

Drugs



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المزيد من مادة
علوم:

إعداد: Elhddad Ahmed .Mr

التواصل الاجتماعي بحسب الصف التاسع المتقدم



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف التاسع المتقدم والمادة علوم في الفصل الثالث

The Senses

1

Structure of The Nervous System

2

L1 and 2 Review - Nervous System

3

مراحل نمو الإنسان قبل الولادة

4

الجهاز الإخراجي

5

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Drugs

- Some drugs change the function of the nervous system.
- Some drugs can change the function of the nervous system.

• Drugs:

- They are natural or manufactured substances that change the function of the body.



• Uses:

- Some drugs are used by people to cure diseases, such as aspirin to treat headaches.
- Some drugs are used by humans to maintain health.
- Some drugs people use to temporarily escape from reality.
- There are several types of drugs.



• Types of drugs:

1- Prescription drugs:

- Antibiotics that treat bacterial infections, pain relievers.



2- Drugs without a prescription:

- Aspirin - cold and flu medicines.



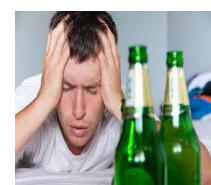
3- Stimulants:

- Caffeine: found in coffee, tea, soda, and chocolate.
- Nicotine: found in cigarettes, cigars, and hookahs.



4- Drugs prohibited by law:

- Intoxicants: such as alcohol and liquor.
- Substance abuse: such as heroin and cocaine.



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• ***Drugs affect the nervous system in several ways:***

- 1- It causes increased secretion of neurotransmitters to the synapse area.
- 2- It works to block receptors on dendritic appendages.
- 3- It prevents neurotransmitters from leaving the synapse area.
- 4- Drugs and neurotransmitters may be similar in form, with drugs replacing neurotransmitters.

• **Dopamine:**

- It is one of the drugs that affects the level of neurotransmitters in the nervous system.
- It is one of the types of neurotransmitters in the brain.

Jobs:

- It has to do with regulating body movement.
- It has an effective role in making a person feel happy and comfortable.
- It is eliminated from the synaptic cleft when it is reabsorbed by the cell that secreted it.

• **Types of common drugs that are misused:**

Stimulants

Painkillers (depressants).

Alcohol.

Inhalants (Hallucinogens)



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Stimulants

- These are drugs that increase alertness and physical activity.

Examples:

1- Nicotine:

cigarettes, hookah, cigars.

Effect:

& It works to increase the amount of dopamine released to the synapse.

& It narrows blood vessels and raises blood pressure, making the heart's work more difficult.

& causes lung cancer.



2- Caffeine:

Coffee, tea, soda, chocolate.

Effect:

& It makes the user awake and causes drowsiness.

& Caffeine raises the levels of epinephrine (adrenaline) in the body temporarily, which gives it an energy boost that quickly fades.

& Caffeine is one of the most misused stimulants.



Painkillers (depressants)

- These are drugs that reduce the activity of the central nervous system.

Its effect:

- Reducing blood pressure.
- Reduce breathing.
- Slow the heartbeat.
- It relieves anxiety but clearly causes a feeling of drowsiness.



Alcohol

- They are analgesics that affect the central nervous system.
- Alcohol affects 4 neurotransmitter substances, causing a person to feel lethargic.
- Alcohol impairs a person's ability to control, coordination, attention, and time for short periods.
- Alcohol for a long period of time causes a decrease in brain mass and damages the liver, stomach, intestinal ulcers, and high blood pressure.
- Alcohol during pregnancy causes alcohol syndrome in the fetus, as it damages the brain and nervous system.



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Inhalants (Hallucinogens)

- They are vapors of chemicals that have an effect on the nervous system.
- Short-term exposure to inhalants results in poisoning, nausea, and vomiting, and sometimes leads to death.
- Prolonged exposure to inhalants results in loss of memory, hearing, vision problems, and damage to the peripheral nervous system and brain.



Tolerance and addiction

Tolerance:

- It is the person's need for more drugs to get the same effect, which leads to increasing the dose.
- Tolerance to drugs leads to addiction.

Addiction:

- It is psychological and physiological dependence on the drug.
- There are two types (physiological, psychological)

Physiological	psychological
- Some drugs prevent the reabsorption of dopamine, which increases its level in the brain. - The addict gets relief when the level of dopamine in the brain increases. - The addict takes a large amount of drugs that prevent the reabsorption of dopamine. - When an addict tries to stop taking drugs, the level of dopamine in the brain decreases, making the process of stopping taking the drug difficult.	- The person is psychologically dependent on the drug (marijuana), as he has a strong desire to use the drug for emotional reasons.

