Alcohol

substance use disorder

- problematic pattern of substance use that leads to some form of functional impairment or distress

- Keep in mind that frequent use of a substance does not necessarily indicate a substance use disorder unless it is causing problems for the patient.

- Intoxication : condition caused by recent ingestion of a substance that alters a person consciousness , cognition , perception , judgment , affect and behaivor
- Withdrawal : Physical &/ or mental effects that person experiences after stop using or reduce taking of a substance

- Withdrawal symptoms of a drug are usually the opposite of its intoxication effects. For example, alcohol is sedating, but alcohol withdrawal can cause brain excitation and seizures

DIAGNOSIS AND DSM5 CRITERIA
manifested by at least two of the following within a 12-month period:

- Tolerance (needing higher amounts of the substance to achieve the desired effect and less effect of drugs over time
- Withdrawal (Symptoms that occur upon the abrupt discontinuation or decrease in

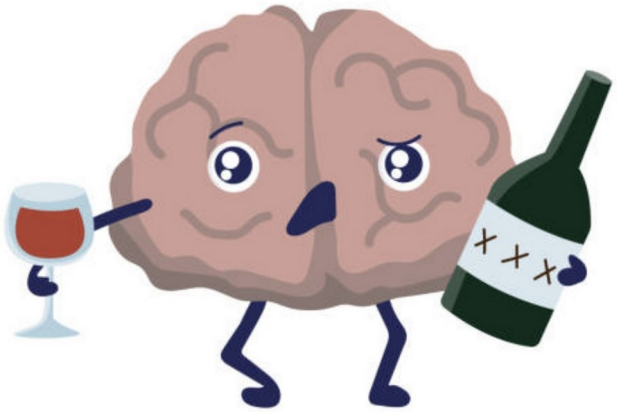
the intake of drugs)

- Using substance more than originally intended.
- desire unsuccessful efforts to cut down
- Craving
- Significant time spent in obtaining, using, or recovering from substance.
- Failure to fulfill obligations at work, school, or home.
- Limiting social, occupational, or recreational activities because of substance use
- Limiting social, occupational, or recreational activities
- Use in dangerous situations (e.g., driving a car).
- Continued use despite subsequent physical or psychological problem

Alcohol

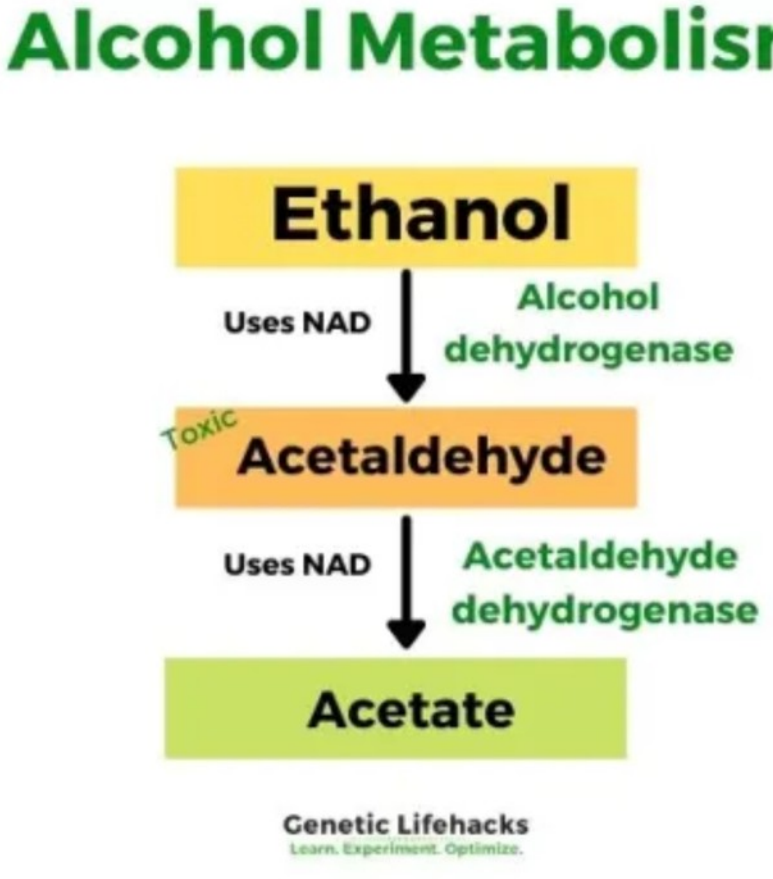
- GABA receptors are inhibitory, and glutamate receptors are excitatory
- Alcohol activates (GABA), dopamine, and serotonin receptors in the central nervous system (CNS). It inhibits glutamate receptor activity and voltage-gated calcium channels.
- alcohol is a potent CNS depressant.

