its disinhibitory effects, lend to its reputation as a "date rape drug", often enough that it's got its own jargon in the forensic literature as "drug-facilitated sexual assault" or DFSA.
- Remember what we said about how G uses that GABA system, like alcohol? This makes it an extremely triple plus bad idea to drink (or use benzos) while on G - it can lead to not only memory loss and lowering your overdose threshold, but the combined disinhibitory effects can lead to some questionable decision-making that can land you in unsafe situations sober you didn't consent to.
- Most preparations taste gross, like robot cum. Not the future we were hoping for.
- Regular use leads to tolerance - just like alcohol - and deeply unpleasant and potentially medically complicated withdrawal symptoms.

For all these reasons, your local nightlife ecosystem tends to hate it when this drug is around: in the EU, it's the fourth most common drug seen in emergency room visits. Paramedics and venue owners alike despise the drug that often leads to people being passed out & unresponsive without much warning, and leads to some very sketchy situations around sexual consent.

...so why do people take it?

Despite the giant list of cons, people *do* take it for a reason:

- It is relatively easy on your body compared to alcohol and many other recreational drugs - fewer toxic metabolites lead to a less shitty day after, and few(er) long term health consequences.
- Folks speculate that it builds muscle mass! Some folks still use it for bodybuilding, though your success may vary; the clinical evidence certainly does.
- 0 calories! Unlike those overpriced cocktails you might be considering instead, you won't be shocking your glycemic levels with a sugar rush.

- You wake up feeling well rested (and sometimes *better*) than if you were sober the night before. G is an FDA-approved fix for sleep problems for good reason.
- Once you've got the dosing down, it can be combined safely with a wide variety of psychedelics.
- The disinhibitory effect, when activated with people you've had thorough consent conversations with, can make for some *very* sexy times indeed.
- Short detection window for drug urine & blood testing purposes means folks with prohibition-minded employers can still have fun.

All this being considered: it's unlikely GHB is going to be leaving the party scene anytime soon, so without further ado, here's some harm reduction tips on keeping you & your community members safer if you're choosing to use G. For folks familiar with our content, this below will be an application of our Safer Psychonaut Dosing Protocol with the special considerations for G.

Setting the Stage: Social Considerations

Before a G experience, it's important to think about what it is you're hoping to get out of the experience. For example, some folks take it as a way to chill out before bedtime as an alternative to alcohol… and others as a hedonistic additive for their friendly neighborhood orgy. Knowing what it is you want in advance can help you establish clear boundaries for what you want, and don't want, to do while on G, and give you the opportunity to clearly articulate those boundaries to those you'll be sharing the experience with. GHB's disinhibitory effects are legendary, and it can be easy to make decisions on G that sober-you will find yourself regretting.

Likewise: hearing the boundaries and expectations of those also partaking in G, in advance and while sober, will help you help them honor their own intentions for the experience, and ensure that you are able to grok those boundaries fully.

Make sure you have a clearly, explicitly laid out consent framework for whatever the two of you are thinking you might want to get out to in advance and made while all parties are still sober. *Always* let a friend, ideally a sober friend, know that you are doing G.

And finally: remember that consent can be revoked at any time, no matter what was negotiated in advance.

Your Biology May Vary

So you've decided you want to take G. When trying to evaluate your dosage, remember: your biology may vary. As with other GABA-ergic substances, like alcohol, it seems that your metabolism, and body weight seem to make a difference in how much you need.

Whether you've got XX or XY chromosomes makes little difference in how GHB metabolizes: clinical studies show, *after* weight and other biological factors are controlled for, it's largely metabolized at about the same rate.

Also, tolerance to alcohol affects one's tolerance to G, as they act on some of the same systems in the brain. If you drink a lot, you *might* need a higher dose of G to feel the effects - but test this with care. Folks with a family history of alcoholism might also want to take pause, as a genetic predisposition for alcohol use disorders has been correlated with a higher likelihood of GHB abuse down the road.

Taking G immediately after eating, as with most drugs, will mean that it metabolizes much more slowly and not as efficiently. You're also more likely to run into issues with losing your recently enjoyed fancy dinner, and experiencing it twice. Instead, consider fasting first: you'll get best results if you take G at least 2 hours after you last ate.

Folks with underlying respiratory issues, such as emphysema, or cardiac issues, like brachycardia (low heart rate) might want to give this drug a pass, as these lower your overdose threshold.

GHB can also lower your seizure threshold, which can make for a particularly not great time for folks with epilepsy.

