

***Yes...Alcohol is a Big Deal
Don't forget about alcohol***

***CAPTASA 2022
Lexington, KY***

My own expertise...

”...a person that started in to carry a cat home by the tail was getting knowledge that was always going to be useful to him, and warn't ever going to grow dim or doubtful.”

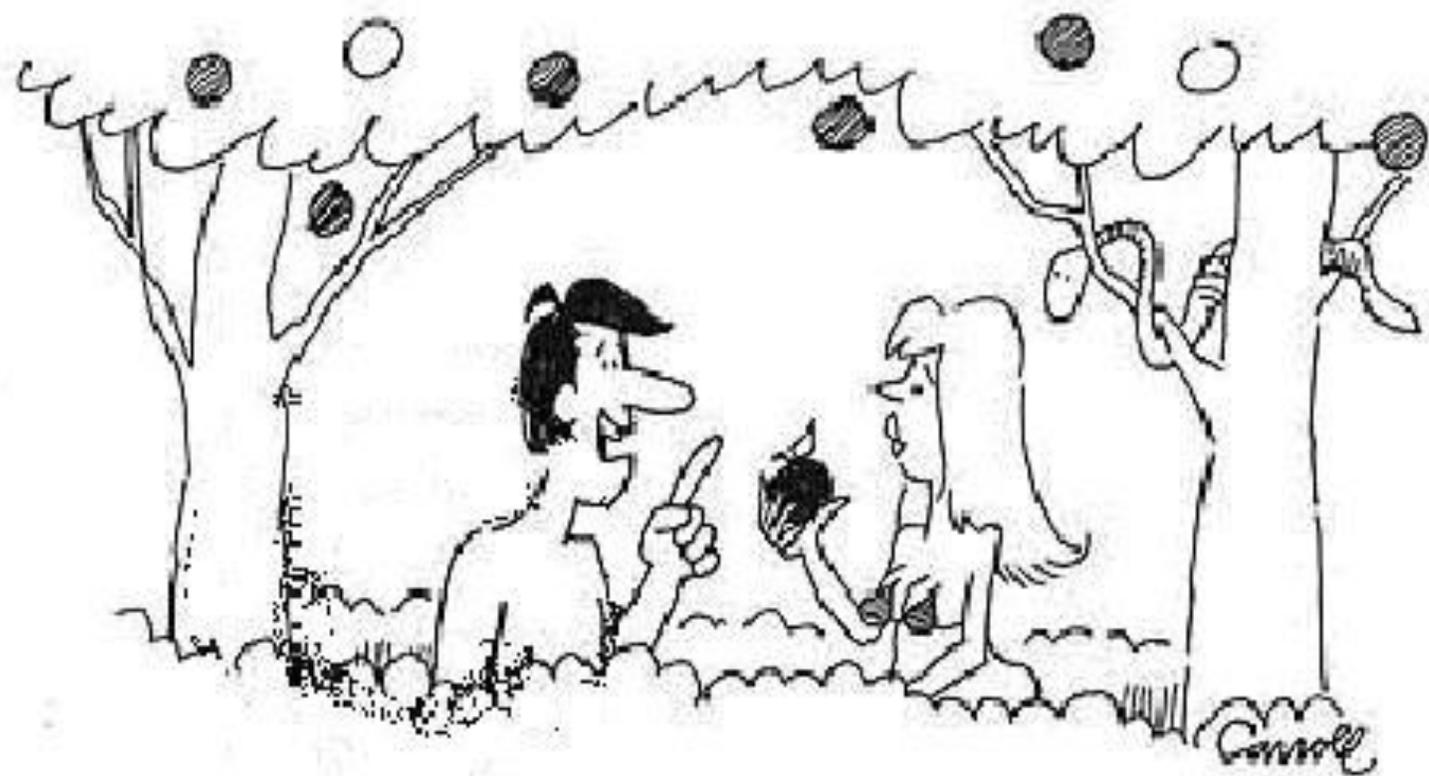
-Tom Sawyer

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Learning Objectives

- ❖ Define problem alcohol use
- ❖ Review Signs and Symptoms of alcohol use disorders
- ❖ Identify testing useful in detection and monitoring of alcohol use disorders
- ❖ And hopefully a gentle reminder this is the granddaddy of all addictions



"I HAVE A BETTER IDEA! LET'S SQUEEZE THE APPLE
AND FERMENT THE JUICE!"

Who has woe? Who has sorrow? Who has contentions? Who has complaining? Who has wounds without cause? Who has redness of eyes? Those who linger long over wine, Those who go to taste mixed wine. Do not look on the wine when it is red...

Proverbs 23:29-35

“Well, I woke up this morning
And I got myself a beer.

The future's uncertain
And the end (enemy) is always
near.”

Roadhouse Blues-Jim Morrison

Drugs get all the attentions, but...

