Diphenhydramine

Diphenhydramine use is associated with highly uncomfortable and/or dangerous experiences.

Deliriants are highly unpredictable and may result in erratic behaviors, self-injury, hospitalization, or death. It should be noted that most individuals do not choose to repeat the experience due to its unpleasant nature.

Please use harm reduction practices if using this substance (e.g. starting with a low dose and always having a trip sitter). Refer to this section for more details.

Summary sheet: Diphenhydramine

Diphenhydramine (also known as **DPH**, **Dimedrol, Benadryl**, and many others) is a deliriant substance of the ethanolamine class. It is a first-generation H_1 antihistamine that is widely used as a generic, over-the-counter medication to treat allergies. When exceeding approved doses, diphenhydramine produces powerful deliriant effects.

Diphenhydramine was first synthesized in 1943. In 1946, it became the first prescription antihistamine approved by the U.S. Food and Drug Administration. It was approved for over-the-counter use in the 1980s.[1] Today, it is typically used to treat allergies, but it may also be used for a number of conditions including itchiness, insomnia, motion sickness, nausea and the symptoms of Parkinson's disease.[2]

Subjective effects include sedation, anxiety, tactile hallucinations, memory suppression, thought disorganization, dysphoria, and external hallucinations. Lower doses tend to produce a stoning, body-high effect while higher doses produce a state of delirium in which the user sees and hears fully-formed, extremely convincing hallucinations. Doses between these two points are uncomfortable and dysphoric.

Notably, it is frequently reported to produce significant nausea and bodily discomfort ("body load"). Most people who try diphenhydramine do not report positive effects and do not wish to repeat the experience.

It is generally considered to have low abuse potential due to its dysphoric effects. The toxicity of recreational use is not well-studied. Anecdotal reports suggest that chronic use (i.e. high dose, repeated administration) may cause persisting hallucinations and impairments in cognition & memory. High doses have also been linked to seizures and cardiotoxicity.[3]

It is highly advised to use harm reduction practices if using this substance.

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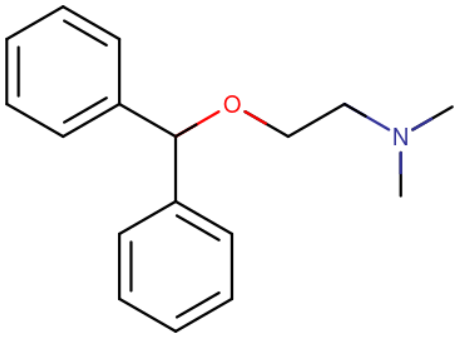


Purpose

Chemical Nomenclature	
Common names	*DPH, Benadryl, Nytol, Sominex, Unisom SleepMelts, ZzzQuil*
Substitutive name	*Diphenhydramine*
Systematic name	*2-(diphenylmethoxy)-N,N-dimethylethanamine*
Class Membership	
Psychoactive class	*Deliriant*
Chemical class	*Ethanolamine*
Routes of Administration	

WARNING: Always start with lower doses due to differences between individual body weight, tolerance, metabolism, and personal sensitivity. See responsible use section.

↓ **Oral** [Collapse]

Dosage	
threshold common heavy 25 - 100 - 200 - 400 - 700 *mg* light strong	
Bioavailability	40-60%
Threshold	25 mg
Light	100 - 200 mg
Common	200 - 400 mg
Strong	400 - 700 mg
Heavy	700 mg +
Duration	
Total	3 - 10 hours
Onset	30 - 90 minutes
Come up	45 - 90 minutes
Peak	1 - 4 hours
Offset	2 - 6 hours
After effects	up to 24 hours

DISCLAIMER: PW's dosage information is gathered from users and resources for educational purposes only. It is not a recommendation and should be verified with other sources for accuracy.

Interactions

History and culture

Diphenhydramine was discovered in 1943 by George Rieveschl, a former professor at the University of Cincinnati.[4][5] In 1946, it became the first prescription antihistamine approved by the United States Food and Drug Administration (FDA).[6]

In the 1960s diphenhydramine was found to inhibit reuptake of the neurotransmitter serotonin.[7] This discovery led to a search for viable antidepressants with similar structures and fewer side effects, culminating in the invention of fluoxetine (Prozac), a selective serotonin reuptake inhibitor (SSRI).[7][8]

Chemistry

Diphenhydramine, or 2-(diphenylmethoxy)-N,N-dimethylethanamine, is an organic compound belonging to the ethanolamine class. The chemical structure of diphenhydramine consists of an ethylamine chain with two methyl groups bonded to the terminal nitrogen group R_N. Additionally, this ethylamine chain is substituted at R_2 with a diphenylmethoxy group, forming an ether. The diphenylmethoxy group consists of two aromatic phenyl rings bonded to the carbon member of a methoxy group CH_3O-.