And finally, GHB makes you more prone to hypothermia: if taking it outside, or if you have a history of difficulty of body temperature regulation, maybe bundle up.

Drug Interactions and Contraindications with GHB

We'll say it again for the people who think they can get away with just skimming: **DON'T MIX GHB WITH ALCOHOL**. Seriously.

If you've already had a couple drinks, give yourself <u>at least</u> several hours for the alcohol to fully metabolize before dosing with G. Better yet, you're safer just waiting to play another night when you can fully dedicate yourself to the G experience. The overwhelming majority of fatal GHB overdoses involve mixing with alcohol, and often with folks who considered themselves experienced users who got cocky about their cocktails.

For that matter, be extremely careful mixing GHB with *any* other central nervous system depressants - think Xanax or other benzos, opiates, etc. Unless, of course, you feel like risking blacking out, puking all over yourself and your friends (who may not be smart enough to put you in the recovery position so you don't aspirate on your own vomit and die.) If you or someone you're around is absolutely set on having G that evening and has already sampled some of these other substances, at least look try to wait until they've cleared the system before adding another compound.

Dissociatives like ketamine and PCP analogues have specific interaction effects with GHB which may result in more derealization than you were in for - they're all NMDA receptor antagonists - and some folks may experience some surprise nausea. Some people can combine dissociatives with G and it's fine, while others can't, so mix with care and enjoy the cosmic voyage if your body doesn't decide to get seasick along the way. If you've never tried to mix G and dissociatives before, combining smaller doses to start (like a threshold dose of G and a tiny bump of K) will leave you less fucked if it turns out your body doesn't like it.

G mixes relatively safely with most (mildly stimulant) psychedelics. Some folks use it to take the edge off of some of the social anxiety, existential horror, etc. encountered on their cosmic voyage. If this is being used for this purpose, it is strongly recommended taking it after fully coming up and on the back half of a trip. And definitely don't make this your first time using either G or the psychedelic in question: best practice is to get a feel for how your body responds to each drug independently before you think of combining them later on.

If one does a lot of a potent stimulant, like cocaine, the upper can mask the effects of taking too much G and then when you come down from the upper… all of the downer effects of too much G will hit at once. Not to mention the whiplash can be hard on people even with healthy hearts: heart arrhythmias are acutely uncomfortable and can lead to fatal complications. Hospitalizations are even more likely when there's an underlying heart condition that you're gambling with. Ampy cathinones like mephedrone are also being increasingly linked to fatal overdoses in the party scene when combined with G, too. If you're looking to combine these heavy hitters, make sure to stick to relatively low doses.

Folks who are taking anything in the tricyclic antidepressant class - like Anafranil (clomipramine), Asendin (amoxapine), or Elavil (amitriptyline) - may also want to beware, as there have been some reports in the clinical literature of the sodium channel blocking effects leading to complications.

Taking retrovirals? GHB is probably a bad idea for you too: ritonavir and saquinavir inhibit the cytochrome p450 system (gesundheit!) and potentiate GHB to a potentially dangerous amount. You know what else is included in this category? Paxlovid. If you're recovering from COVID and have been prescribed paxlovid, give it a wide berth and let your body recover more (and the paxlovid is completely out of your system) before you go get your party on again.

Analogues for GHB

It's notoriously difficult to know whether your G is actually G without actually sending it to a lab. There aren't any available reagent test kits to tell different common adulterants and analogues apart. This means you're largely relying on your sense of taste to know what it is you're taking, and you might not have had the opportunities to develop the refined palette necessary to tell the difference between robot cum (GHB) to Megatron cum (GBL) to a delicate whiff of silicon lube (1,4B-D).

Because of the controlled nature of GHB, people come up with some creative ways to try to get the G experience to bypass the prohibitive regulatory environment. Most commonly people will instead take GBL (γ-butyrolactone) or 1,4-BD (1,4-butanediol, AKA BD or BL), both precursors to GHB.

There isn't as much medical information out there on these precursors compared to GHB: neither have prescription medication uses, and therefore aren't as widely studied. It is generally established, however, that while both metabolize extremely quickly into GHB in your system, they have a more significant side effect profile; more complex (and dangerous) contraindications with other GABA-tastic substances like alcohol; and *still* have all the same issues associated with GHB itself.

