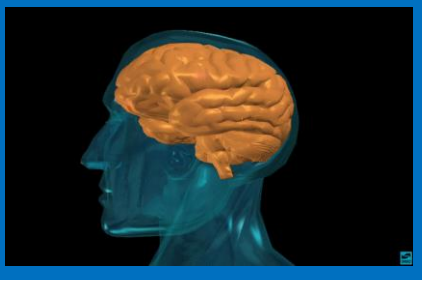
The Substance Use and Mental Health Leadership Council of RI

Crisis Response: Neurobiology, Medical Consequences and Treatment of Alcohol Overdose, and Severe Alcohol Withdrawal



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Disclosures

This continuing nursing education activity was approved by the Northeast Multi-State Division, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

Maine, New Hampshire, New York, Rhode Island, Vermont Nurses Associations are members of the Northeast Multi-State Division of the American Nurses Association.

In order to be awarded contact hours participants must stay for the entire program and submit an evaluation form.

No individuals in a position to control content for this activity has any relevant financial relationships to declare.

There is no commercial support being received for this event.

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Objectives

As a result of this training, participants will be able to:

- Discuss the etiology of addiction.
- Describe the impact of stigma on nursing practice and patient outcomes.
- Discuss the neurobiological basis in the development of an alcohol use disorder (AUD).
- List the medical consequences of chronic alcohol use.
- Discuss the use of the Clinical Alcohol Withdrawal Scale (CIWA) in assessing alcohol withdrawal syndrome.
- Identify crisis response steps in the event of an overdose or alcohol poisoning.
- Describe assessment criteria for determining appropriate level of care for the management of alcohol withdrawal.

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Outline

- Alcohol Statistics
- Addiction Vulnerability
- Recognizing Alcohol Poisoning and interventions
- Alcohol Effects on the Brain and Body
- Alcohol withdrawal and Treatment

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STATS

Prevalence of Drinking

In 2015, 86.4 % of people ages 18 or older reported that they drank alcohol at some point in their life, 70.1 % drank in the past year and 56% in the past month.

Prevalence of Binge Drinking

In 2015, 26.9% of people ages 18 or older reported that they engaged in binge drinking in the past month

Alcohol Use Disorder(AUD) in the USA

Adults: 15.1 million adults ages 18 or older (6.2% of this age group had AUD

Youth(ages 12-17): 623,000 (2.3% of males in this age group and 2.7% of females in this age group

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More Stats

Alcohol-related Deaths

One in 10 deaths among working-age adults aged 20–64 years are due to excessive alcohol use

- Excessive alcohol use is a leading cause of preventable death.
- This dangerous behavior accounted for approximately **88,000 deaths** per year according to the NSDUH (National Survey on Drug Use and Health) and accounted for **1 in 10 deaths among working-age adults** aged 20–64 years.
- Excessive alcohol use shortened the lives of those who died by about 30 years.
- These deaths were due to health effects from drinking too much over time, such as breast cancer, liver disease, and heart disease, and health effects from consuming a large amount of alcohol in a short period of time, such as violence, alcohol poisoning, and motor vehicle crashes.

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More Stats

Economic Burden

In 2010, alcohol cost the US 249.0 billion

Family Consequences

More than 10% of children live with a parent with alcohol problems according to 2012 study

Alcohol and Pregnancy

Most recent reports from specific US sites report the prevalence of FAS to be 2 to 7 cases per 1,000and the prevalence of Fetal Alcohol Spectrum Disorder(FASD) to be as high as 20-50 cases per 1,000

Alcohol and the Human Body

In 2015, of the 78,529 liver disease deaths in individuals 12 and older, 47.0% involved Alcohol

Drinking alcohol increases risk of cancers of the mouth, esophagus, pharynx, larynx, liver and breast

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Who is Vulnerable??

Science of Addiction

There is a growing body of evidence of structural vulnerability of brains to the effects of intoxicating substances. Several factors contribute to this vulnerability

- Genetics
- Early development and environmental factors
- Effects of stressful events across the life cycle
- Mental disorders-principally depression and anxiety

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More on Genetics

- Basic neurochemical functions in the human brain may be “set” by genes
- Some people are born with “imbalances”
- Of certain neurotransmitters such as serotonin
- Chronic lower levels of serotonin may result in vulnerability to substance use disorder-hence the concern about depression and SUD

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Addiction, Dependency, Disease

- By whichever label one wants to approach addiction, science has basically suggested that it is a chronic condition that requires life-long management.
- It can be compared to Type 2 Diabetes, chronic hypertension, asthma and obesity in that all of these conditions involve a complex of physiological and behavioral components
- The idea that one treatment episode will resolve SUD is unsupportable

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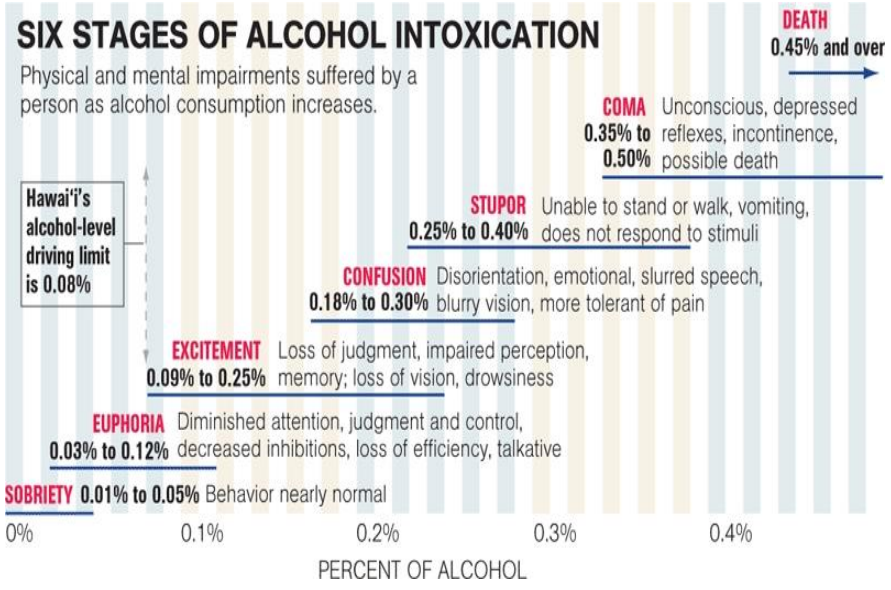