DPH is produced as a hydrochloride salt.

Pharmacology

Diphenhydramine is an inverse agonist of the peripheral histamine H_1 receptor and a central histamine H_1 receptor. The peripheral inverse agonism induces the allergy reducing effects. Like many first-generation antihistamines, it is also a competitive antagonist at mACH receptors.

Diphenhydramine is an acetylcholine receptor antagonist. Although the precise mechanism is not understood, the inhibition of the action of acetylcholine is thought to be primarily responsible for the delirium, sedation and intensely realistic hallucinations alongside the extremely uncomfortable and dysphoric physical side effects.

Diphenhydramine has been shown to block sodium channels and inhibit the reuptake of serotonin.[7] It also blocks voltage-gated potassium channels (VGKCs), meaning it has the potential to cause or lead to *torsades de points*, a potentially dangerous cardiac condition that can lead to sudden cardiac death. [9]

The receptor binding affinities are listed as follows:[10][7]

Receptor Site	Binding Affinity (nM, Lower = Stronger)
H_1	9.6-16
H_2	missing data
H_3	>10,000
H_4	>10,000
M_1	80-100
M_2	120-490
M_3	84-229
M_4	53-112
M_5	30-260
SERT	≥3,800

Subjective effects

According to user reports, diphenhydramine displays a non-linear dose-response, meaning the effects don't correspond directly with the dose. Doses under 300 mg are reported to produce restlessness, muscle relaxation, and a body high while doses above 500 mg begin to produce a state of delirium in which the user sees and hears fully-formed, extremely convincing hallucinations. Doses in between these two extremes are said to be uncomfortable and dysphoric. Nausea and bodily discomfort ("body load") is reported almost universally.

Disclaimer: *The effects listed below cite the* ***Subjective Effect Index*** *(**SEI**), an open research literature based on anecdotal user reports and the personal analyses of PsychonautWiki contributors. As a result, they should be viewed with a healthy degree of skepticism.*

It is also worth noting that these effects will not necessarily occur in a predictable or reliable manner, although higher doses are more liable to induce the full spectrum of effects. Likewise, ***adverse effects*** *become increasingly likely with higher doses and may include* ***addiction, severe injury, or death*** ☠.

Physical effects

- **Sedation** - Diphenhydramine produces considerable sedation and low doses are commonly used as a sleep aid. This sense of sedation is accompanied by a heavy body load which can become overwhelmingly uncomfortable. However, higher doses of diphenhydramine also have a stimulating quality that can make actual rest difficult.
- **Spontaneous bodily sensations** - Users commonly report all-encompassing, sharp and painful jolts of electricity that spontaneously manifest themselves uncontrollably in a similar rhythm to hiccups.
- **Perception of bodily heaviness** - One of the most apparent effects is having a massive body as if the gravity has been multiplied tenfold. This makes it extremely tough and uncomfortable to move.
- **Restless leg syndrome** - Restless legs are very prominent and arguably one of the most uncomfortable side effects of diphenhydramine. It can also last for days after the experience and can even be chronic when it is abused repeatedly.
- **Tactile enhancement** - This results in increased feelings of touch, pain, warmth and orgasms. It is usually only present at the peak and not during the come up or come down.