Alcohol

- ❖ An estimated 88,000 people (approximately 62,000 men and 26,000 women) die from alcohol-related causes annually
- ❖ NIAAA 2017

All other Drugs

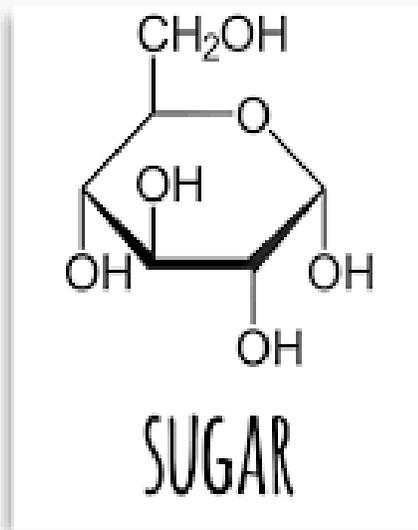
- ❖ 70,237 drug overdose deaths occurred in the United States in 2017. Opioids were involved in 47,600 overdose deaths in 2017
- ❖ CDC Injury Center Report

Alcohol's Effects on the Body

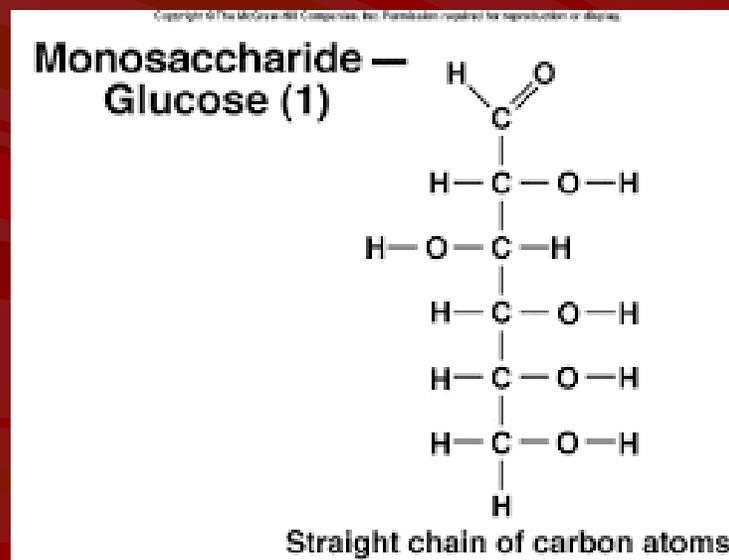
- ❖ **Brain:** Alcohol interferes with the brain's communication pathways
- ❖ **Heart:** Cardiomyopathy, Arrhythmias, High BP
- ❖ **Liver:** Alcoholic hepatitis, Fatty liver, Cirrhosis
- ❖ **Pancreas:** Pancreatitis and poor digestion of everything
- ❖ **Cancer:** Head & Neck, Esophageal, Liver, Breast, Colorectal
- ❖ **Immune System:** Easier to become infected, harder to heal

I'm obviously not against Sugar, but it can lead to trouble

Ring structure



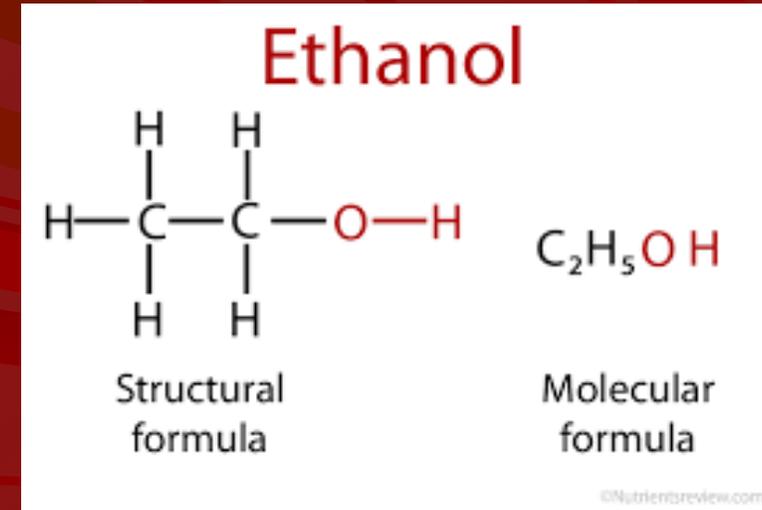
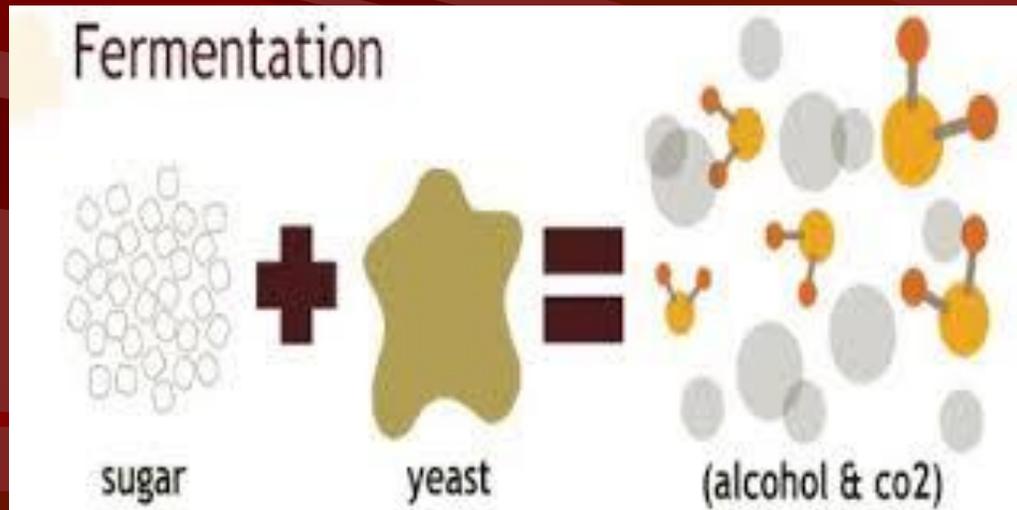
Unfolded structure



King Alcohol

How we make it

Chemistry 101



Who's at risk?

