



Gamma-hydroxybutyrate (GHB)/Sodium Oxybate

- **Alternative names:** liquid ecstasy, liquid X, liquid F, goop, GBH= Grievous Bodily Harm, Easy lay, Ghost Breath, G, Somatomax, Gamma-G, Growth Hormone Booster, Georgia home boy, nature's Quaalude, G-riffick, Soapy, Salty Water



Characteristics	<ul style="list-style-type: none"> • Produced naturally in the body and is a metabolite of gamma aminobutyric acid (GABA)¹ • Stimulates slow-wave sleep (stages 3 and 4) and decreases stage 1 sleep; with continued use, decreases REM sleep.¹ • Shown to increase dopamine levels in the basal ganglia • At 10mg/kg produces anxiolytic effect, muscle relaxation, and amnesia • At 20-30mg/kg increases REM and slow-wave sleep • Doses > 60mg/kg can result in anesthesia, respiratory depression and coma • Onset of action is within 30min • Elimination half-life is approximately 20-30min; no longer detected in blood after 2-8h and in urine after 8-12h¹ • GHB is absorbed rapidly and reaches peak plasma concentrations in 20–60 minutes.³ 																											
Presentation during intoxication (Symptoms usually resolve within 7 hours, but dizziness can persist up to 2 weeks)	<p>Common signs and symptoms during intoxication can include³</p> <table style="width: 100%; border: none;"> <tr> <td>Disinhibition</td> <td>Confusion</td> <td>Amnesia</td> </tr> <tr> <td>Euphoria</td> <td>Hallucinations</td> <td>Agitation</td> </tr> <tr> <td>Placidity</td> <td>Feeling of well-being</td> <td>Poor concentration</td> </tr> <tr> <td>Relaxation of voluntary muscles</td> <td></td> <td></td> </tr> </table> <p>Adverse reactions may include³</p> <table style="width: 100%; border: none;"> <tr> <td>Drowsiness</td> <td>Headache</td> <td>Ataxia</td> </tr> <tr> <td>Dizziness</td> <td>Hypotension</td> <td>Nystagmus</td> </tr> <tr> <td>Nausea</td> <td>Bradycardia</td> <td>Hypotonia</td> </tr> <tr> <td>Vomiting</td> <td>Hypothermia</td> <td>Tremors</td> </tr> <tr> <td>Muscle spasms</td> <td>Seizures</td> <td>Decreased respiration</td> </tr> </table> <p>Extreme intoxication signs and symptoms may include³</p> <ul style="list-style-type: none"> • Bradycardia, seizures, apnea, sudden (reversible) coma with abrupt awakening and agitation¹ <p>*Overdoses can occur due to unknown purity and concentration of ingested product</p>	Disinhibition	Confusion	Amnesia	Euphoria	Hallucinations	Agitation	Placidity	Feeling of well-being	Poor concentration	Relaxation of voluntary muscles			Drowsiness	Headache	Ataxia	Dizziness	Hypotension	Nystagmus	Nausea	Bradycardia	Hypotonia	Vomiting	Hypothermia	Tremors	Muscle spasms	Seizures	Decreased respiration
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Monitoring and support during intoxication	<p>Goal¹¹</p> <ul style="list-style-type: none"> • Prevent severe respiratory depression <p>Monitor^{1,2,3,4,11}</p> <ul style="list-style-type: none"> • Assess level of disorientation and if possible time of last ingestion and amount consumed • Monitor for falls risk • Monitor vitals every 15 minutes initially and less frequently as acute symptoms subside • Ensuring adequate respiratory function • Maintain comprehensive physiological and cardiac monitoring <p>Supportive Interventions</p> <ul style="list-style-type: none"> • Ensure a quiet private space 																											