- **Tactile suppression** - Diphenhydramine produces feelings of numbness throughout the body. This is attributed to its ability to block sodium channels within the nerves.[10]
- **Tactile hallucination** - This is often a direct result of visual hallucinations and they commonly feel and look as if insects are crawling on one's skin.
- **Nausea** or **Nausea suppression**- Depending on the dose, diphenhydramine can both suppress and cause nausea. Low doses effectively suppress nausea, which is why it is marketed and sold as a motion sickness suppressant, while high doses cause it in significant amounts.
- **Abnormal heartbeat** - Diphenhydramine is able to prolong the QT interval, potentially leading to torsades de pointes, an abnormal heart rhythm that can cause sudden cardiac death.[11]
- **Cough suppression**[12]
- **Dehydration** - Diphenhydramine can be extremely dehydrating, which often leads to dry mouth and skin, chapped lips and nose bleeds. Users should drink plenty of water before and after an experience.
- **Dizziness**
- **Frequent urination** & **Difficulty urinating** - Diphenhydramine has the strange effect of making the user want to frequently urinate while making actual urination extremely difficult. This sensation is described as very uncomfortable.
- **Gustatory hallucination** - A foul metallic-like taste is present throughout the entire experience, which in combination with a dry mouth can be a very uncomfortable effect that can last for days after the experience. Eating or drinking flavored drinks will only make the taste go away temporarily. It can also appear as a sign of addiction, where it acts as a trigger for cravings.
- **Hypotension**[13]
- **Increased heart rate**[14]
- **Increased bodily temperature**
- **Temperature regulation suppression** - This effect can lead the user to experience shivers, especially during the come up phase.
- **Increased perspiration**
- **Motor control loss**
- **Muscle cramps** & **Muscle spasms** - Sudden muscle cramps and spasms can form unexpectedly. This is common at the beginning of the trip and usually passes quickly.
- **Olfactory hallucination** - It is common for users to smell a mild, thick and dull smell in the air that can easily be ignored most of the time. Some users also notice a smell enhancement
- **Physical fatigue**
- **Pupil constriction** *or* **Pupil dilation** - While it is known that diphenhydramine constricts pupils minimally[15], many people also report that their pupils dilate, especially at high dosages when anti-cholinergic effects take place similar to substances like atropine or scopolamine.
- **Rapid breathing**
- **Skin flushing** - Flushed skin occurs mostly around the eyes, but can also be seen all over the body.
- **Temporary erectile dysfunction**
- **Itchiness** - This effect happens in high doses, however, it reduces itchiness in lower doses due to histamine antagonism..
- **Teeth grinding** - Some users report jaw clenching.

Visual effects

While diphenhydramine produces visual hallucinations, it does not enhance visual stimuli in the manner of psychedelics. Instead, it tends to degrade and decrease visual acuity and processing that results in increased hallucinations and degraded vision. This becomes more apparent in darker areas than in well-lit ones.

Suppression

- **Double vision**- This effect is commonly present at moderate to high doses.
- **Pattern recognition suppression**
- **Visual acuity suppression** - This effect can result in blurry vision to the point of blindness. It sometimes can last for days after the experience itself.

Distortions

- **Drifting** *(melting, breathing, morphing and flowing)* - Compared to hallucinogens, this effect can be described as intricate in complexity, jittery and flexible in motion, static in their permanence, realistic in believability, and interactive in plasticity. It is also very faint.
- **Object alteration** - The textures seen are described as transparent whirling lines and swirls which move at changing speeds and jitter uncontrollably. They only appear slightly above surfaces, walls and ceilings and can not be felt.
- **Brightness alteration** - Diphenhydramine can cause one's vision to decrease in brightness and become dark and gloomy.
- **Visual haze**

Hallucinatory states

- **External hallucination** (*autonomous entities*; *settings, sceneries, and landscapes*; *perspective hallucinations* and *scenarios and plots*) - Relative to other hallucinogens, this effect occurs more frequently at moderate to heavy doses and is the defining feature of the experience. It can be comprehensively described through its variations as delirious in believability, controllable or autonomous in controllability and solid in style. The most common themes for these hallucinations include those of both everyday occurrences such as smoking phantom cigarettes, talking to people who are not there, seeing and feeling insects and immersion in sinister or nightmarish experiences.
- **Internal hallucination** (*autonomous entities*; *settings, sceneries, and landscapes*; *perspective hallucinations* and *scenarios and plots*) - Relative to other hallucinogens, this effect occurs briefly and spontaneously at moderate doses but becomes progressively extended in its occurrence and duration proportional to dosage before eventually becoming all-encompassing. It can be comprehensively described through its variations as delirious in believability, interactive in style, equal in new experiences and memory replays in content, autonomous in controllability and solid in style. Internal hallucinations may occur at lighter dosages than needed to cause external hallucinations and delirium.
- **Peripheral information misinterpretation**
- **Shadow people**
- **Transformations**
- **Unspeakable horrors**
- **Object activation**

Cognitive effects

The head space of diphenhydramine is described by many as generally negative and dysphoric, often consisting of extreme paranoia and feelings of impending doom. It is extremely confusing and disorienting and often results in a complete inability to communicate or understand normal language.