- ❖ Those with a Family history, the closer the relative the more the risk
- ❖ Early use of Addictive substances- the earlier the higher the risk
- ❖ Approximately 15% of population- **So for about 85% of the population it's OK**

Who has an Alcohol Use D/O?

- ❖ Use
- ❖ Problems
- ❖ Continued use despite the problems

“At Risk USE”

- ❖ Alcohol consumption that is directly correlated with a greater risk to health.
- ❖ Men: > 14 drinks per week
 - ❖ 5 or more drinks per occasion
- ❖ Women: > 7 drinks per week
 - ❖ 4 or more drinks per occasion
- ❖ Binge use is the most common and most damaging in younger populations

What problems?

- ❖ Legal- one DUI is a big red flag, but only leads to AUD Dx about 35% of the time. Two DUI's is nearly diagnostic.
- ❖ Family and Friends concerned, irritated or endangered.
- ❖ Health problems. Late, but with binges liver enzymes or nausea or blackouts are common.
- ❖ Work- this is a late-stage sign and what I see in my work.
- ❖ Community- withdraw from activities. Same for family and work.
- ❖ Jails, institutions and death.

Continued Use of Alcohol or of another addictive substance

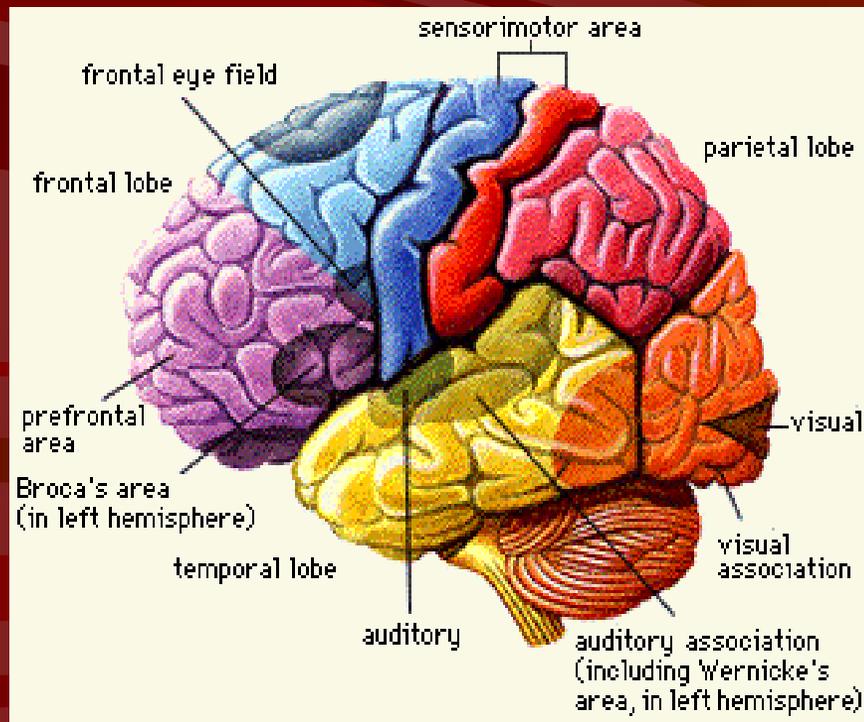
- ❖ In my work I have seen many cases that started with alcohol, but they soon find its trouble. Many then get a Dx and begin a Benzo, Opioid or Stimulant. Stimulants seem to be fastest growing class. Also Z-drugs. *The triple A threat*
- ❖ *Alcohol is by far most common substance of Relapse in Healthcare Professionals. Probably all relapses.*