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Binge Drinking

Binge drinking is the most common, costly, and deadly pattern of excessive alcohol use in the United States. NIAAA (Nat'l Institute of Alcohol Abuse and Alcoholism) defines binge drinking as a pattern of drinking that brings a person's blood alcohol concentration (BAC) to 0.08 grams percent or above.

Typically happens when men consume 5 or more drinks or women 4 or more drinks in about 2 hours.

Most people who binge drink are not alcoholics

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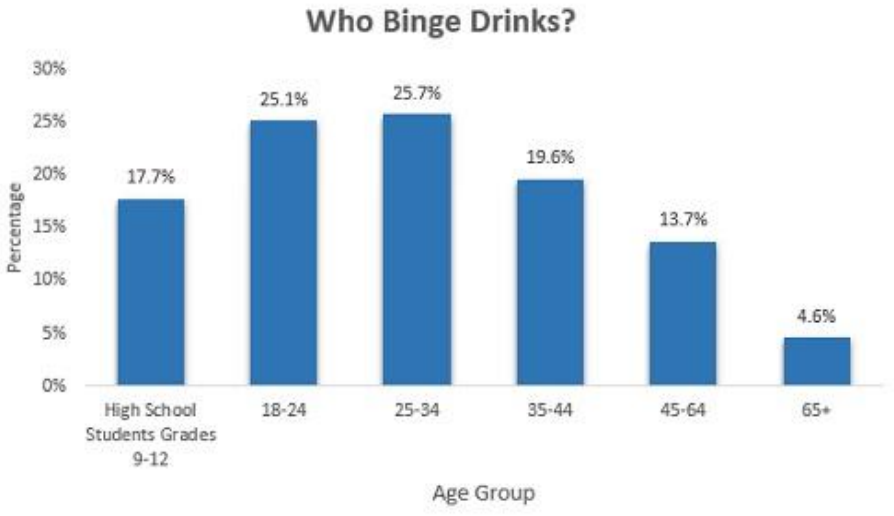
Who Binge Drinks?
30%
25%
20%
15%
10%
5%
0%
Percentage
17.7%
25.1%
25.7%
19.6%
13.7%
4.6%
High School Students Grades 9-12
18-24
25-34
35-44
45-64
65+
Age Group

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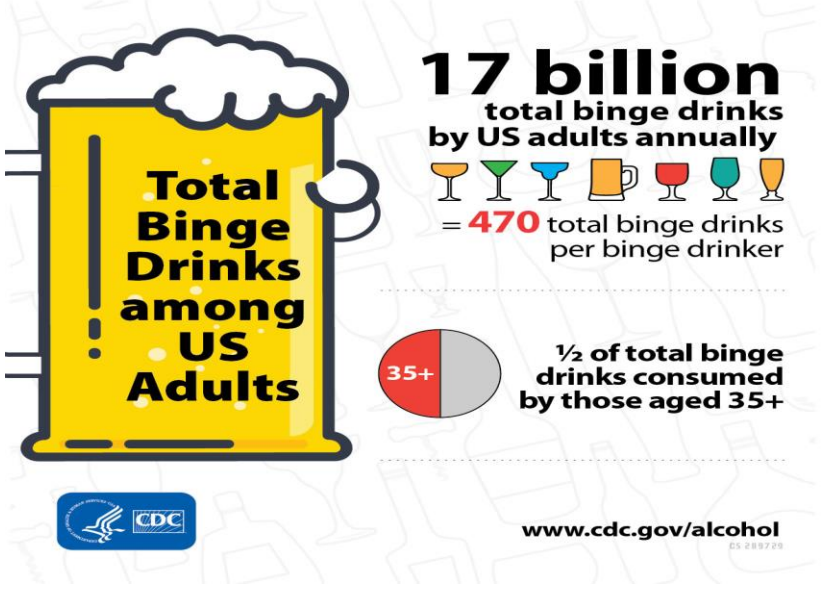
Total Binge Drinks among US Adults
17 billion
total binge drinks by US adults annually
= 470 total binge drinks per binge drinker
35+
½ of total binge drinks consumed by those aged 35+
CDC
www.cdc.gov/alcohol

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Binge Drinking has Serious Risks

- Unintentional injuries such as car crashes, falls, burns, **alcohol poisoning.**
- Violence including homicide, suicide and sexual assault
- STDs
- Unintended pregnancy or poor pregnancy outcomes
- Chronic diseases such as High BP, stoke, heart disease and liver disease
- Memory and learning problems
- Alcohol dependence

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Reasons for Binge Drinking

- Forgetting Problems
- Having Fun
- Testing Tolerance
- Rebelling

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Binge Drinking Side Affects

Sudden but temporary:

- Coordination
- Dehydration
- Nausea
- Memory loss
- Poor decision making
- Shakiness

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Frequent binge drinking can lead to long term effects