- **Analysis suppression** - At higher dosages, a person could experience a complete halt of external information processing, which can make the user unable to perform simple tasks or make decisions.
- **Anxiety** & **Paranoia** - Anxiety and paranoia are more commonly reported on diphenhydramine than almost any other substance. However, there is a threshold dose (around 500mg) where it begins to disappear.
- **Sleepiness** - Diphenhydramine is reported to be extremely tiring. Low doses are often used and sold as a sleep aid.
- **Wakefulness** - Even though diphenhydramine is primarily a depressant and causes sleepiness, it has stimulant effects on the body, which can also keep the user awake. This effect predominates sleepiness at higher dosages.
- **Dysphoria** - The levels of dysphoria experienced, however, vary between people with a very small percentage of users reporting that they do not seem to experience them at all.
- **Cognitive fatigue**
- **Confusion** - Diphenhydramine causes significant confusion which can result in a complete inability to understand others' intentions, emotions, humor and even simple sentences.
- **Creativity suppression**
- **Decreased libido** - Interestingly, one's sex drive seems to have diminished, although sex and masturbation are considered more enjoyable in a unique way and often come with powerful orgasms.
- **Delirium** - Delirium may be experienced with extremely high doses which may necessitate hospitalization.
- **Delusion**
- **Depression**
- **Derealization**
- **Disinhibition** - Disinhibition on diphenhydramine is different from substances like alcohol, as it may not even be present in certain situations and is heavily influenced by anxiety and paranoia.
- **Dream potentiation** - Diphenhydramine is extremely effective at potentiating dreams. This can result in not just increased intensity but a change in dream content, leading to dreams that are both vivid and extremely bizarre.
- **Dysarthria** - Slurred speech and speaking with a different voice is common on DPH.
- **Emotion suppression**
- **Feelings of impending doom**
- **Focus suppression**
- **Increased music appreciation**
- **Language suppression**
- **Memory suppression** - Memory suppression on diphenhydramine is extremely strong. Short-term memory loss is affected in a manner similar to cannabis.
    - **Amnesia** - At higher dosages, diphenhydramine can cause a complete halt of external information processing, which can make the user unable to perform simple tasks or make decisions.
- **Motivation suppression** - Diphenhydramine can cause a complete loss of motivation to do almost anything. This is often accompanied by depression and can make the user extremely bored and restless.
- **Psychosis**
- **Thought deceleration**
- **Thought disorganization**
- **Time distortion** - Although not extreme, time dilation is definitely felt and can be overwhelming if the user is having a difficult trip.

Auditory effects

- **Auditory hallucinations** - Auditory hallucinations like voices and screams are commonly reported on diphenhydramine.
- **Auditory suppression**
- **Auditory enhancement**

After effects

- **Anxiety**
- **Brightness alteration**
- **Cognitive fatigue**
- **Dehydration**
- **Depression**
- **Gustatory hallucination**
- **Irritability**
- **Motivation suppression**
- **Physical fatigue**
- **Sleepiness**
- **Thought deceleration**
- **Visual acuity suppression**

Experience reports

There are currently 15 experience reports which describe the effects of this substance in our experience index.

- Experience: 550mg DPH - My First Time on DPH
- Experience:100/100/100mg, first time with it
- Experience:300mg DPH + 600mg DXM - An Interesting Combo
- Experience:400mg DXM + 300mg DPH – Bacterial friends
- Experience:550mg-Bugs All Around Me.
- Experience:700mg - Joining the 700 club
- Experience:700mg Diphenhydramine trip
- Experience:A combination of tramadol, clonazepam, gabapentin, and dimenhydrinate
- Experience:DPH (750 mg) - The Dancing Invisible Men Come to Life!
- Experience:DPH 400mg - Barking Paper
- Experience:DXM & DPH in combination
- Experience:Datura & DPH - Results of Experiment by Isopropanol
- Experience:Diphenhydramine (650 mg, Oral) - Midnight walk
- Experience:Diphenhydramine (800mg, oral) - A night of delirious mania
- Experience:Nightmare flipping

Additional experience reports can be found here:

- Erowid Experience Vaults: Diphenhydramine (https://www.erowid.org/experiences/subs/exp_Diphenhydramine.shtml)

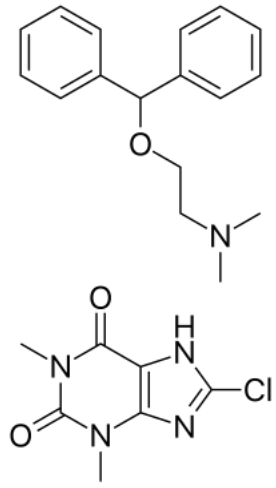
Forms

Diphenhydramine is available in several different forms over the counter and online.