Testing for Alcohol Use D/O

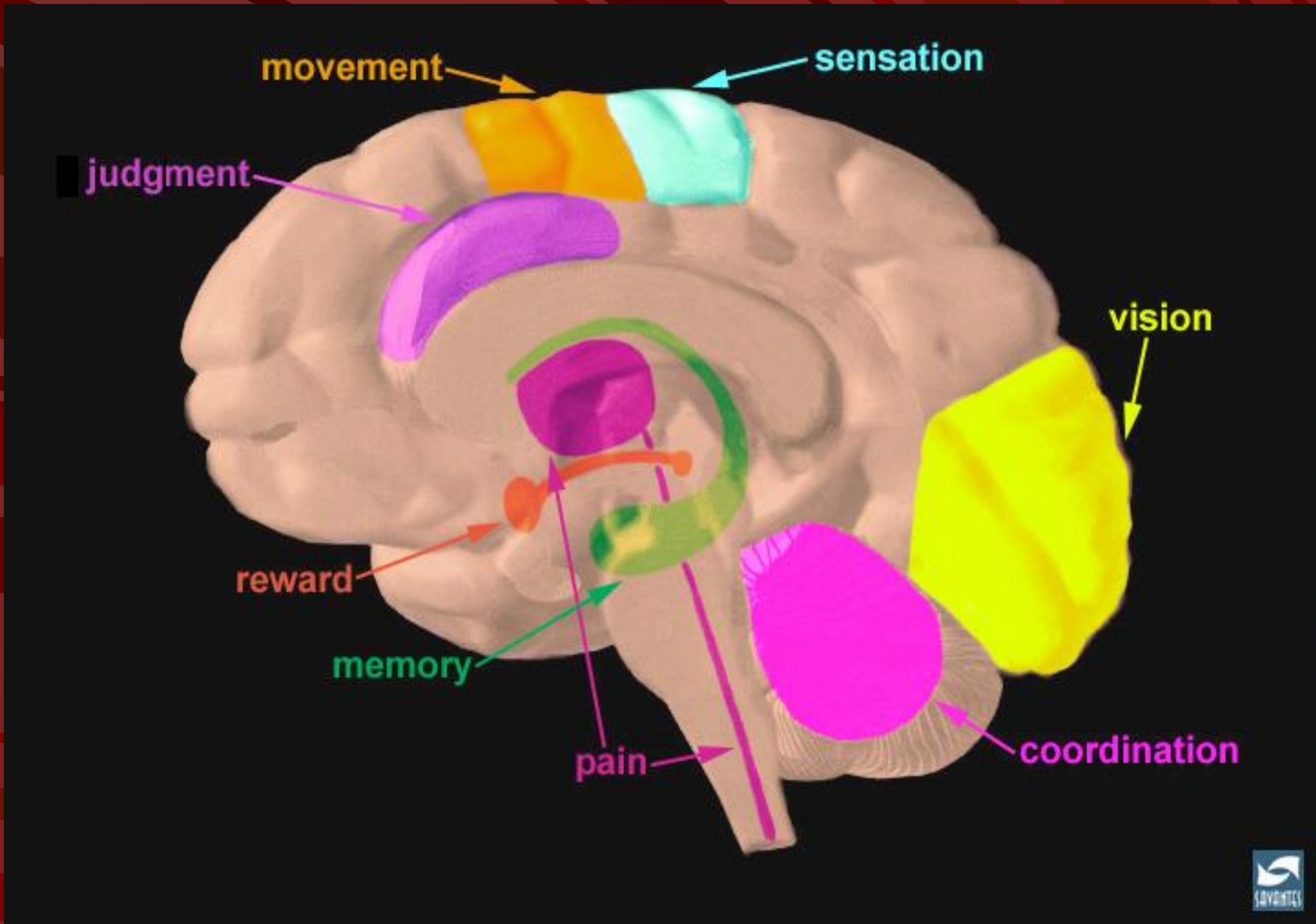
- ❖ Breathalyzer- Good for right then, but not much else. Alcohol is zero order kinetics. About 0.015-0.02 BAL decr. per hour once you stop drinking.
- ❖ EtG and EtS- longer markers used in our work for professional monitoring. 3-4 days look back EtG above 500 ng/ml probably beverage alcohol EtG/EtS ratio varies but in 3 to 4 range
- ❖ Peth test- Used in Professional monitoring and evaluations. Peth above 20 ng/ml consistent with significant exposure during prior 2 weeks, longer if very high exposure (phosphatidylethanol)
- ❖ Since Gram amounts consumed, minor metabolic paths can lead to useful markers. Standard drink = 14 Gms of Alcohol

Addiction is a brain disease

*a primary illness, not a symptom
secondary to a psychiatric disorder*



Brain Reward Center:
Median Forebrain
Nucleus Accumbens
Ventral Tegmental Area
Dopamine



