

Peyote



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The Case

- 54 year old Native American male
- Drank peyote juice during a healing ceremony
- Visual/auditory hallucinations began a few hours later
- Did not sleep for the next two weeks as symptoms worsened

Hospitalization

- Finally encouraged to seek care at a local hospital
- PMH significant for PTSD, alcohol use disorder
- Tox screen had no apparent positives
- Antipsychotic treatment withheld

Peyote Source



- Peyote cacti (*Lophophora williamsii*)
- Slow-growing and can take several years to mature
 - Can mature several years faster if cultivated
- The “buttons” are cut and often dried for consumption
- Illegal to cultivate, plant, or harvest
 - Exceptions for Native American use

Wild Peyote Regions



Distribución del Peyote (*Lophophora williamsii*). Modificado de "Terry, M. (2008). "Stalking the wild *Lophophora*: Part 3 San Luis Potosí (central), Querétaro, and Mexico City." *Cactus and Succulent Journal* 80(6): 310-317"

Peyote in Native American Culture

- In use for likely the past 5,500 years
- Viewed as helping to commune with God and past ancestors
- Provisions allowing legal use for religious ceremonies
- The Native American Church features sacramental use of peyote

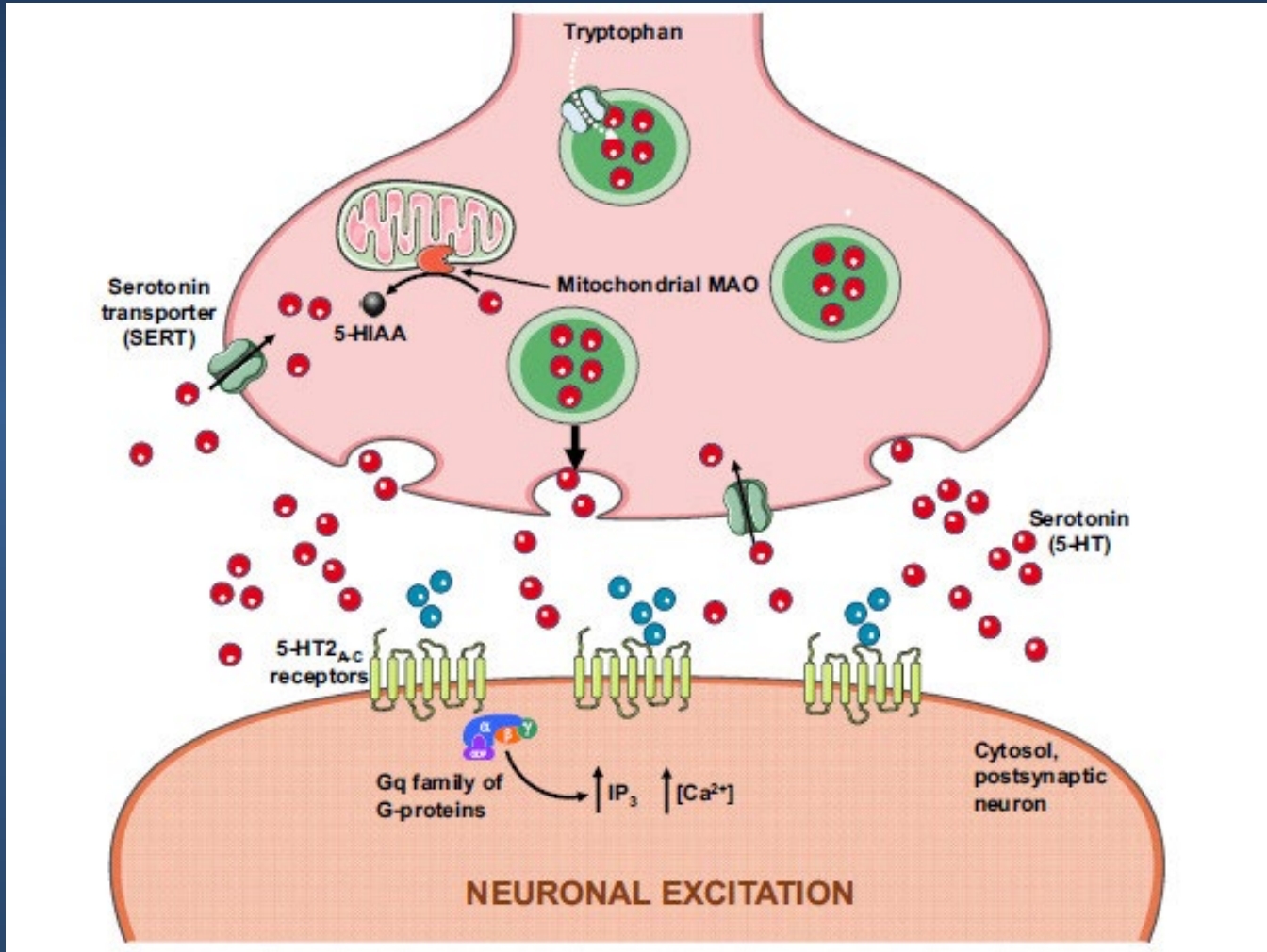
Ways to Ingest Peyote

- **Buttons from the cacti are:**
 - Dried out and directly consumed
 - Brewed in tea
 - Pulverized and taken via a capsule
- **Conflicting evidence but nausea may be a limiting factor**
 - Bitter taste and tolerability may make capsule dosing preferable

What Happens to You?

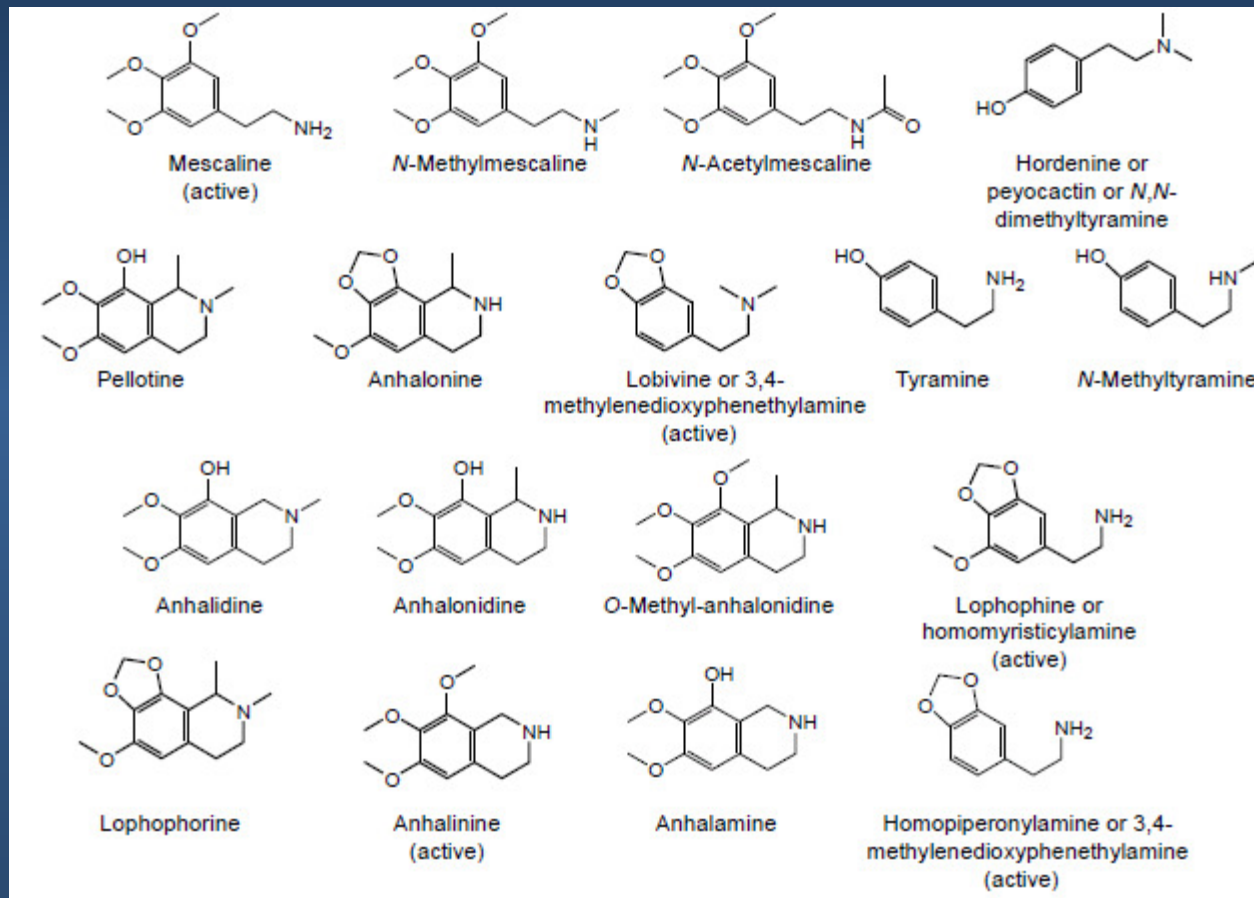
- Hallucinations, changes in perception
 - Similar to LSD, psilocybin
- Poisonings may lead to sympathomimetic toxidrome:
 - Tachycardia
 - Hyperthermia
 - Seizures
 - Ataxia
 - Mydriasis

What *Is* Happening to You?