- **Pills** are available over the counter and online. Well-known brands include Benadryl, Benylin, Dramamine, Nytol, Sominex, Vivinox and ZzzQuil. Rarely, some of these products may contain other medicines, including dextromethorphan, guaifenesin, and acetaminophen. Care should be taken when using these products to ensure that there is not an overdose on other medicines in these DPH-containing products.
- **Liquid** is available over the counter and online. Diphenhydramine in liquid form can be taken orally or injected. Well-known brands include Benadryl and ZzzQuil. Rarely, some of these products may contain other medicines, including dextromethorphan, guaifenesin, and acetaminophen. Care should be taken when using these products to ensure that there is not an overdose on other medicines in DPH-containing products.
- **Powder** is available online. Diphenhydramine in powdered form can be taken orally as well as via injection. Any other routes of administration other than oral are not recommended because diphenhydramine burns and dehydrates skin tissue, which leads to extremely painful burns and bleeding.

Dimenhydrinate

Dimenhydrinate (**DMH**) is a combination drug of Diphenhydramine and 8-Chlorotheophylline[16], marketed as **Draminate**, **Dramamine**, and **Gravol** among others, it is used to treat nausea. It is most commonly available as tablets, although it is also available in liquid form and as a suppository. In practice, dimenhydrinate is half as potent as pure diphenhydramine, by weight, dimenhydrinate is between 53% to 55.5% diphenhydramine.[17] The addition of the caffeine-like stimulant 8-Chlorotheophylline is reported to increase the dangerous cardiovascular effects diphenhydramine already has alone. This stimulant effect is also reported to make the trip more restless and dysphoric, with the added negative of being too wakeful to sleep the trip away.



Dimenhydrinate

Toxicity and harm potential

This toxicity and harm potential section is a stub. (http://psychonautwiki.org/w/index.php?title=Special%3AWhatLinksHere&target=Template%3AStub&namespace=)

As a result, it may contain incomplete or even **dangerously wrong** information! You can help by expanding upon or correcting it. (https://psychonautwiki.org/w/index.php?title=Diphenhydramine&action=edit)
*Note: Always conduct independent research and use **harm reduction practices** if using this substance.*

The toxicity and long-term health effects of recreational diphenhydramine use have not been studied extensively.

Diphenhydramine can be extremely unpredictable and the mechanism by which it produces hallucinations has the potential to result in serious injury, hospitalization or death. Additionally, diphenhydramine puts users in a state where they have little control over their actions. Diphenhydramine can provoke bizarre and nonsensical

behavior which may put the user at risk.

Anecdotal reports suggest that regular use of diphenhydramine can have serious effects on one's kidney and bladder with the potential to result in issues similar to that of ketamine cystitis.

Cumulative diphenhydramine use has been tentatively linked to an increased risk of developing dementia.[18]

Overdose

The overdose threshold for diphenhydramine is commonly held to be around 1000 milligrams; however, sensitive individuals, or individuals taking other drugs alongside it can overdose with less. The main effects of an overdose are similar to those of heavy doses. Effects include delirium, psychosis, anxiety, confusion, hypotension, dryness, urinary retention, dizziness, dilated pupils and increased heart rate. Some of the more serious side effects at these doses include an even higher risk of seizures, and dangerous cardiovascular effects such as arrhythmia (abnormal heartbeat).[19]

The user may be completely unable to distinguish reality from hallucinations. For this reason there is a significant risk of the user responding to a delusional environment and injuring themselves or others, as well as the possibility of engaging in too much physical activity which can further strain the heart or cause rhabdomyolysis.[20] Individuals experiencing delusions should, if possible, not be agitated. The first lines of treatment for overdose should be benzodiazepines, although medical attention should always be sought.

Diphenhydramine can become fatal at amounts close to or exceeding 2 grams. This can result in death, especially when combined with most stimulants, depressants and MAOIs.

Psychosis

Some anecdotal reports suggest that diphenhydramine causes psychosis and delirium at a significantly higher rate than other hallucinogens (i.e. psychedelics and dissociatives). There are a large number of experience reports online which describe states of psychotic delirium, amnesia, and other serious consequences after abusing the substance. In many cases, it has resulted in hospitalization and death.