The reason GBL is widely available, and often used in lieu of GHB itself, is because of its common usage as an industrial solvent and chrome cleaner. Read that again: you're putting an industrial solvent in your system. Not good for those teeth you probably spend too much money maintaining at the dentist, nor for all the much-abused mucous membranes it'll come into contact with either. Like GHB, it mixes easily with water, so it can be hard to tell apart except by the truly awful flavor.

1,4-BD, on the other hand, is oily, won't mix with whatever water you're trying to cut it with, and will stick to the sides of whatever container has the misfortune of holding it.

There's plenty of interpersonal variation due to genetics, too. 1,4-BD transforms into GHB using alcohol & aldehyde dehydrogenase enzymes, or ADH. If you've heard of "Asian glow", this is caused by a genetic variant in which folks have less of this enzyme available to efficiently metabolize alcohol. For purposes of 1,4-BD, this means that 1,4-BD will metabolize more slowly - and make it easier to overdose if you're assuming your redose window is the same as everyone else around you. Another one: gene variants on how your lactonase enzymes express can speed up or slow down the GBL or 1,4-BD metabolism process compared to those around you, too.

Some dealers sell GHB that is mixed with GBL knowingly or unknowingly, because they aren't getting their drugs lab tested, and the chemist might have gotten lazy in their synthesis. This is another factor that leads to the variability in dosing between individual batches of black market GHB, and why you need to be careful when trying a new batch. Some dealers may also flat out sell you 1,4-BD as GHB instead of genuine GHB.

DOSING GHB

The dose makes the poison, and this applies to G more than most drugs we talk about - and not just because of all those other analogues we just mentioned. Start low, go slow. You've got all night. Don't fuck it up by rushing in to your good time.

People build tolerance to G quickly. For people who are relatively new to G, they should not be provided doses that are the equivalent to those who have tolerances that have built up over time; a fun time for an experienced user (4-5g) could be a fatal time for another.

Time dilation is common on G, and it can be hard to keep track of when you last dosed while you're under the influence, let alone articulate those times to those around you. Write down your dosage amount and times on a piece of paper. Your friends, and any medics that might need to be called, will thank you for it. One helpful hint: when you dose, try setting a stopwatch so that you can always know how long it's been since your last dose.

Don't dose someone without asking all the relevant information that you should be asking yourself. Dosing someone places what happens to them squarely as your responsibility, including from a legal perspective. Don't forget to check for contraindications, for their intentions, and running them through all the same risks that you are aware of.

Always use oral syringes to precisely measure out your G; the 5ml size is common. There are also these bottles which pump exactly .5 ml, so you know how much you're putting in.

Shake your GHB stash before transferring it into new bottles or using it after a break. G's salty goodness can concentrate at the bottom and make the top weaker, bottom stronger.

Everyone's threshold is different, and an effective dose for each person is different. Therefore, start with a low dose. Because it's liquid (and largely unregulated—thanks, prohibition), you also don't know how strong it is until you get familiar with a batch.

For batches most commonly seen on the US West Coast (the primary reference point for yours truly), we *typically* see 1.5-2 mL (around the .5-1g range) is an average starting dose to feel effects, and somewhere between 2 and 4 mL is the sweet spot for most people. However, potency can vary - particularly between drug markets - and you're always safer doing smaller testing batches at .5mL or less to establish threshold first. We recommend doing this testing on an empty stomach, in a quiet, safe environment with a sober monitor, well before you bring out the vial to play in a party setting.

A too-high dose has the near universal effect of making you pass out into a coma-like sleep for a few hours, which will scare the shit out of your friends and all medical personnel they call to help. (GHB was used as a surgical anesthetic for a hot minute for this tendency to render people utterly unwakeable, for better and often for worse.) Fucking this up has major consequences for you & yours. Remember: you can always do more G, but you can't do less.

Keep your G contained: immediately drink whatever G you dosed out - don't leave it around to be accidentally consumed by another - and put it away when not in active use. Never put G in an unmarked drinking vessel or water bottle that someone might mistake for a think they should gulp - again, one person's regular dose can quite literally kill another. You should also add a brightly colored food dye to decrease the chance of accidental ingestion, and label the container

some variant of, “DANGER DRINK”. If storing it in another container, choose something that someone doesn’t ingest, like hand sanitizer, lube, nail polish remover, etc., instead of something like good ol’ Gatorade.

Again?! Redosing

Re-dosing can be even trickier than figuring out your initial dose. Don’t re-dose before at least 60 minutes have passed - preferably 90-120 minutes - after you’ve started coming down from your original dose.