Can be over looked as is not everyday drinking

- Brain Damage
- Liver Damage
- Stroke
- Heart Disease
- Cancer

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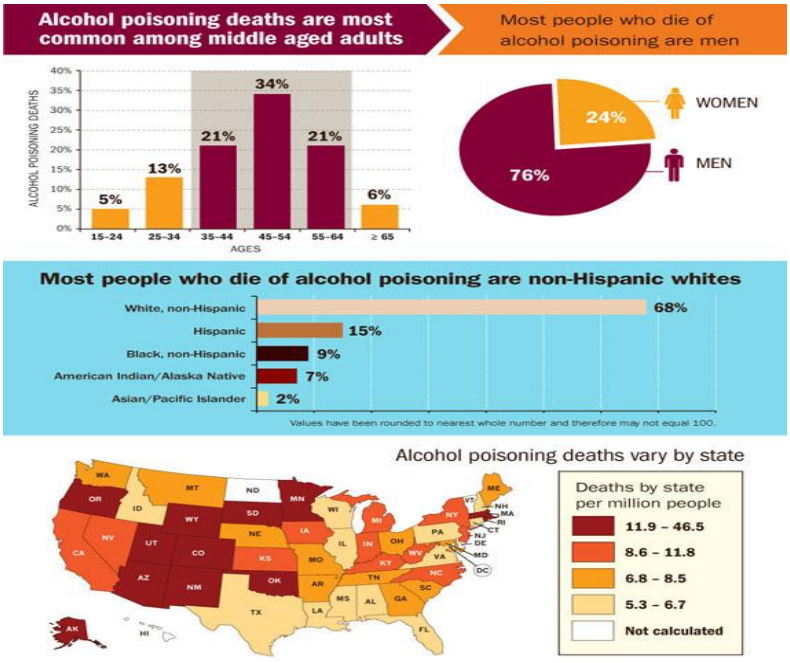
Alcohol poisoning deaths are most common among middle aged adults
Most people who die of alcohol poisoning are men
ALCOHOL POISONING DEATHS
40%
35%
30%
25%
20%
15%
10%
5%
0%
5%
13%
21%
34%
21%
6%
15-24
25-34
35-44
45-54
55-64
≥ 65
AGES
24%
76%
WOMEN
MEN
Most people who die of alcohol poisoning are non-Hispanic whites
White, non-Hispanic
68%
Hispanic
15%
Black, non-Hispanic
9%
American Indian/Alaska Native
7%
Asian/Pacific Islander
2%
Values have been rounded to nearest whole number and therefore may not equal 100.
Alcohol poisoning deaths vary by state
Deaths by state per million people
11.9 – 46.5
8.6 – 11.8
6.8 – 8.5
5.3 – 6.7
Not calculated

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SIGNS OF ALCOHOL POISONING
• CONFUSION
• UNCONCIOUSNESS
• SEIZURES
• SLOW BREATHING
• HYPOTHERMIA
• BLUE OR PALE SKIN
Alcohol poisoning
Identifing
PERCENTAGE OF ALCOHOL
• 12 FL OZ OF BEER: 5%
• 8-9 FL OZ OF MALT: 7%
• 5 FL OZ OF WINE: 12%
• 1.5 FL OZ SHOT: 40%
EFFECTS IF UNTREATED
• CHOKING ON VOMIT
• STOPPED BREATHING
• HYPOTHERMIA
• SEVERE DEHYDRATION
• PERMANENT BRAIN DAMAGE
• DEATH
PERCENTAGE
Effects
TAKE ACTION
WHAT TO DO
• KNOW DANGER SIGNS
• DON'T WAIT FOR ALL SIGNS
• CALL 911
SOURCE: pubs.niaaa.nih.gov
JULIANY NAKAZATO THE DAILY ILLINI

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Symptoms of Alcohol Poisoning

- Irregular breathing
- Unresponsive
- Pale, clammy and Blue-tinged skin
- Decrease body temperature
- Vomiting
- Seizing
- Confusion
- Incoherent
- Comatose

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How to help?

Alcohol poisoning requires immediate attention by trained Medical staff

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Until ambulance arrives

- Stay alert-Don't panic
- Keep person in upright position
- Keep person awake
- Don't leave person alone
- Be prepared to answer EMS's questions

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When EMS Arrives

Treatment will depend on the severity of symptoms and the BAC

Options:

Intubate

IV fluid and glucose

Pump stomach in ED to decrease continues Alcohol absorption

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Cures to Inebriation

- Similarly, you cannot “sober up” with anything other than time.
  - Caffeine will not reverse the depression of the central nervous system, thicken your blood, restore your balance, or negate any other effects of inebriation
    - What’s worse, mixing an ‘upper’ with a ‘downer’ (caffeine with alcohol) can cause the brain to send conflicting signals to organs such as your heart and lungs.
    - Stimulant/alcohol combinations can lead to heart or lung failure.
  - Consuming food to sober up will not reduce the amount of alcohol already in your bloodstream
- Additionally, you cannot ‘fool’ a blood alcohol meter.