The recreational use of diphenhydramine is generally not advised. If deciding to use this substance, one should use extreme caution and harm reduction practices, such as having a sober trip sitter.

Dependence and abuse potential

Diphenhydramine produces dependence with chronic use. In comparison to other hallucinogens, DPH has been reported to have significantly less abuse potential than other hallucinogens. This is simply because the vast majority of people who try it do not wish to repeat the experience.

Tolerance to many of the effects of DPH develops with repeated use. This results in users having to administer increasingly large doses to achieve the same effects. After that, it takes about 1 - 2 weeks for tolerance to return to baseline (in the absence of further consumption). DPH presents cross-tolerance with all deliriants, meaning that after the consumption of DPH, all deliriants will have a reduced effect.

Dangerous interactions

Warning: *Many psychoactive substances that are reasonably safe to use on their own can suddenly become dangerous and even life-threatening when combined with certain other substances. The following list provides some known dangerous interactions (although it is not guaranteed to include all of them).*

Always conduct independent research (e.g. Google (https://www.google.com), DuckDuckGo (https://www.duckduckgo.com), PubMed (https://pubmed.ncbi.nlm.nih.gov/)) to ensure that a combination of two or more substances is safe to consume. Some of the listed interactions have been sourced from TripSit (https://combo.tripsit.me).

- **Selective serotonin re-uptake inhibitors (SSRIs)** - SSRIs can suppress the visual effects of diphenhydramine. However, this combination may elevate the risk of serotonin syndrome due to

diphenhydramine's weak serotonergic effects.[21]

- **Stimulants** - Due to diphenhydramine's excitatory cardiac effect, combining it with stimulants poses a risk of an abnormal heart rhythm, severe tachycardia, or a heart attack as well as other cardiovascular events.
- **Benzodiazepines** - Benzodiazepines can suppress the visual effects of diphenhydramine. However, this combination can produce a dangerous amount of sedation and respiratory depression.
- **Anticholinergics** - Due to diphenhydramine's excitatory cardiac effect, combining it with other anticholinergics poses a risk of an abnormal heart rhythm, severe tachycardia, or a heart attack as well as other cardiovascular events (inhibition of acetylcholine causes increased heart rate).

Legal status

Diphenhydramine is available either over the counter or by prescription in most countries. However, some countries require the purchaser to be over 16, 18 or 21.

- **Zambia:** Diphenhydramine is illegal to possess and sell in Zambia; foreigners have been detained for possession.[22]
- **United States:** Diphenhydramine is widely available over-the-counter in the United States. It is an approved drug and is legal to buy, possess, and ingest without a license or prescription.[23]
- **Poland:** Diphenhydramine is not a controlled substance under Polish law, but is only available over the counter in medicine that contains paracetamol.<ref>[1] (https://www.lekinfo24.pl/opis-leku/l,diphenhydramine-difenhydramina,dp,doustna,mnid,584.html)

See also

- Responsible use
- Hallucinogens
- Deliriants
- Antihistamine
- Acetylcholine
- Datura
- Counterflipping

External links

- Diphenhydramine (Wikipedia) (http://en.wikipedia.org/wiki/Diphenhydramine)
- Diphenhydramine (Erowid Vault) (https://www.erowid.org/pharms/diphenhydramine/)
- Diphenhydramine (Isomer Design) (https://isomerdesign.com/PiHKAL/explore.php?id=12066)
- Diphenhydramine (DrugBank) (https://go.drugbank.com/drugs/DB01075)
- Diphenhydramine (Drugs.com) (https://www.drugs.com/diphenhydramine.html)
- Diphenhydramine (Drugs-Forum) (https://drugs-forum.com/wiki/Diphenhydramine)

References

1. *Emanuel, M. B. (July 1999). "Histamine and the antiallergic antihistamines: a history of their discoveries: History of antiallergic antihistamines" (http://doi.wiley.com/10.1046/j.1365-2222.1999.00004.x-i1). Clinical & Experimental Allergy. **29**: 1–11. doi:10.1046/j.1365-2222.1999.00004.x-i1 (https://doi.org/10.1046%2Fj.1365-2222.1999.00004.x-i1). ISSN 0954-7894 (https://www.worldcat.org/issn/0954-7894).*
2. http://www.drugs.com/monograph/diphenhydramine-hydrochloride.html