A good rule of thumb is that the re-dose should be no more than ⅔ your initial dose to maintain the same level of high, as you will still have quite a bit of the original dose in your system.

An *okay* rule of thumb is to not re-dose while you still feel at all high, but even if you don’t, be careful as you don’t know how much is still active in your system. Knowing your own ideal re-dose timing is another highly individual thing that you have to figure out slowly and very carefully.

Remember: GHB will feel like a stimulant during the initial rush - it acts on the dopamine receptors before it makes its way around to messing with GABA. Wait for that to pass, and for the relaxing effects to full wash over you, before contemplating adding more to the cocktail. Just because you’ve got a bounce to your step (and you’re not yet sprawled out on the nearest soft thing) doesn’t mean the drug isn’t working.

Trust your friends who are responsible and knowledgeable, but beware anyone who’s dosing you or another beginner for the first time without asking some of these critical questions, including how much you actually want and whether they already have a tolerance to GHB which informs how they’re thinking about dosing you. They are not party professionals, and this is worth being professional about.

When Shit Goes Sideways

Most issues with high doses of G are due to basic clumsiness: G makes you uncoordinated and dizzy, and more likely to fall down stairs and other easy ways to hurt yourself around the house. If there are people having trouble navigating their physical environment while navigating the cosmos, your best bet is to encourage them to stay seated or lying down, and remove anything sharp or edged they might hurt themselves on until they’ve sobered up enough not to literally fall on a knife.

If someone does pass out and they *haven’t* been taking any other nervous system depressants, they are *probably* pretty safe and will wake up on their own within a couple hours. (As a reminder: GHB is often prescribed as a sleep aid.) **However, you must place them in the**

recovery position and monitor them to ensure that if they *do* vomit, they don't choke and die on it. This really does happen, and no one wants to win that particular Darwin Award.

Surprise naps aside, things can get more serious when they pass out and other nervous system depressants are involved. If you don't know all of what someone may have taken before they passed out, or if you know that other sedatives like alcohol, opiates, or benzos were involved, it is safer to bring them to the hospital and take advantage of Good Samaritan Laws, which protect you from prosecution for drug possession if you're in the act of seeking medical attention. Hospitals can intubate people if they need extra help breathing while the G clears their system, you can't. Better to be overly cautious than utterly fucked.

There hasn't been a lot of success in identifying ways to reverse G overdoses. There have been some studies showing *limited* efficacy of Narcan/naloxone (scientists are still trying to understand why it works at all), but this is not in common usage nor would it be a sufficient intervention on its own. Your best bet is to make sure your friend is still breathing, and their heart is still beating, until this rapid-in, rapid-out drug has cleared their system.

GHB in the Long Term

Don't use GHB every day, unless you're prescribed it and have guidance from your doctor on how to do so safely. Like almost any drug, GHB can be psychologically habit-forming if used too often, and (unlike many drugs favored by psychonauts) can create physical addiction if used multiple times a day.

If you catch yourself (or a friend) needing a higher dose and more often to feel the same effects - or the motivation for taking G switches from for occasional funsies to soothing a consistent craving for it - you may want to have a serious check in around whether this is the slope you feel like slip-n-sliding down. A good benchmark: If you think you could quit tomorrow, try doing just that for a few weeks. If it's harder than you thought it would be, there's some questions you'll want to be asking yourself.

Even though the effects of G are brief, withdrawal symptoms can last for weeks and are every bit as gnarly as alcohol or benzo withdrawal. Severe cases of G addiction and subsequent withdrawal can mean delirium, seizures, and even death.

If you or a friend are taking large quantities daily and want to stop, your best bet is to get some medical guidance on how to taper down off of it slowly and safely, specifically with the help of a specialized psychiatrist who can assist with medication support to manage withdrawal symptoms. The clinical science of how to best support someone trying to get off this sauce is evolving rapidly: make sure you're consulting an expert on how to do this, not just WikiHow.

Those GHB "comas" are no joke either. While you might *feel* like you recover quickly after any individual blackout, clinical studies have linked repeat G-comas to shittier memory and lower IQs over time. This is due to oxidative stress that damages your brain while you're dozing off -

underscoring the need for medical supervision if you're using GHB as a sleep aid to avoid neurotoxic doses. So much for ecstatic anesthesia.