Dinis-Oliveira RJ, Pereira CL, da Silva DD. Pharmacokinetic and Pharmacodynamic Aspects of Peyote and Mescaline: Clinical and Forensic Repercussions. *Curr Mol Pharmacol*. 2019;12(3):184-194. doi:10.2174/1874467211666181010154139. Figure 4.

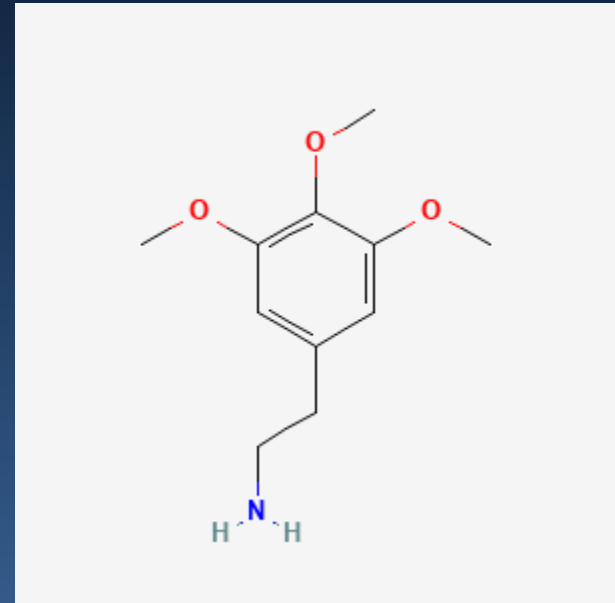
Alkaloids Found in Peyote



Dinis-Oliveira RJ, Pereira CL, da Silva DD. Pharmacokinetic and Pharmacodynamic Aspects of Peyote and Mescaline: Clinical and Forensic Repercussions. *Curr Mol Pharmacol*. 2019;12(3):184-194. doi:10.2174/1874467211666181010154139. Figure 3.

Mescaline

- Key hallucinogen found in peyote
- Full agonist for 5-HT_{2C}
 - Fairly low affinity for 5-HT_{2A} and 5-HT_{2B}
- Some dopaminergic activity but likely mild
- Primarily excreted through the urine
 - Some labs offer drug testing via this route



Mescaline Details

- Half-life is around 6 hours
- Poor BBB penetration
- Large concentrations in kidney and liver
- Delayed onset possible for hallucinogenic effects
 - Typically begin 30 minutes after consumption
 - Peak around 2 hours
 - Dissipate almost entirely around 10-12 hour mark

Long-Term Concerns

- **No apparent physical dependence**
 - Psychological dependence may appear
- **Tolerance builds after 3-4 days of use requiring higher doses**
 - Requires 3-4 days of abstinence for tolerance to reset
- **Long-term psychosis?**
 - Often compared to schizophrenia
- **Evidence lacking for clear long-term adverse issues**
 - Particularly in recreational users

Mescaline Vs Other Psychedelics

-	MESCALINE	LSD	PSILOCYBIN
Average dose	20-500 mg	0.05-0.2 mg	20-40 mg
Potency in comparison to mescaline	-	2,000× stronger	20× stronger
Time to onset of effects	1-3 hours	30-40 minutes	20-30 minutes
Duration of effects	>10-12 hours	8-12 hours	4 hours
Occurrence of flashbacks	Rare	Common	Rare

Dinis-Oliveira RJ, Pereira CL, da Silva DD. Pharmacokinetic and Pharmacodynamic Aspects of Peyote and Mescaline: Clinical and Forensic Repercussions. *Curr Mol Pharmacol*. 2019;12(3):184-194. doi:10.2174/1874467211666181010154139. Table 1.

Case Conclusion

- Pt administered trazodone 50 mg once to help induce sleep
- After sleeping for 15 hours straight, returned to normal
- Was discharged shortly after per his request
- No apparent recurrence following discharge

Conclusion

- Peyote use a key part of the Native American Church
- Recreational use likely limited by nausea
- Overall potency the weakest among popular hallucinogenics
 - However, among the longest lasting
- Treatment likely relegated to supportive care
 - Mescaline very unlikely to lead to life-threatening issues