3. *Jang, D. H., Manini, A. F., Trueger, N. S., Duque, D., Nestor, N. B., Nelson, L. S., Hoffman, R. S. (November 2010). "Status epilepticus and wide-complex tachycardia secondary to diphenhydramine overdose" (http://www.tandfonline.com/doi/full/10.3109/15563650.2010.527850). Clinical Toxicology. **48** (9): 945–948. doi:10.3109/15563650.2010.527850 (https://doi.org/10.3109%2F15563650.2010.527850). ISSN 1556-3650 (https://www.worldcat.org/issn/1556-3650).*
4. *Hevesi D (29 September 2007). "George Rieveschl, 91, Allergy Reliever, Dies" (https://www.nytimes.com/2007/09/29/business/29rieveschl.html?ref=health). The New York Times. Archived (https://web.archive.org/web/20111213132036/http://www.nytimes.com/2007/09/29/business/29rieveschl.html?ref=health) from the original on 13 December 2011. Retrieved 14 October 2008.*
5. *"Benadryl" (http://www.ohiohistorycentral.org/w/Benadryl). Ohio History Central. Archived (https://web.archive.org/web/20150905130056/http://www.ohiohistorycentral.org/w/Benadryl) from the original on 5 September 2015. Retrieved 13 August 2015.*
6. *Ritchie J (24 September 2007). "UC prof, Benadryl inventor dies" (http://www.bizjournals.com/cincinnati/stories/2007/09/24/daily52.html). Business Courier of Cincinnati. Archived (https://web.archive.org/web/20081224055505/http://www.bizjournals.com/cincinnati/stories/2007/09/24/daily52.html) from the original on 24 December 2008. Retrieved 14 October 2008.*
7. *Domino EF (1999). "History of modern psychopharmacology: a personal view with an emphasis on antidepressants". Psychosomatic Medicine. **61** (5): 591–8. doi:10.1097/00006842-199909000-00002 (https://doi.org/10.1097%2F00006842-199909000-00002). PMID 10511010 (https://www.ncbi.nlm.nih.gov/pubmed/10511010).*
8. *Awdishn RA, Whitmill M, Coba V, Killu K (October 2008). "Serotonin reuptake inhibition by diphenhydramine and concomitant linezolid use can result in serotonin syndrome" (http://journal.publications.chestnet.org/article.aspx?articleid=1094281). Chest. **134** (4 Meeting abstracts). doi:10.1378/chest.134.4_MeetingAbstracts.c4002 (https://doi.org/10.1378%2Fchest.134.4_MeetingAbstracts.c4002).*
9. *Khalifa, M., Drolet, B., Daleau, P., Lefez, C., Gilbert, M., Plante, S., O'Hara, G. E., Gleeton, O., Hamelin, B. A., Turgeon, J. (February 1999). "Block of potassium currents in guinea pig ventricular myocytes and lengthening of cardiac repolarization in man by the histamine H1 receptor antagonist diphenhydramine". The Journal of Pharmacology and Experimental Therapeutics. **288** (2): 858–865. ISSN 0022-3565 (https://www.worldcat.org/issn/0022-3565).*
10. *Kim, Y. S., Shin, Y. K., Lee, C., Song, J. (27 October 2000). "Block of sodium currents in rat dorsal root ganglion neurons by diphenhydramine". Brain Research. **881** (2): 190–198. doi:10.1016/s0006-8993(00)02860-2 (https://doi.org/10.1016%2Fs0006-8993%2800%2902860-2). ISSN 0006-8993 (https://www.worldcat.org/issn/0006-8993).*
11. *Thakur, A. C., Aslam, A. K., Aslam, A. F., Vasavada, B. C., Sacchi, T. J., Khan, I. A. (15 February 2005). "QT interval prolongation in diphenhydramine toxicity" (https://www.sciencedirect.com/science/article/pii/S0167527304000786). International Journal of Cardiology. **98** (2): 341–343. doi:10.1016/j.ijcard.2003.10.051 (https://doi.org/10.1016%2Fj.ijcard.2003.10.051). ISSN 0167-5273 (https://www.worldcat.org/issn/0167-5273).*
12. *Lilienfield, L. S., Rose, J. C., Princiotto, J. V. (April 1976). "Antitussive activity of diphenhydramine in chronic cough". Clinical Pharmacology and Therapeutics. **19** (4): 421–425. doi:10.1002/cpt1976194421 (https://doi.org/10.1002%2Fcpt1976194421). ISSN 0009-9236 (https://www.worldcat.org/issn/0009-9236).*
13. *Huynh, David A.; Abbas, Malak; Dabaja, Ali (29 April 2023). "Diphenhydramine Toxicity" (https://www.ncbi.nlm.nih.gov/books/NBK557578/). StatPearls. OCLC 1021256616 (https://www.worldcat.org/oclc/1021256616).*
14. *Huynh, David A.; Abbas, Malak; Dabaja, Ali (29 April 2023). "Diphenhydramine Toxicity" (https://www.ncbi.nlm.nih.gov/books/NBK557578/). StatPearls. OCLC 1021256616 (https://www.worldcat.org/oclc/1021256616).*
15. *Hou, R. H., Scaife, J., Freeman, C., Langley, R. W., Szabadi, E., Bradshaw, C. M. (June 2006). "Relationship between sedation and pupillary function: comparison of diazepam and diphenhydramine" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1885114/). British Journal of Clinical Pharmacology. **61** (6): 752–760. doi:10.1111/j.1365-2125.2006.02632.x (https://doi.org/10.1111%2Fj.1365-2125.2006.02632.x). ISSN 0306-5251 (https://www.worldcat.org/issn/0306-5251).*