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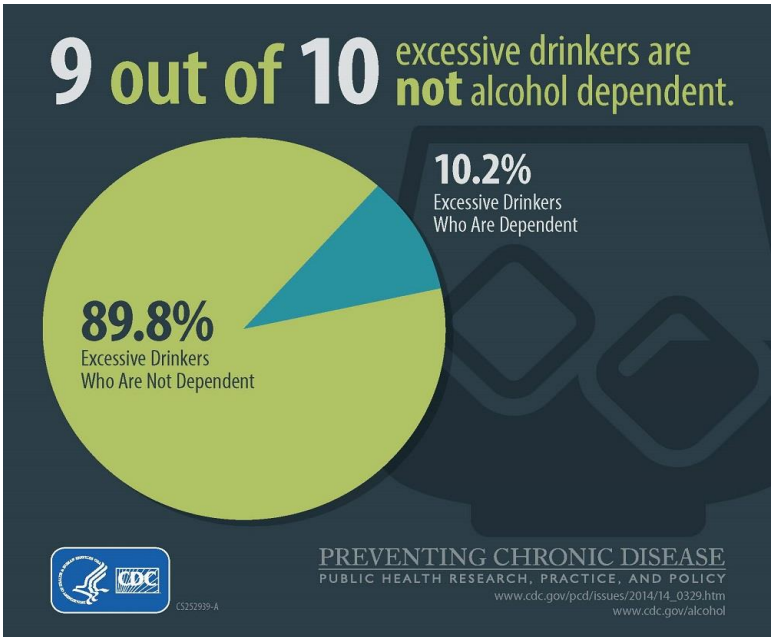

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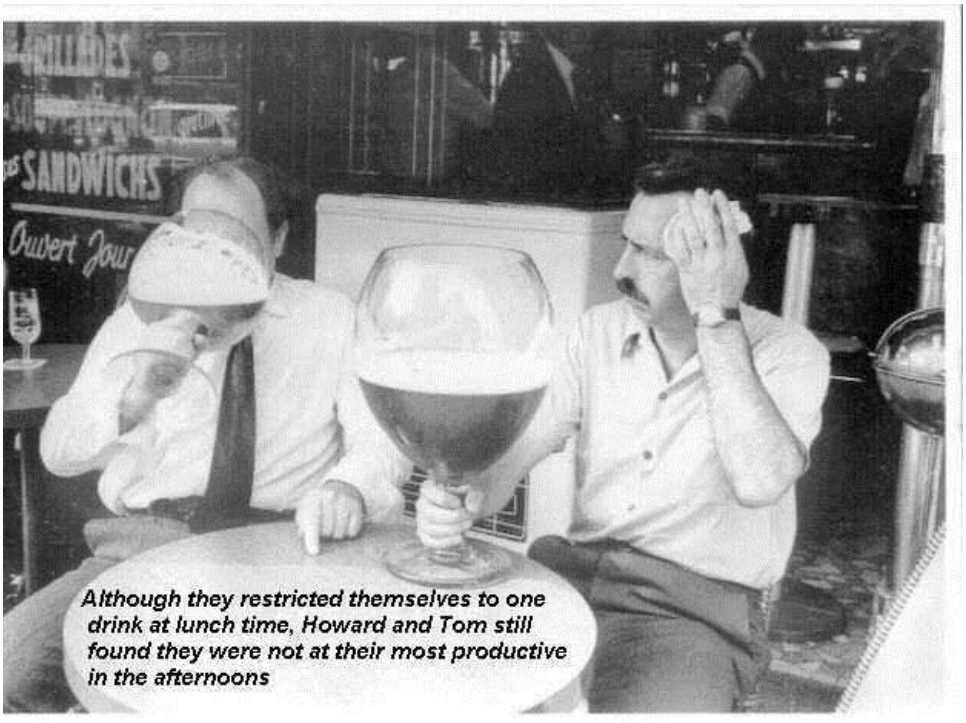

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ALCOHOL:
Effects on the Brain

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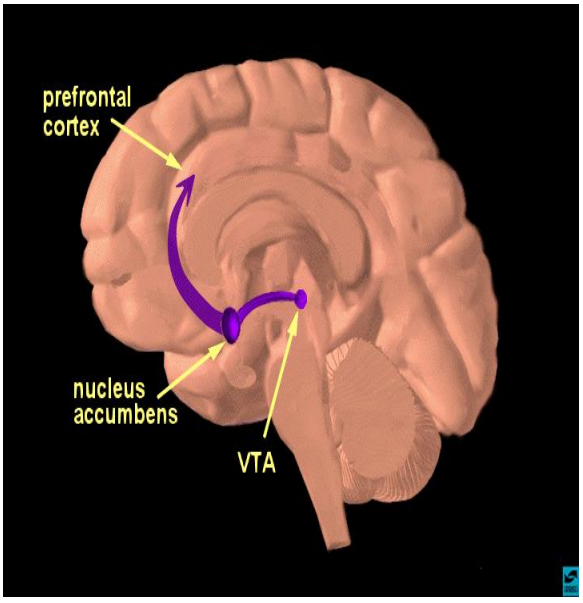
Reward Pathway



- Important part of the reward system are shown
- Information travels from the ventral tegmental area (VTA) to nucleus accumbens the to prefrontal cortex
- Activated by rewarding stimuli

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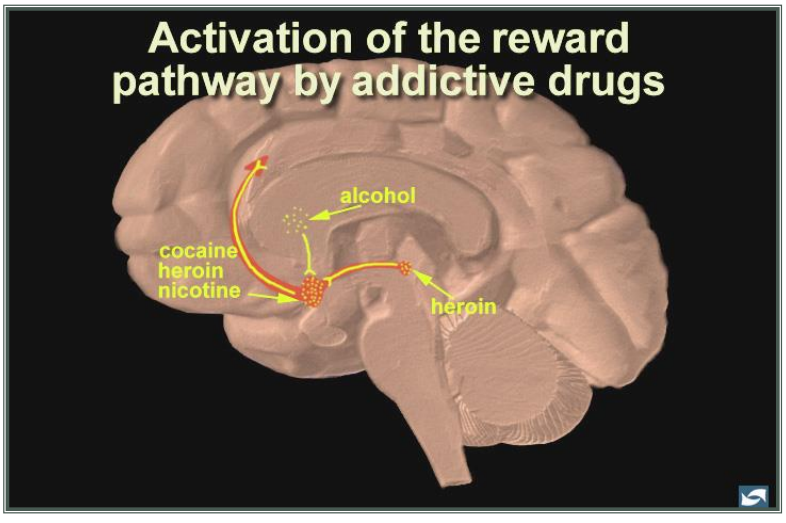
Activation of Reward