<p>Monitoring and support during intoxication (Continued)</p>	<ul style="list-style-type: none"> • Frequently orient client to reality and surroundings • Promote fluid and food intake as tolerated • Atropine may be used for persistent symptomatic bradycardia • If breathing is laboured, refer to an intensive care unit. • No known antidote for toxicity 						
<p>Withdrawal presentation¹ symptoms occur 1-6 hours after abrupt cessation and can last 5-15 days after chronic use</p>	<p>Symptoms may include¹</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Nausea</td> <td style="width: 33%;">Insomnia</td> <td style="width: 33%;">Confusion</td> </tr> <tr> <td>Vomiting</td> <td>Anxiety</td> <td>Tremor</td> </tr> </table> <p>After chronic use¹</p> <ul style="list-style-type: none"> • Mild tachycardia and hypertension • Can progress to delirium with auditory and visual hallucinations 	Nausea	Insomnia	Confusion	Vomiting	Anxiety	Tremor
Nausea	Insomnia	Confusion					
Vomiting	Anxiety	Tremor					
<p>Monitoring and support during withdrawal</p>	<p>Monitor^{1,11}</p> <ul style="list-style-type: none"> • Mental Status (include risk of self-harm and suicide, agitation, anxiety) • Physical status (vital signs, GI distress, respiratory and cardiological function) • Risk for falls • Hydration/Nutrition <p>Supportive Interventions^{1,11}</p> <ul style="list-style-type: none"> • Provide reassurance and calming techniques. • Encourage fluids and nutrition as tolerated • Diazepam has been used to treat GHB withdrawal 						
<p>Potential Complications</p>	<ul style="list-style-type: none"> • Coma reported in doses > 60mg/kg¹ • GHB overdose is a real danger, usually occurring within 15–20 minutes of ingestion. Most fatalities associated with GHB occur when it is taken with other substances, most notably alcohol.^{3,4} • Overdose may present as^{3,4}: <table border="0" style="width: 100%; margin-top: 5px;"> <tr> <td style="width: 33%;">Nausea and vomiting</td> <td style="width: 33%;">Respiratory depression</td> <td style="width: 33%;">Aggressive outbursts</td> </tr> <tr> <td>Seizures</td> <td>Coma</td> <td>Slowed heart rate</td> </tr> </table> 	Nausea and vomiting	Respiratory depression	Aggressive outbursts	Seizures	Coma	Slowed heart rate
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<p>Notable Drug interactions</p>	<p>HIV medications (Ritonavir and Saquinavir)⁵</p> <ul style="list-style-type: none"> • Interferes with the metabolism of GHB via CYP3A4 enzymes, amplifying GHB-depressant effects which may lead to loss of consciousness <p>With Benzodiazepines⁵</p> <ul style="list-style-type: none"> • GHB may alter the response of midazolam at the GABA receptors, leading to agitation and confusion • Enhance CNS depressant effects of GHB <p>With Sedating antidepressants, Antipsychotics, General anesthetics, Hypnotics, Opioids, Muscle Relaxants⁶</p> <ul style="list-style-type: none"> • May enhance the CNS depressant effect of GHB leading to impaired consciousness and respiratory depression <p>With Valproate and Ethosuximide^{7,8}</p> <ul style="list-style-type: none"> • Inhibition of GHB-dehydrogenase • Increased serum concentration of GHB --> Increased sleepiness, dizziness, nausea and cognitive impairment <p>With Alcohol⁹</p> <ul style="list-style-type: none"> • Enhanced respiratory depression, greater decreases in O₂ sat, and hypotension • Adverse effects are more pronounced at higher GHB doses <p>With Topiramate¹⁰</p>						



Notable Drug interactions <i>(Continued)</i>	<ul style="list-style-type: none">• Topiramate increases GABA activity at its neuroceptors• May increase serum concentration of GHB --> Myoclonic jerks, miosis, rapid onset of coma With Cannabis <ul style="list-style-type: none">• Increased pharmacological effects¹ With Stimulants <ul style="list-style-type: none">• Increased pharmacological effects¹
Psychiatric effects	<ul style="list-style-type: none">• In small doses, it leads to feelings of well-being, lowered inhibitions, sedation, poor concentration, confusion, amnesia, euphoria and hallucinations. It may lead to agitation and aggression¹



References

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