And finally: relapse with problematic GHB usage is common. Developing a strong community accountability and support structure is key for helping folks transform a problematic relationship to GHB and rewiring habits. Part of this may be thinking carefully about the implicit expectations in social spaces. Is GHB usage expected at some events? Are there alternatives to GHB provided? As an organizer, and as a friend, having conversations with folks that are having difficulty with their GHB use patterns about how to support them (both individually and in how shared event spaces are structured) will help minimize harms of GHB and move towards more sustainable use patterns.

In Summary

GHB is a lot of fun, but you have to do a lot of careful work and monitoring to to keep it that way. To that effect, here's a nifty harm reduction acronym developed by Phan & co (2020) to summarize steps:

- **S** Seek medical attention immediately if you have taken too much GHB. Do not use other drugs in the hope of reversing the effects.
- **T** Two or more substances used at the same time increase the risk of overdose significantly (especially sedatives; eg alcohol, ketamine).
- **A** Always measure GHB doses accurately (eg with a syringe or pipette). Wait until the effects are felt and do not re-dose for at least two hours.
- **Y** You should always avoid using GHB on your own and always use in a safe place and with someone who has not taken it, as it is common to become unconscious.
- **I** If you have used and are going to sleep, sleep on your side in case you are sick. Place sleeping or unconscious friends in the recovery position.
- **N** Never keep GHB in drink bottles, where it might be drunk by others not aware of the content. Add food coloring to avoid accidental drinking.
- **G** GHB is addictive and dependence can happen quickly. Avoid frequent use, especially daily use.
- **S** Severe and potentially serious GHB withdrawal symptoms occur if you are dependent and you miss a dose or reduce amounts taken abruptly.
- **A** Acute withdrawal symptoms and have no GHB? Seek medical help immediately in an emergency department.
- **F** Find medical support for planned GHB detoxification. Do not attempt to stop abruptly on your own. If you want to reduce your dose, do so in very small doses until you find medical support.
- **E** Employ methods to stabilize your use; consumption diaries can be helpful.

Party safe!

But wait! There's more!

Extra Credit: Your GHB Concentration

So you *really* want to know *exactly* how much you'll be putting in your system? Good for you! Your survival instincts are on point. We've got a write up on how you can figure this out with some basic kitchen supplies and a night you're not out partying, compliments of chemist extraordinaire Ethan C.

This method works for both sodium and potassium GHB salts.

WHAT YOU'LL NEED

- Convection Oven
- Micropipette (or equivalent, like a milliliter syringe)
- *Very* small Oven-Safe Container (like this!)
- Thermometer
- Milligram Scale
- Note-Taking Device
- Calculator Device
- 1-3mL GHB Solution

DIRECTIONS

1. Preheat the oven to 170C (338F for us unfortunate Americans.)
2. Tare & calibrate your scale. Doing it last week doesn't count.
3. Weigh the container. Write it down.
4. Add GHB to the container using the micropipette (or equivalent volumetric measuring device.) Write down exactly the volume how much you transferred.
5. Weigh container + GHB solution. Write it down.
6. Doublecheck the oven temperature with your thermometer.
7. Bake for 1 hr. This is how the excess liquid evaporates out, while also melting the GHB salt… without oxidizing it.
8. Take it out at the hour mark. No really, any longer and your GHB will oxidize and be a lot less fun. I hope you read ahead in the instructions and set an alarm for yourself.
9. Weigh the container + GHB salt.
10. Do this math with the weights you better have written down (and not just hoped you'd remember):

    [container + pre-baked GHB solution] - [container + baked GHB salt]
    = [liquid baked out of solution]

    [container + baked GHB salt] - [liquid baked out of solution]
    = [GHB salt]

Your resulting weight had better match:

> [container + baked GHB salt] - [container] = [GHB salt]

Otherwise, you fucked up somewhere. Do not pass go, do not collect 200, and do not proceed to actually calculating the final concentration until you figured out what you did wrong:

> [weight of GHB salt] / [volume of pre-baked GHB solution]
> = [your GHB concentration, which hopefully won't be your GHB problem]

Write the concentration down and label your stash, including the units of measurement used. mg/L is very different from g/L, and you want to make sure you've got a consistent point of comparison.

CAVEATS

This method assumes pure GHB. If you've read the guide in its entirety, you know that's quite an assumption. If there are other additives that do not evaporate out, they will also be included in the final weight calculation. This includes, for example, GBL.

If you're taking GHB regularly, or got an exceptionally large batch, we recommend you send it off to an actual lab for testing, particularly if you are uncertain of the actual purity of what your dealer *told* you was GHB.