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Brain Functioning under other insults- similar to addiction

- Long term effects of substance abuse and untreated depression can reduce frontal lobe functioning
- The frontal lobe is where planning, executive functions, emotion management and reasoning occur- the area of the brain most needed for recovery activities
- In addition, head injuries can produce similar effects

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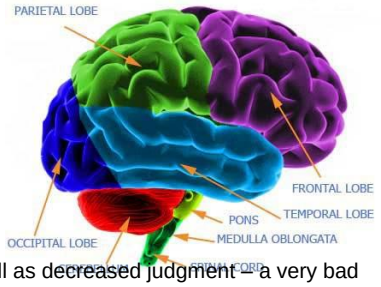
Impaired Judgment

- Alcohol depresses the central nervous system
  - This means that alcohol slows the rate at which the nervous system can function and communicate
  - This will prevent all neurological processes from occurring at the normal rate or extent ranging from judgment to control of bodily function.
- Structures of the brain affected include the frontal lobe where rational decision making and judgment occurs.



- Consumption of alcohol will also cause increased self-confidence as well as decreased judgment – a very bad combination.
  - Those that are too drunk to drive are less likely to be able to make this determination as they drink more
  - Those that are too drunk too drive will also feel more confident in their own ability to safely do so (despite the contrary being true)

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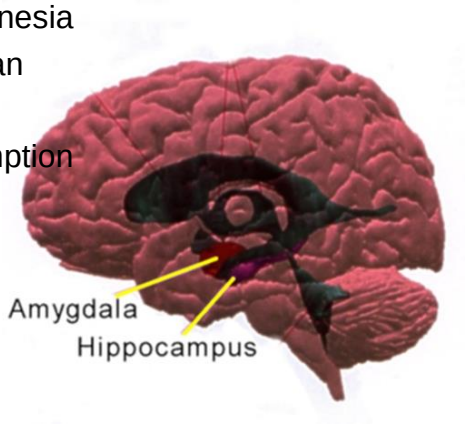
Amnesia

Because the central nervous system is impaired, the process of creating and storing memory is also impaired.

This can lead to short-term amnesia excess alcohol consumption can cause people to be unable to form memories during consumption to varying extents.



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Brain Changes

- **Cerebellum:** Motor coordination (loss of balance and stumbling
- **Limbic System**: This complex brain system monitors a variety of tasks including memory and emotion
- **Cerebral Cortex**: think plan behave intelligently and interact socially

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Other Brain changes

- Atrophy- impacts motor coordination, temperature regulation, sleep, mood, and various cognitive functions including learning and memory
- Neurotransmitter-Glutamate is sensitive to alcohol, researchers believe this affects memory and is cause for “Black outs”

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More Brain stuff……..

- Liver breaks down alcohol, the by-products of alcohol damage the liver cells. This allows too much toxic substances like ammonia and manganese to travel to the brain.

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Hepatic Encephalopathy

This damages brain cells and leads to fatal brain disorder know as Hepatic encephalopathy.

Symptoms include: sleep disturbances, mood changes, anxiety, shortened attention span, coordination problems, including Asterixis (hand shaking or flapping), coma and death

Can be treated by lowering blood ammonia levels.

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Wernicke-Korsakoff Syndrome

A brain disorder due to Vitamin B1 (Thiamine) deficiency

- **Wernicke encephalopathy**
  - Confusion and loss of mental activity that can progress to coma and death
  - Loss of muscle coordination (ataxia) that can cause leg tremor
  - Abnormal eye movements-nystagmus
  - Alcohol withdrawal

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Continued…….

- **Korsakoff Syndrome**

  Inability to form new memories

  Loss of memory–can be severe

  Making up stories (confabulation

  Treatment: Vitamin B1may be given IM, IV or PO. This may improve symptoms of: confusion or delirium, difficulties with vision and eye movement and lack of muscle coordination.

  Often does not improve loss of memory and intellect

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Prognosis

Without treatment, Wernicke-Korsakoff syndrome gets steadily worse, and can be life threatening.

With treatment it is possible to also be slowed or stopped

Possible complications

Alcohol w/d	Difficult social interaction
Falls	Alcohol neuropathy
Loss of thinking	Loss of memory
Shortened lifespan	

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Effects on the Heart

- **Alcohol Cardiomyopathy**: weakened heart muscles. Heart droops and stretches and therefore cannot contract effectively. Symptoms include SOB, fatigue, swollen legs, and feet and irregular heart beat.
- **Arrhythmias**: heart beats to rapidly or irregular

1) Atrial Fibrillation (upper chamber don't contract)

May cause blood clots

2) Ventricular tachycardia (lower chambers- electrical impulses cause rapid rate in the ventricles.

May cause dizziness, lightheadedness, unconsciousness, cardiac arrest and even sudden death

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Cardiovascular

Stroke-blood cannot reach the brain-usually occurs from a blood clot

Hypertension-Alcohol releases certain stress hormones that constrict vessels This elevates the BP

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Know the Benefits

- Research shows that healthy people who drink moderate amounts of alcohol may have lower risk of developing heart disease than nondrinkers
- But what about a recent study???