Mr. Ahmed Elhddad**Addiction effect:**

- It affects a person's physical and emotional health, making it extremely difficult to stop addiction.

Estate decision:

- It is difficult for an addict to decide to leave addiction alone. He may succeed in leaving addiction for a short period, but he soon returns to it again.

Treatment:

- The necessity of medical supervision of people who are physiologically and psychologically addicted.
- Encouraging addicts to seek treatment to stop taking drugs.
- Guiding and training people through doctors, nurses, counselors and social workers.

Three stages in the transmission of signals.

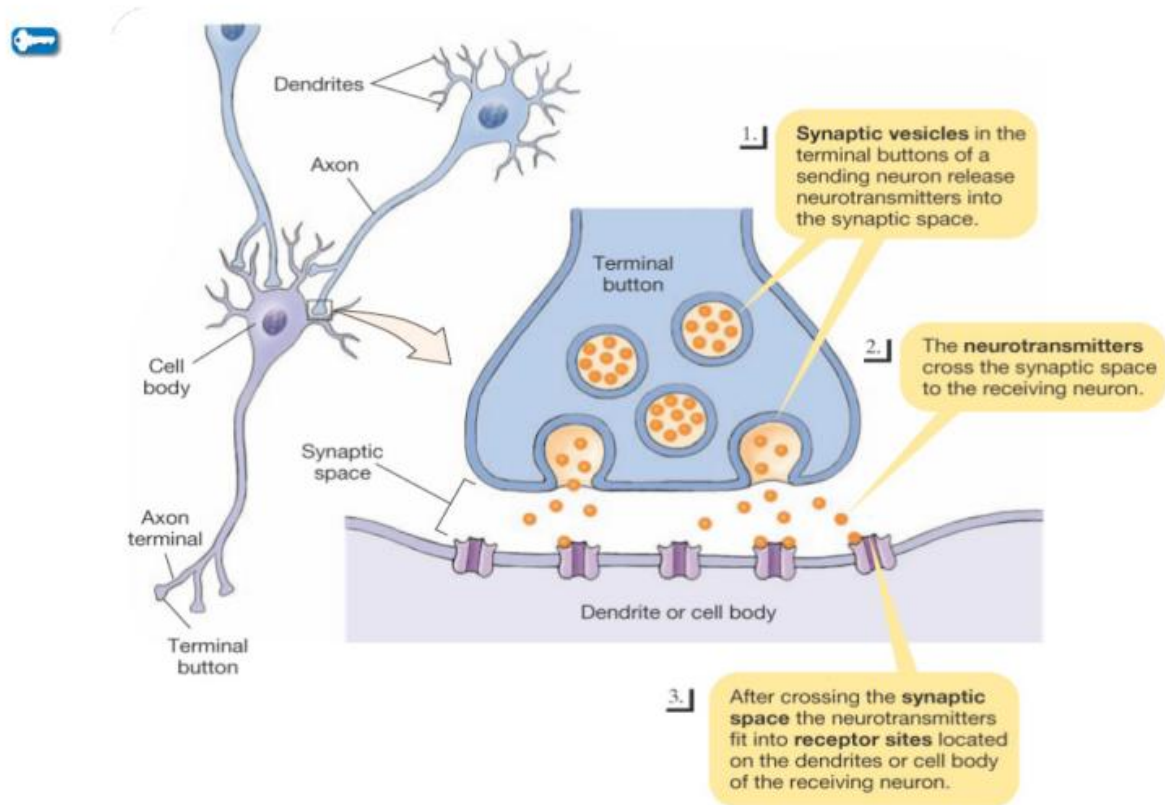


Table 2 Some Common Drugs

Alcohol	Caffeine	Prescription Drugs	Over-the-Counter Drugs	Tobacco
				
beer, wine	coffee, tea, soda, chocolate	antibiotics, pain medications	aspirin, cold medications	cigarettes, cigars

STIMULANTS

Stimulants hypes up activity in the CNS leading to an increase in:

- Blood Pressure
- Heart Rate
- Energy

Taking stimulants at high doses can lead to:

- Insomnia
- Jitters
- Impulsivity

DEPRESSANTS

Depressants slow down the CNS by reducing:

- Blood Pressure
- Heart Rate



People who take depressants may feel relaxed or sedated

23.4.4 Discuss how, on a cellular level, a person can become addicted to a drug

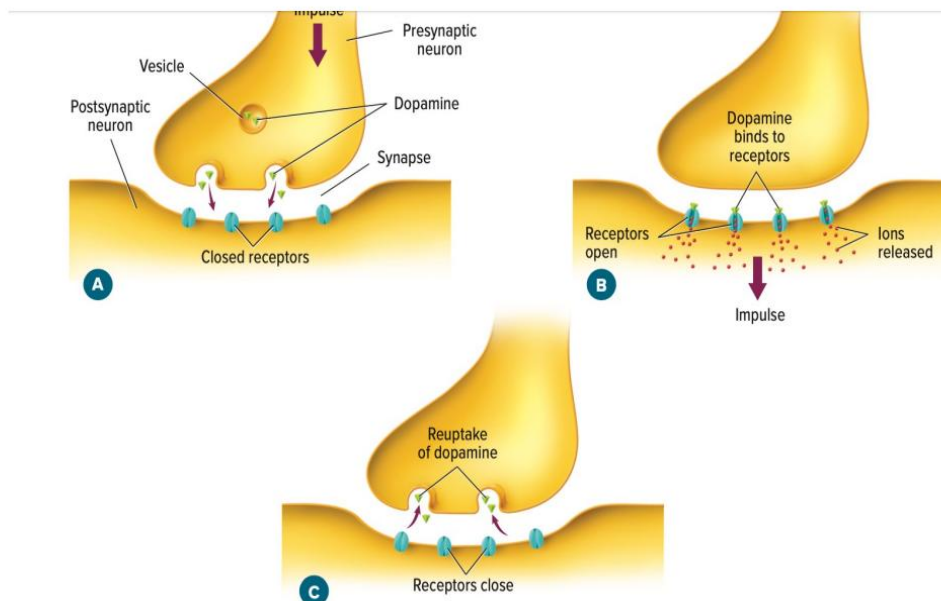


Figure 17 Dopamine crosses the gap from one neuron and binds to receiver sites, or receptors, on the membrane of another neuron. This occurs at a synapse.

Identify the different types of addiction relationships formed with drugs based on the descriptions given. (Tolerance, psychological dependence, physiological dependence)

Description	Addiction Relationship
Strongly desiring drugs for the feeling of pleasure (high levels of dopamine in the brain)	
Needing more and more of the same drug to get the same effect	
Strongly desiring drugs for emotional reasons	

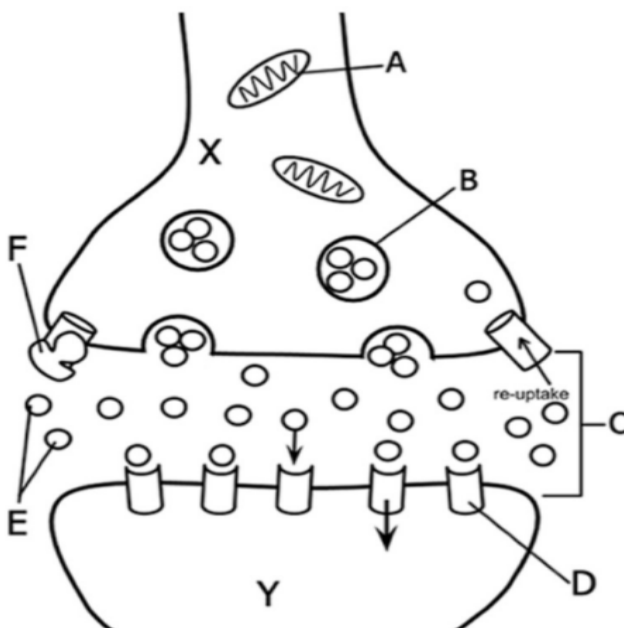
True/False All drugs are illegal.

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- Which of the following is **NOT** a way through which a drug may affect the nervous system?
 - Blocks the receptors of a neurotransmitter
 - Changes the structure of a neurotransmitter
 - Increases the amount of neurotransmitter released
 - Prevents a neurotransmitter from leaving a synapse
- Which of the following may be considered a long-term effect of a stimulant drug on the human body?
 - Decreased heart rate
 - High blood pressure
 - Impaired judgement and awareness
 - Reduction of brain mass
- Which of these statements is **NOT** true regarding drugs that affect the nervous system?
 - They can permanently replace neurotransmitters in the brain
 - They can imitate a neurotransmitter
 - They can prevent neurotransmitters from leaving a synapse
 - They can block a receptor site on a dendrite