16. *Putra, Okky Dwichandra; Yoshida, Tomomi; Umeda, Daiki; Higashi, Kenjirou; Uekusa, Hidehiro; Yonemochi, Etsuo (29 July 2016). "Crystal Structure Determination of Dimenhydrinate after More than 60 Years: Solving Salt–Cocrystal Ambiguity via Solid-State Characterizations and Solubility Study". Crystal Growth & Design. **16** (9): 5223–5229. doi:10.1021/acs.cgd.6b00771 (https://doi.org/10.1021%2Facs.cgd.6b00771).*
17. *"Dimenhydrinate injection, solution" (https://web.archive.org/web/20141013094705/http://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=bc71539e-1a33-4709-8a24-c2894e8dbc1c). Daily Med. U.S. National Library of Medicine. Archived from the original (http://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=bc71539e-1a33-4709-8a24-c2894e8dbc1c) on 13 October 2014. Retrieved 19 July 2014.*
18. *Gray, S. L., Anderson, M. L., Dublin, S., Hanlon, J. T., Hubbard, R., Walker, R., Yu, O., Crane, P. K., Larson, E. B. (March 2015). "Cumulative use of strong anticholinergics and incident dementia: a prospective cohort study". JAMA internal medicine. **175** (3): 401–407. doi:10.1001/jamainternmed.2014.7663 (https://doi.org/10.1001%2Fjamainternmed.2014.7663). ISSN 2168-6114 (https://www.worldcat.org/issn/2168-6114).*
19. *Huynh, David A.; Abbas, Malak; Dabaja, Ali (29 April 2023). "Diphenhydramine Toxicity" (https://www.ncbi.nlm.nih.gov/books/NBK557578/). StatPearls. OCLC 1021256616 (https://www.worldcat.org/oclc/1021256616).*
20. *Emadian, S. M., Caravati, E. M., Herr, R. D. (October 1996). "Rhabdomyolysis: a rare adverse effect of diphenhydramine overdose". The American Journal of Emergency Medicine. **14** (6): 574–576. doi:10.1016/S0735-6757(96)90103-5 (https://doi.org/10.1016%2FS0735-6757%2896%2990103-5). ISSN 0735-6757 (https://www.worldcat.org/issn/0735-6757).*
21. *Khan, Salman; Saud, Shakir; Khan, Imran; Asif, Muhammad; Ismail, Osama; Salam, Arqam; Yang, Tsu Jung; Norville, Kim J (April 04 2018). "Serotonin Syndrome Presenting with Concomitant Tramadol and Diphenhydramine Use: A Case Report of an Unlikely Side-Effect" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMCPMC5985917). Cureus. **10** (4). doi:10.7759/cureus.2421 (https://doi.org/10.7759%2Fcureus.2421). PMC 5985917 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5985917). PMID 29872601 (https://www.ncbi.nlm.nih.gov/pubmed/29872601).*
22. *"The Pharmacy and Poisons Act" (https://www.parliament.gov.zm/sites/default/files/documents/acts/Pharmacy%20and%20Poisons%20Act.pdf) (PDF). Ministry of Legal Affairs, Government of the Republic of Zambia.*
23. *Erowid Diphenhydramine (Benadryl) Vault : Legal Status (https://erowid.org/pharms/diphenhydramine/diphenhydramine_law.shtml)*

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