Alcoholism



- Prevalence : 5% of women and 12% of men
- Alcohol is the most commonly used intoxicating substance in the United States.
- heavy drinking for men is more than 4 drinks per day or more than 14 drinks per week. For women, it is more than 3 drinks per day or more than 7 drinks per week.

Alcohol metabolizm



- Enzymes associated with alcohol metabolism are upregulated in heavy drinkers

INTOXICATION

- Clinical Presentation

- The absorption and elimination rates of alcohol are variable and depend on many factors, including age, sex, body weight, chronic nature of use, duration of consumption, food in the stomach, and the state of nutrition and liver health

TABLE 7-2. Clinical Presentation of Alcohol Intoxication

Effects	BAL
Impaired fine motor control	20–50 mg/dL
Impaired judgment and coordination	50–100 mg/dL
Ataxic gait and poor balance	100–150 mg/dL
Lethargy, difficulty sitting upright, difficulty with memory, nausea/vomiting	150–250 mg/dL
Coma (in the novice drinker)	300 mg/dL
Respiratory depression, death possible	400 mg/dL

Treatment

- Monitor: Airway, breathing, circulation, glucose, electrolytes, acid–base status.
- Thiamine and folate Remember thiamine must be given before glucose, as it's a necessary cofactor for glucose metabolism
- Naloxone
- CT) scan of the head to rule out subdural hematoma or other brain injury.
- Severely intoxicated patients may require mechanical ventilation
- Gastrointestinal evacuation is not indicated in the treatment of EtOH overdose unless a significant amount of EtOH was ingested within the preceding 30–60 minutes

WITHDRAWAL

TABLE 7-3. Alcohol Withdrawal Symptoms

Alcohol withdrawal symptoms usually begin in 6–24 hours after the last drink and may last 2–7 days.
Mild: Irritability, tremor, insomnia.
Moderate: Diaphoresis, hypertension, tachycardia, fever, disorientation.
Severe: Tonic-clonic seizures, DTs, hallucinations.

- Alcohol withdrawal is potentially lethal !

Delirium Tremens

- the most serious form of EtOH withdrawal.
- involving mental status and neurological changes. Symptoms include disorientation, agitation, visual and tactile hallucinations, and autonomic instability (increase in respiratory rate, heart rate, and blood pressure)
- begins 48–96 hours after the last drink
- While only 5% of patients who experience EtOH withdrawal develop DTs, there is a roughly 5% mortality rate (up to 35% if left untreated)
- Age >30 and prior DTs increase the risk
- It is a medical emergency and should be treated with adequate doses of benzodiazepines

Treatment

- Benzodiazepines
- thiamine, folic acid
- Electrolyte and fluid abnormalities must be corrected
- Check for signs of hepatic failure

Alcoholic ketoacidosis

- seen in the setting of alcohol cessation after an alcohol binge secondary to protracted vomiting and lack of oral intake.
- Hallmark is ketosis without hyperglycemia and a negative alcohol level.
- high anion gap metabolic acidosis, ketonemia, and low levels of potassium, magnesium, and phosphorus.
- Treatment of hydration and replacing electrolytes.

ALCOHOL USE DISORDER

- the AUDIT-C is used to screen for alcohol use disorder
- Biochemical markers are useful in detecting recent prolonged drinking; ongoing monitoring of biomarkers can also help detect a relapse
- biomarkers are BAL, liver function tests (AST, ALT, GGT), and MCV.

AUDIT-C

TABLE 7-4. AUDIT-C

Question #1: How often did you have a drink containing alcohol in the past year?	
■ Never	(0 points)
■ Monthly or less	(1 point)
■ Two to four times a month	(2 points)
■ Two to three times per week	(3 points)
■ Four or more times a week	(4 points)
Question #2: How many drinks did you have on a typical day when you were drinking in the past year?	
■ 1 or 2	(0 points)
■ 3 or 4	(1 point)
■ 5 or 6	(2 points)
■ 7 to 9	(3 points)
■ 10 or more	(4 points)
Question #3: How often did you have six or more drinks on one occasion in the past year?	
■ Never	(0 points)
■ Less than monthly	(1 point)
■ Monthly	(2 points)
■ Weekly	(3 points)
■ Daily or almost daily	(4 points)

The AUDIT-C is scored on a scale of 0–12 (scores of 0 reflect no alcohol use). In men, a score of 4 or more is considered positive; in women, a score of 3 or more is considered positive.