movement

sensation

judgment

vision

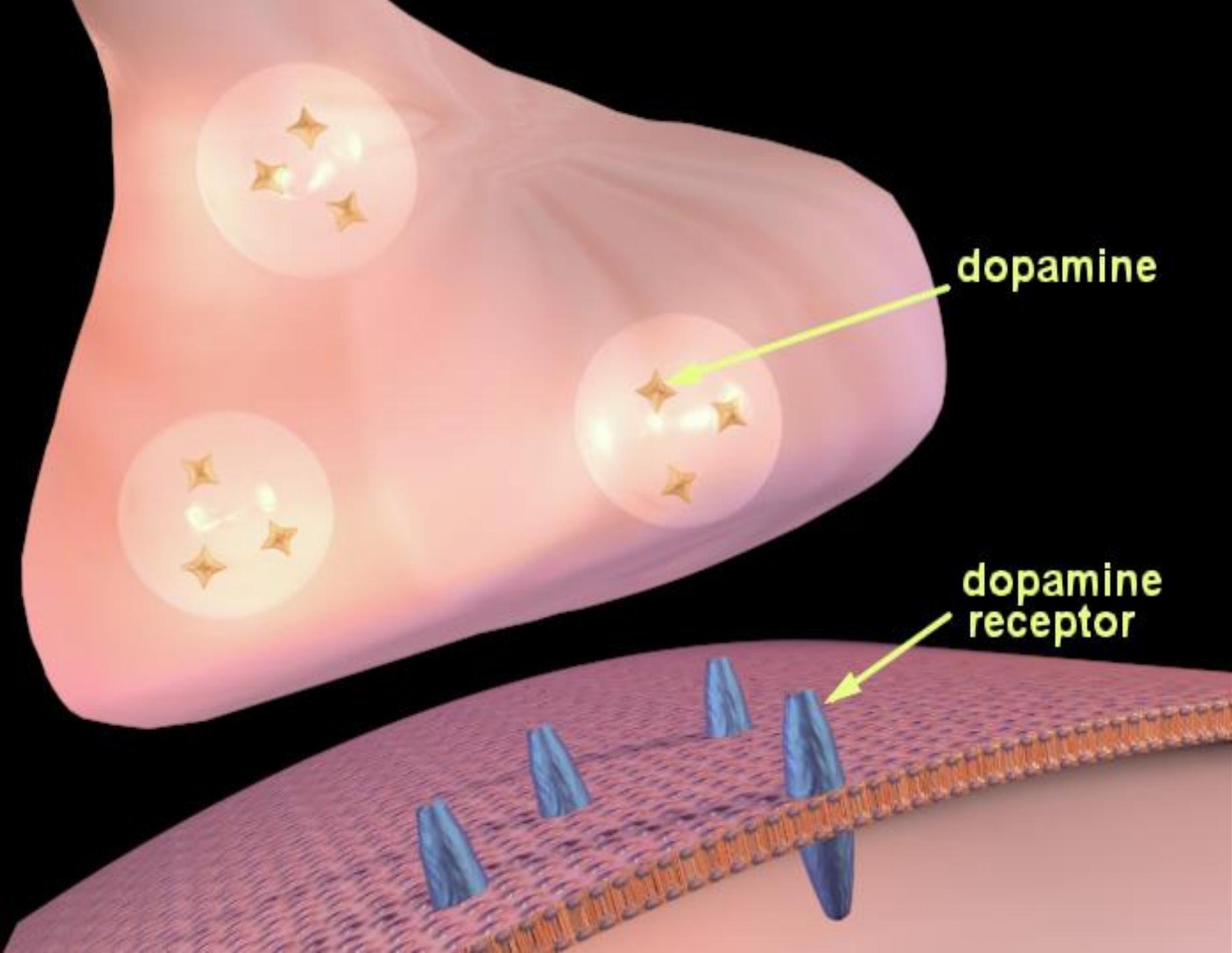
reward

memory

pain

coordination

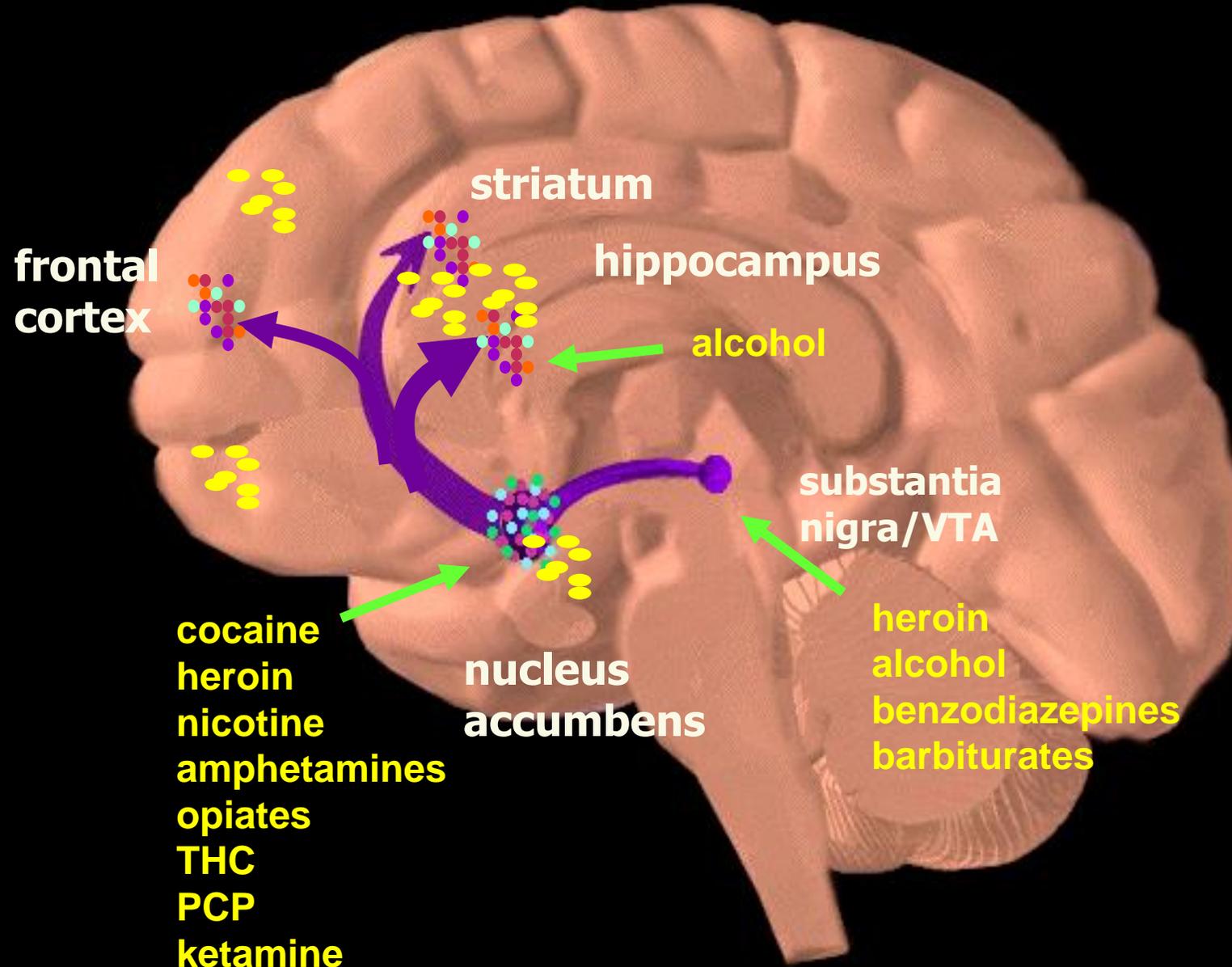




dopamine

dopamine
receptor

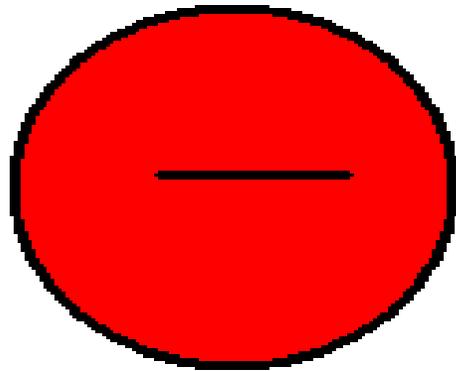
Dopamine Pathways – Pleasure pathways



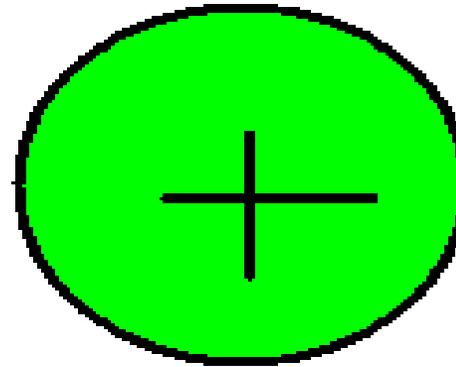
Tale of Two Receptors

- ❖ GABA is the major inhibitory neurotransmitter in the brain. Alcohol acts to increase GABA activity in the brain. Benzos and Z-Drugs act similarly at a different spot on the GABA receptors- ***but do the same thing.***
- ❖ Glutamate is the major excitatory neurotransmitter in the brain, and it has several receptor subtypes, including one called N-methyl-D-aspartate (NMDA). Alcohol inhibits glutamate activity in the brain

Receptors effected by Alcohol

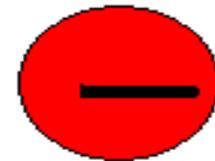
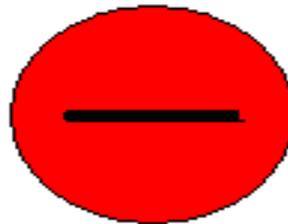
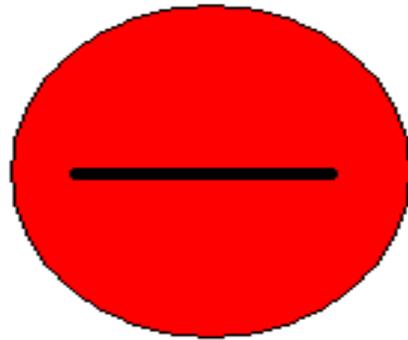