Moderate drinking- no more than 2 drinks on a given day for men and 1 drink for women (who are not pregnant or trying to conceive)

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Effects on Liver

Heavy drinking can cause fat to build up in liver called Steatosis, or fatty liver. Becomes more vulnerable to inflammation or Alcoholic Hepatitis.

Early: Nausea, vomiting, appetite loss abdominal pain and mental confusion.

Later: Enlarged liver, Jaundice, excessive bleeding and clotting difficulties

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Cirrhosis

- Fibrosis may occur which is scar tissue build up in the liver.
- Alcohol interferes with function of liver to break down the scar tissue and Cirrhosis occurs
- Cirrhosis prevent liver from performing critical functions like managing infections, removing harmful substances from the blood and absorbing nutrients

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Effects on the Pancreas

Pancreas plays an important role in food digestion and conversion to fuel to power the body.

It send enzymes to the small intestines to digest carbohydrates, proteins and fat.

It secretes insulin and glucagon, hormones that regulate the process of utilizing glucose. The bodies main source of energy

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Acute Pancreatitis Symptoms

- Abdominal Pain
- N and V
- Fever
- Rapid heart rate
- Diarrhea
- Sweating

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Chronic Pancreatitis

- Same symptoms as acute plus…..
- Severe reduction in pancreatic function and digestion
- Destroy pancreas and leads to diabetes and death

Effects of Alcoholic pancreatitis can be managed but not easily reversed

Risk applies to all heavy drinker but only 5 % with AUD get pancreatitis (not sure why??)

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Cancer Risks: Life style habit that can increase risk of developing certain cancers

The National Cancer Institute identifies alcohol as a risk factor for the following types of cancer:

- Mouth:
- Esophagus
- Pharynx
- Larynx
- Liver
- Breast

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Drinking and Smoking

Recent studies estimate that drinking and tobacco together are responsible for:

- 80 % of throat and mouth cancer in men
- 65% of throat and mouth cancer in women
- 80% of esophageal squamous cell carcinoma
- 25-30% of all liver cancers

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Women and Cancer

Recent research:

Drinking habits of 1.2 million middle-aged women over 7 years.

Findings: Alcohol increases women's chances of developing cancers of the breast, mouth, throat, rectum, liver and esophagus.

Study showed even 1 drink a day can increase risk.

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Effects on the Immune System

- Your immune system exists before you were ever exposed to things like bacteria and viruses. (white cells, Killer cells, Cytokines, Lymphocytes cells and Antibodies – all kinds of innate and adaptive immune systems)
- Chronic alcohol use reduces and suppresses the functions of these cells increasing risk to inflammations and infections

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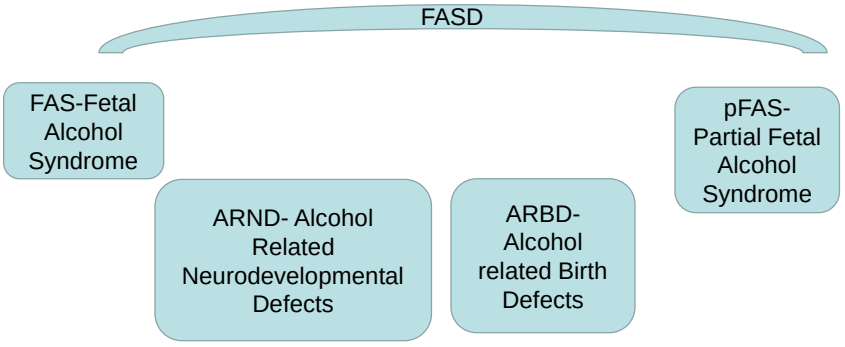
What is FASD?
Fetal Alcohol Spectrum Disorders



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Types of FASD

- **Fetal Alcohol Syndrome (FAS):** FAS represents the most involved end of the FASD spectrum. Fetal death is the most extreme outcome from drinking alcohol during pregnancy. People with FAS might have abnormal facial features, growth problems, and central nervous system (CNS) problems. People with FAS can have problems with learning, memory, attention span, communication, vision, or hearing. They might have a mix of these problems. People with FAS often have a hard time in school and trouble getting along with others.
- **Alcohol-Related Neurodevelopmental Disorder (ARND):** People with ARND might have intellectual disabilities and problems with behavior and learning. They might do poorly in school and have difficulties with math, memory, attention, judgment, and poor impulse control.
- **Alcohol-Related Birth Defects (ARBD):** People with ARBD might have problems with the heart, kidneys, or bones or with hearing. They might have a mix of these.

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FASD Fast Facts

- 100% preventable
- There is no known “safe” amount of alcohol to drink during pregnancy
- ALL TYPES of alcohol are equally harmful
- Alcohol is more harmful to a developing fetus than cigarettes, heroin, crack or cocaine
- Alcohol can harm the fetus at ANY TIME during pregnancy
- FASD is the leading cause of preventable intellectual disability and birth defects

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Prevalence

- Using medical and other records, CDC studies have identified 0.2 to 1.5 infants with FAS for every 1,000 live births in certain areas of the United States.[1]The most recent CDC study analyzed medical and other records and found FAS in 0.3 out of 1,000 children from 7 to 9 years of age.

- Studies using in-person assessment of school-aged children in several U.S. communities report higher estimates of FAS: 6 to 9 out of 1,000 children.

- Few estimates for the full range of FASDs are available. Based on community studies using physical examinations, experts estimate that the full range of FASDs in the United States and some Western European countries might number as high as 2 to 5 per 100 school children (or 2% to 5% of the population

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Risk Factors

In addition to how much, how often, and in what stage of pregnancy a woman drinks, other factors can also play a role in how fetal alcohol exposure affects children. These factors include:

- Poor health and inadequate nutrition
- Living in a culture where binge or heavier drinking is common and accepted
- Little awareness of FASD
- Not receiving adequate prenatal care
- Social isolation
- Exposure to higher levels of stress

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BOTTOM LINE!