Medications for Alcohol Use Disorder

- First-line treatments:

1- Naltrexone (Revia, IM-Vivitrol):

- Opioid receptor antagonist
- Reduces craving

2- Acamprosate (Campral):

- Use for relapse prevention in patients who have stopped drinking (post-detoxification)
- Major advantage is that it can be used in patients with liver disease.
- Contraindicated in severe renal disease.

- Second-line treatments

1- Disulfiram (Antabuse):

- Contraindicated in severe cardiac disease, pregnancy, and psychosis.

2- Topiramate (Topamax) :

- Anticonvulsant
- Reduces cravings

Long-Term Complications of Alcohol Intake

- Wernicke's encephalopathy : Caused by thiamine (vitamin B1) deficiency
- Ataxia , confusion , ocular abnormalities
- Acute and can be reversed with thiamine therapy
- If left untreated, Wernicke's encephalopathy may progress to Korsakoff syndrome :
- Chronic amnestic syndrome
- Impaired recent memory, anterograde amnesia, compensatory confabulation
- Reversible in only about 20% of patients

Opioids

- stimulate mu, kappa, and delta opiate receptors
- analgesia, sedation, and dependence
- Examples : heroin, oxycodone, codeine, dextromethorphan, morphine, methadone, and meperidine (Demerol).
- Opioids are associated with more deaths (usually due to unintentional overdose) than any other drug.

Heroin

- processed from morphine
- Using heroin regularly results in tolerance
- Heroin is highly addictive

- How it is used (forms) ?
- Injections, Sniffing and Smoking.

INTOXICATION

- Drowsiness, nausea, vomiting, sedation, decrease in pain perception, decrease in gastrointestinal motility, pupil constriction, and respiratory depression (which can be fatal)
- Meperidine and monoamine oxidase inhibitors taken in combination may cause serotonin syndrome: hyperthermia, confusion, hypertension or hypotension, and hyperreflexia

Treatment of intoxication

- Ensure adequate airway, breathing, and circulation
- In overdose : naloxone (an opioid antagonist) improves respiratory depression but may cause severe withdrawal in an opioid-dependent patient
- Ventilatory support may be required.
- Patients at risk of opioid overdose should be prescribed a naloxone (Narcan) kit to keep at home for emergencies

OPIATE USE DISORDER

TABLE 7-5. Pharmacological Treatment of Opioid Use Disorder

Medication	Mechanism	Pros	Cons
Methadone	Long-acting opioid receptor agonist	Administered once daily. Significantly reduces morbidity and mortality in opioid-dependent persons.	Restricted to federally licensed substance abuse treatment programs. Can cause QTc interval prolongation: screening electrocardiogram is indicated, particularly in patients with high risk of cardiac disease.
Buprenorphine	Partial opioid receptor agonist—can precipitate withdrawal if used too soon after full opioid agonists	Sublingual preparation that is safer than methadone, as its effects reach a plateau and make overdose unlikely. Comes as Suboxone, which contains buprenorphine and naloxone; this preparation prevents intoxication from intravenous injection.	Only available by prescription from specially licensed office-based physicians.
Naltrexone	Competitive opioid antagonist, precipitates withdrawal if used within 7 days of heroin use	Either daily oral medication or monthly depot injection. It is a good choice for highly motivated patients such as health care professionals.	Compliance is an issue for oral formulation.

WITHDRAWAL :

- not life threatening, abstinence in the opioid-dependent individual leads to an unpleasant withdrawal syndrome

- withdrawal symptoms of opiates: flu-like symptoms (body aches, anorexia, rhinorrhea, fever), diarrhea, anxiety, insomnia, and piloerection dysphoria, insomnia, lacrimation, rhinorrhea, yawning, weakness, sweating , dilated pupils, abdominal cramps,
- arthralgia/myalgia, hypertension, tachycardia

Treatment

- Moderate symptoms: Symptomatic treatment with clonidine (for autonomic signs and symptoms of withdrawal), nonsteroidal anti inflammatory drugs (NSAIDs) for pain, loperamide for diarrhea, dicyclomine for abdominal cramps, etc.

- Severe symptoms: Detox with buprenorphine or methadone.

- Monitor degree of withdrawal with COWS (Clinical Opioid Withdrawal Scale), which uses objective measures (i.e., pulse, pupil size, tremor) to assess withdrawal severity

THANK YOU
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