GABA receptor
lets in Cl⁻



NMDA receptor
lets in Ca⁺⁺

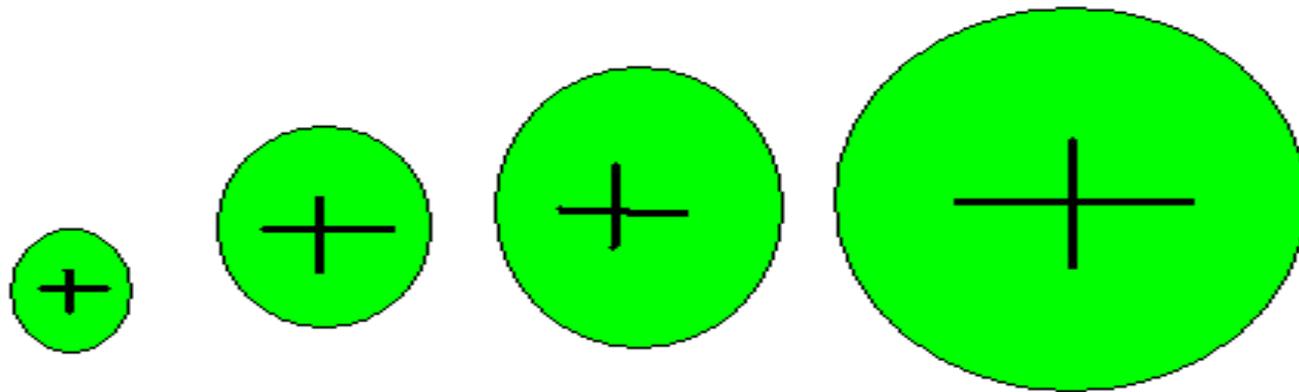
GABA- the down button



GABA receptors over time
while using Alcohol or Benzo's



NMDA- the up button



NMDA receptors over
time while on Alcohol

Drugs approved for treatment of Alcohol Use D/O

- ❖ Disulfiram
- ❖ Acamprosate
- ❖ Naltrexone

Disulfiram

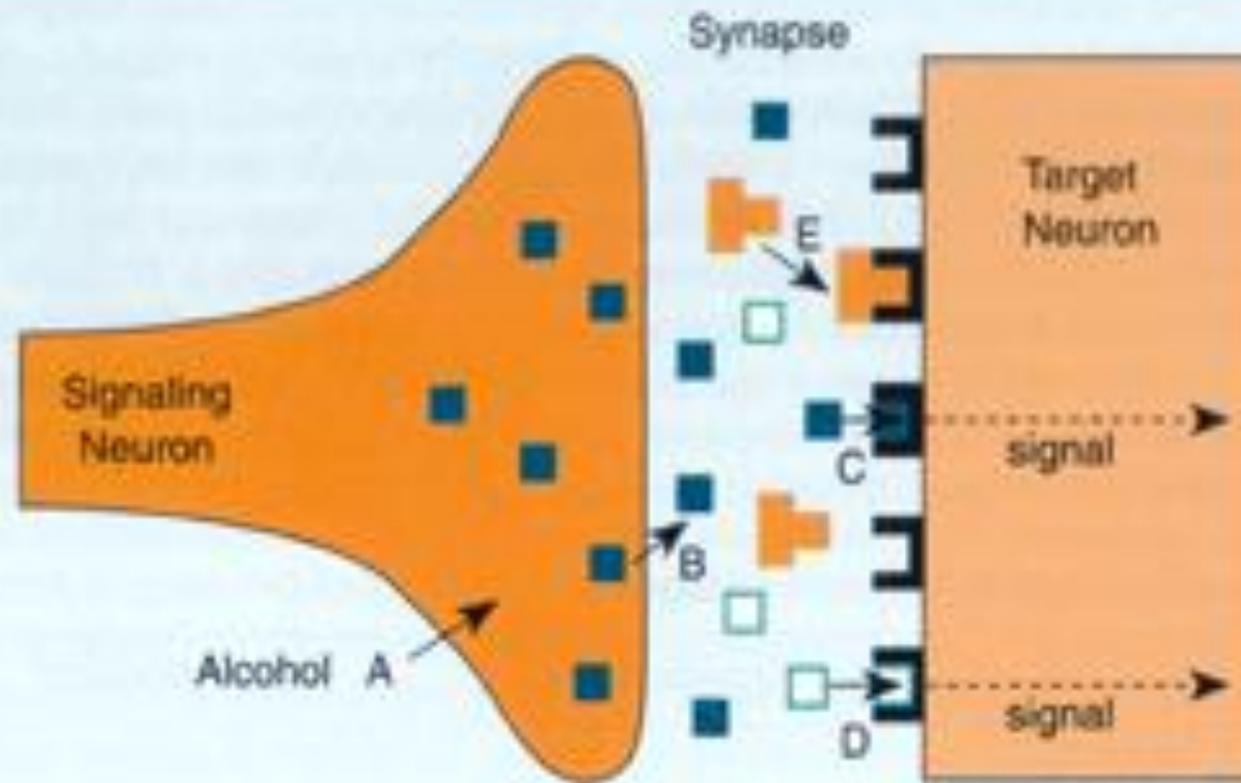
- ❖ In 1951, this was the first drug that the FDA approved for alcohol use disorder. Disulfiram (Antabuse) changes the way your body breaks down alcohol. If you drink while taking it, you get sick.
- ❖ Disulfiram isn't for everyone, though. And it only works if you take it.

Acamprosate

- ❖ Acamprosate works by interacting with two chemical messenger systems in the brain: GABA and glutamate. GABA, when it works correctly, it may help control the fear or anxiety you feel when those cells are overexcited. Glutamate, on the other hand, stimulates nerve cells.
- ❖ Drawback is that you must take 2 pills 3 times every day. "If you aren't good at remembering to take pills, then this would be a tricky one" WebMD

Naltrexone

- ❖ When you drink alcohol while taking naltrexone, you can feel drunk, but you won't feel as much of the pleasure that usually comes with it.
- ❖ Research shows that naltrexone works best for people who have already stopped drinking for at least 4 days when they begin treatment. Better at getting folks to drink less, not stop. So...



-  = Naltrexone
-  = Endogenous Opioids
-  = Receptor
-  = Exogenous Opiates

Alcoholics Anonymous, page 22 from ‘There is A Solution’

Perhaps he goes to a doctor who gives him morphine or some sedative with which to taper off. Then he begins to appear at hospitals and sanitariums.

This is by no means a comprehensive picture of the true alcoholic, as our behavior patterns vary. But this description should identify him roughly.

Abstinence and Spiritual
based Recovery aren't quick
nor popular.

It can be a lonely and discredited
message, but it is the most reliable
long-term solution.

My experience and opinion

Here's what I did

- ❖ Hx of Use (What, How much, How long, other medical conditions...)
- ❖ Load with Phenobarb- (stop the train from leaving the station)
- ❖ Mg⁺⁺ for Alcohol
- ❖ Thiamine. Very important and often an after thought now, if thought of at all. IMHO