- No safe amount.
- No safe time.
- No safe alcohol
- Period.

https://www.nofas.org

/

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Assessment and Treatment

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Neuroscience Research and Medications Development

- Clinical research indicates that the best treatment results are achieved with a combination of pharmacotherapy and skilled counseling.
- Research continues for all drugs of abuse to find out how alcohol and other drug treatments work (the mechanism of action) and the potential therapeutic value of using pharmacotherapy over longer periods of time.
- The prospect of improved addiction treatment has never been better.

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Effective treatment generally requires many facets. Treatment providers are important in helping the patients to:

- Manage physical withdrawal symptoms
- Understand the behavioral and cognitive changes resulting from drug use
- Achieve long-term changes and prevent relapse
- Establish ongoing communication between physician and community provider to ensure coordinated care
- Engage in a flexible treatment plan to help them achieve recovery

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Multiple Neurotransmitters and Receptors Are Affected By Alcohol

- Acetylcholine (nicotinic receptor)
- Adenosine (A1, A2 receptors)
- Dopamine (D1, D2, D3, D4 receptors)
- Gamma-aminobutyric acid (GABA receptors)
- Glutamate (NMDA receptor)
- Norepinephrine (alpha, beta receptors)
- Opioid peptides (mu, delta, kappa receptors)
- Serotonin (5HT) (multiple receptors, esp. 5HT3)
- Other peptides

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Neurotransmitters

Neurotransmitter	Drug	Use	How they work
Glutamate	Ketamine Phencyclidine	General anesthetic	Blocks action
GABA	Benzodiazepines	Tranquilizers/hypnotics Anti-epileptics/general	Enhances action
Acetylcholine	Nicotine	Stimulant in tobacco	Acetylcholine mimic
Noradrenaline	Amphetamines Imipramine Cocaine	Elevate mood Appetite suppressant	Boosts level
Dopamine	L-Dopa Clozapine	Treats Parkinson Anti-schizophrenic	Boosts levels Blocks action
Serotonin	LSD Prozac	Hallucinogen Antidepressant	Boosts levels
Opioid peptides	Morphine	Analgesics	Opioid mimic

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How alcohol Acts on the Brain

- When alcohol-seeking behavior has been established, the brain undergoes certain adaptive changes to continue to functioning despite the presence of alcohol
- As a consequence of this adaptation, certain abnormalities occur in the brain when alcohol is removed. (negative reinforcement)

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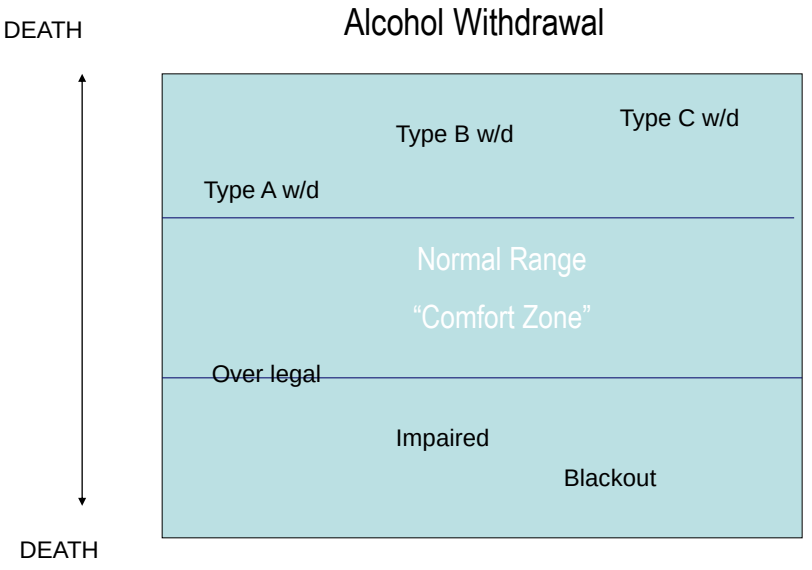

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Summary of Signs and Symptoms by withdrawal progression

Type A AWS	Type B AWS	Type C AWS
1. Uneasiness 2. Sense of foreboding 3. Dysphoria 4. Enhanced Sensitivity and Reaction to Abrupt Sensory Stimuli 5. Lability of Mood 6. Anxiety 7. Insomnia	1.Chills 2.Diaphoresis 3.Fever 4.Hypermetabolic State (increased requirement of nutrition and fluids) 5.Hypertension 6.Muscle Tremors 7.Mydriasis 8. Vomiting 9. Palpitations 10. Piloerection 10. Tachycardia 11. Seizures	1.Attentional Deficit 2.Disorientation 3. Hyper-alertness 4.Impairment of Short-term Memory 5. Impaired Reasoning 6. Psychomotor Agitation 7. Visual and Auditory Hallucinations 8. Seizures

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Review CIWA

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Alcohol

Clinical Institute Withdrawal Assessment of Alcohol (CIWA)

- Assigns numerical values to orientation, N/V, tremor, sweating, anxiety, agitation, tactile/ auditory/ visual disturbances and HA. VS checked but not recorded. Total score of > 10 indicates more severe withdrawal
- Based on severity of withdrawal or history of previous withdrawal seizures or DTs, med therapy can be scheduled or symptom-triggered

(Guthrie, 1989; Sullivan et al., 1989; Sellers & Naranjo, 1983)

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Exercise

Pick a team Leader

Pick a team scribe

Read case presentation

Complete “Clinical Assessment and Placement Form”