Phenobarb dosage

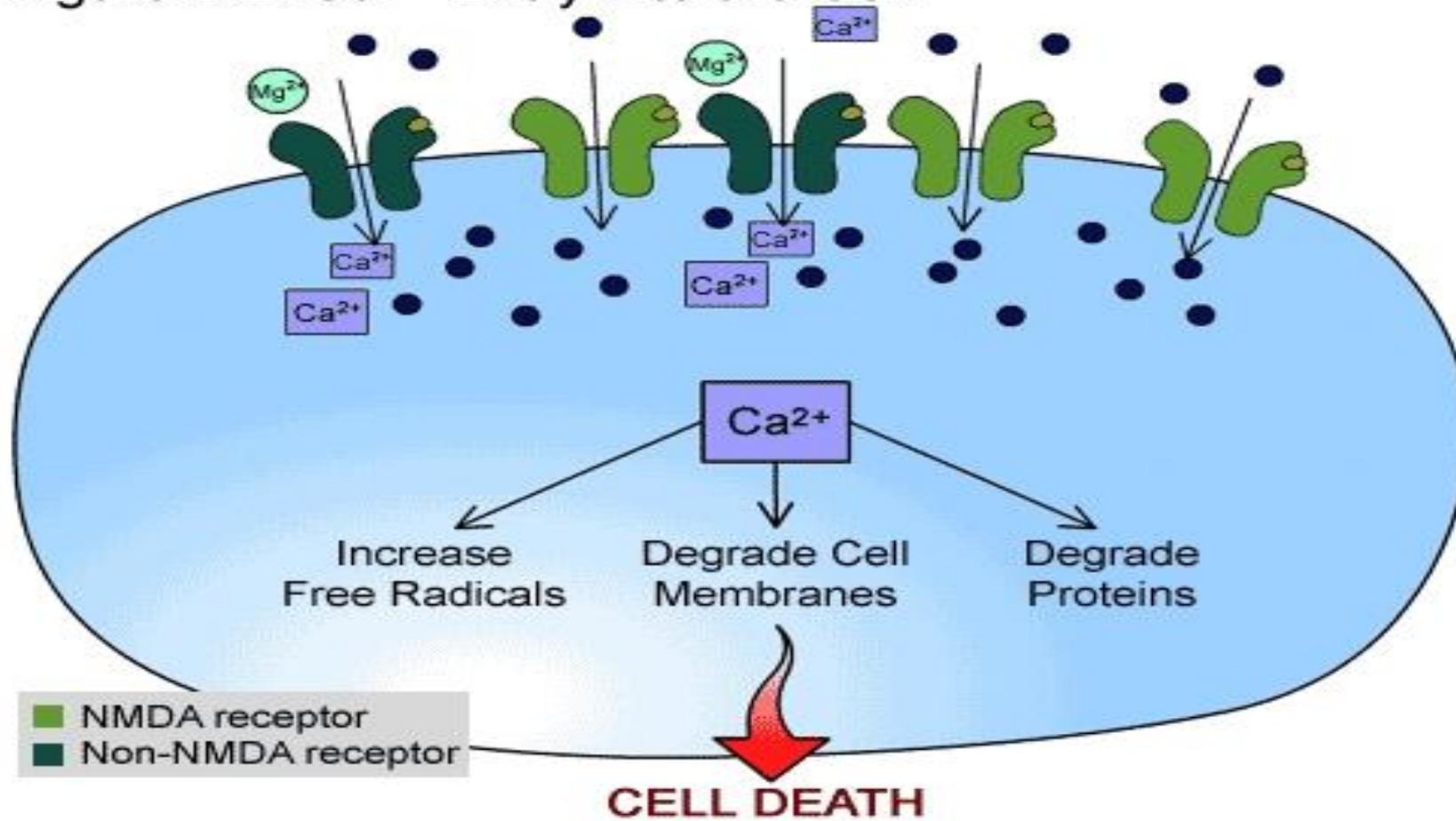
- ❖ Load
- ❖ Regular dose taper
- ❖ PRN's based on CIWA score

Magnesium Sulfate

- ❖ Based on Alcohol use and age of Patient
- ❖ 1 Gm IM every 8 hours
- ❖ At least 2 doses
- ❖ Up to 4 for high volume drinkers and those with seizure Hx*
- ❖ PO Magnesium oxide is poor alternative, limit is 400mg BID

*Magnesium is not for seizures

Figure L-2: Ca^{2+} Entry into the Cell



As glutamate continually binds to non-NDA receptors and allows the entry of positive ions, the cell's voltage rises. Ultimately, the voltage reaches a certain value that causes the Mg^{2+} ion to be removed from the opening of the NMDA receptor. Ca^{2+} flows through the open NMDA receptor and causes various activities to occur that lead to cell death.

Thiamine is critical for Tx of Alcoholism

Thiamine 100 mg IM now,
then 100 mg a day x 5
days.

Folic acid 1 mg a day for 5
days.

Detox protocol I used at the Schwartz Center from 2004-2010

- ❖ Phenobarb 180 mg
now

- ❖ Then Phenobarb 60
mg every 6 hr x 8
doses

- ❖ Then Phenobarb 60
mg every 12 hr x 4
doses

- ❖ Magnesium oxide 400
mg BID x 3 days

- ❖ Thiamine 100 mg
daily x 5 days

- ❖ Folic acid 1 mg daily x
5 days

No one every had a seizure. More stayed to complete Tx. And no one ever asked for more Phenobarb

What about Delirium?

- ❖ This is where dehydration is important
- ❖ First load with Phenobarb and push dose
- ❖ Avoid anticholinergic drugs
- ❖ Risperdal 2mg + Ativan 2mg PO
- ❖ Haldol 5mg +Ativan 2mg+ Benadryl 50mg all IM

“The 12-step model of recovery is the core technology in the short and long term treatment of alcoholism and addiction... the standard of care”

Garrett O'Connor, MD
CAPTASA 2005

Alcoholics Anonymous, page 64 from “How It Works”

...for we have been not only mentally and physically ill, we have been spiritually sick. When the spiritual malady is overcome, we straighten out mentally and physically.

Most important word in the 12 Steps

Continued

Nobody gets cured

Parting thought-

Ask folks about their drinking. Then do some testing to determine if they are telling the truth and at risk of a chronic, progressive and very unpleasant on the way to being fatal illness. You just may be the catalyst for a miracle.

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