Report findings

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Medications for Detoxification

- Thiamine
- Antiemetic
- Multivitamins
- Potassium replacement
- Magnesium
- Antidiuretic
- MOM/Mylanta
- Sleeping med (trazadone
- Benzodiazepines- Ativan, valium, Librium
- Clonidine- Bata blocker
- Haldol

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Medications for Use in Treatment of AUD

- Disulfiram
- Naltrexone (oral) and extended release injectable formulations
- Acamprosate delayed-release tablets
- Topiramate and gabapentin (usually after above meds and off label)

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Disulfiram

Frequency	Daily
Principal Action	If taken with alcohol causes significant physical reaction, nausea/vomiting, flushing and heart palpitations, a deterrent to drinking. If large doses of alcohol is consumed it may cause more severe reactions, such as, Resp depression, cardiovascular collapse, arrhythmias, infarction, Acute CHF, unconsciousness, convulsions and death.
Ideal Candidates	Those who are dependent and have completed alcohol withdrawal, Ideally, they are committed to abstinence and willing to take disulfiram under supervision of family member or tx program
Contraindications	Presence of severe cardiac disease, psychoses, pregnancy. In people with high level of impulsivity, suicidality or previous sensitivity to disulfiram. No alcohol containing products **Pregnancy: not used in pregnancy or nursing mothers**

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Naltrexone

(oral and extended release injectable formulations)

Frequency	Daily (oral) or monthly (extended-release injectable)
Principal Action	**Blocks** opiate receptors that are involved in the rewarding effects of drinking and craving for alcohol **Extended-release** injectable is administered every 4 wks, minimizing opportunities for nonadherence. Produces a consistent and predictable blood level.
Ideal Candidates	Both initiated in patients who can sustain abstinence in an outpt setting before initiation of the treatment Both have greatest benefit in those who can discontinue drinking on their own for several days
Contraindications	patients receiving opioids **Pregnancy: FDA Category C, not recommended in Nursing mothers**

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Alcohol Effects and Opioid Systems

- Alcohol consumption results in the release of the body's naturally occurring opiates, endorphins.
- These opiates bind to receptor sites in the brain and result in the pleasurable effects of alcohol.
- Animals bred to prefer alcohol have reduced opioid peptides in their brains.
- Mu-opioid receptor knockout mice do not self-administer alcohol
- Alcoholics and their family members have reduced plasma levels of beta-endorphin (an opioid peptide).

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Acamprosate
(delayed-release tablets)

Frequency	Three times per day
Principal Action	Is thought to reduce symptoms of protracted abstinence by counteracting the imbalance between glutamatergic and GABAergic systems associated with chronic alcohol exposure and withdrawal
Ideal Candidates	Indicated for maintenance of abstinence in pts who are dependent and are abstinent at tx initiation. Efficacy has not been demonstrated in those who have not achieved abstinence before beginning tx
Contraindications	Patients with severe renal impairment and those with know hypersensitivity to the drug or its components **Pregnancy: FDA Category C, it is not known if acamprosate is excreted in human milk**

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Topiramate

- Associated with significant reductions in %of heavy drinking days , decrease in craving .
- Doses between 200-300mg per day
- Associated with wgt loss
- Side affects include: sedation, short term memory loss and dizziness

Gabapentin

- Doses of 800-1800mg/day was associated with increased rate of abstinence and reduction in heavy drinking
- Also reduction in cravings, mood and insomnia
- Increase potential for abuse

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Selection of Pharmacotherapy

APA recommends that naltrexone or acamprosate be offered to patients with moderate to severe AUD who:

- Have a goal of reducing consumption or achieving abstinence
- Prefer pharmacotherapy or have not responded to nonpharmacological treatments alone, and
- Have no contraindications to the use of these medications

APA suggests that disulfiram be offered to patients with moderate to severe AUD who

- Have a goal of achieving abstinence
- Prefer disulfiram or are intolerant to or have not responded to naltrexone and acamprosate
- Are capable of understanding the risk of alcohol consumption while taking disulfiram, and
- Have no contraindications to the use of the medication

Practice Guidelines for the Pharmalogical Treatment of patients with Alcohol Use Disorder, August 2018

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Selection of Pharmacotherapy Cont…..

APA suggests that topiramate or gabapentin be offered to patients with moderate to severe AUD who

- Have a goal of reducing alcohol consumption or achieving abstinence,
- Prefer topiramate or gabapentin or are intolerant to or have not responded to naltrexone and acamprosate, and
- Have no contradictions to the use of this medication

APA recommends that patients with AUD and OUD, naltrexone be prescribed to individuals who

- Wish to abstain from opioids and either abstain or reduce alcohol use
- Are able to abstain from opioid use for a clinically appropriate time prior to naltrexone initiation

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Future Directions in Alcoholism Treatment Research

- Development of new pharmacotherapies
- Development of new psychotherapies
- Evaluation of the cost-effectiveness of existing and new therapies
- Combining psychotherapies and pharmacotherapies

  (e.g. Project Combine)

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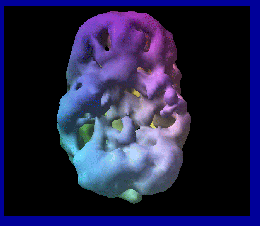
What is required for recovery?

- An understanding of co-occurring conditions
  - Victimization
  - Mental health problems
  - Health problems
  - Deprivation of capability
- Accessibility of providers
- Availability of resources
- Respect for even the limited autonomy
- Wrap-around services and goods
- Patience with relapse
- Active use of recovery supports
- An understanding of a long term process
- An appreciation of how extraordinarily difficult recovery is



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