Label the image

Dendrite _____
 Axon Ending _____
 Vescicle _____
 Neurotransmitter _____
 Synapse _____
 Mitochondria _____
 Receptor _____
 Enzyme F



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4. Which of these would **NOT** be a factor in drug addiction?
- A. Decreased dopamine level after quitting
 - B. Tolerance to a depressant
 - C. Normal dopamine level maintained during drug use
 - D. Increased dopamine level due to a drug
5. Chemical fumes that influence the nervous system are called_____.
- A. inhalants
 - B. depressants
 - C. inhibitants
 - D. stimulants
6. Alcohol is an example of a_____.
- A. inhalants
 - B. depressants
 - C. illegal drugs
 - D. stimulant
7. Which is an immediate effect of nicotine?
- A. Constricted blood vessels
 - B. Impaired judgment
 - C. Increased adrenaline levels
 - D. Increased alertness

Mr. Ahmed Elhddad**• Short Answer Questions (Interpretation, Analysis, Comparison)**

1. **Compare and contrast** the mechanisms by which stimulants (like nicotine) and depressants (like alcohol) affect the nervous system. How do their opposite effects on neurotransmitter activity explain their different impacts on alertness and bodily functions?
2. **Analyze the relationship** between dopamine, drug tolerance, and addiction. Why does the brain's attempt to maintain balance (homeostasis) lead to increased drug dosage and make quitting difficult?
3. **Explain with justification** why caffeine, despite being legal and widely consumed, is classified in the text as "one of the most misused stimulants." What behavioral or physiological factors might contribute to this misuse?
4. **Interpret the following scenario:** A person using a prescription painkiller for a long period finds they need higher doses to achieve the same pain relief. Using concepts from the text, explain the physiological process likely occurring at their synapses, and identify the key term (Tolerance or Addiction) that describes this phenomenon first.
5. **Synthesize information** from different sections: How do the *short-term* effects of inhalants (poisoning, nausea) logically connect to their *long-term* consequences (memory loss, nerve damage)? What does this progression suggest about the fundamental effect of these chemicals on nerve cells?

• Multiple Choice Questions (Comprehension Check)

1. What is the **PRIMARY** way nicotine, a stimulant, affects the nervous system to create its effect?
 - a) It blocks dopamine receptors completely.
 - b) It increases the amount of dopamine released into the synapse.
 - c) It prevents the reabsorption of serotonin.
 - d) It acts as a depressant, slowing heart rate.

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2. Which of the following is a common effect of depressants (painkillers) on the central nervous system?

- a) Increased alertness and blood pressure
- b) Reduced breathing rate and blood pressure
- c) Enhanced motor coordination and reflexes
- d) Triggering visual and auditory hallucinations

3. The text states that alcohol affects four neurotransmitters, causing lethargy. Based on its classification, alcohol is primarily a:

- a) Stimulant
- b) Hallucinogen
- c) Depressant
- d) Prescription drug

4. What is the key difference between "tolerance" and "addiction" as defined in the text?

- a) Tolerance is psychological, addiction is physiological.
- b) Tolerance is the need for more drug for the same effect, while addiction is a psychological/physiological dependence.
- c) Addiction happens first, leading to tolerance.
- d) They are two terms for the same condition.

5. Why does long-term use of certain drugs make it physiologically difficult to quit, according to the dopamine model explained?

- a) The drugs permanently destroy all dopamine-producing cells.
- b) The brain adapts to high dopamine levels, so quitting causes a severe drop, leading to withdrawal.
- c) Drugs improve the natural reabsorption of dopamine.
- d) The body learns to function without dopamine.

6. Which of the following correctly lists a drug and its primary mechanism of affecting the synapse, based on the text?

- a) Caffeine: Blocks all receptors
- b) Heroin: Prevents neurotransmitters from leaving the synapse
- c) Nicotine: Increases neurotransmitter secretion
- d) Aspirin: Replaces neurotransmitters

7. Fetal Alcohol Syndrome occurs because alcohol:

- a) Acts as a stimulant on the fetal heart.
- b) Is a hallucinogen that distorts fetal development.
- c) Damages the developing brain and nervous system of the fetus.
- d) Provides essential nutrients diverted from the mother.

8. According to the text, what is a major risk of long-term inhalant abuse?

- a) Improved eyesight and hearing
- b) Damage to the peripheral nervous system and brain
- c) Increased lung capacity
- d) Lowered blood pressure permanently

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9. What is the role of dopamine in the context of drug abuse, as described?

- a) It is a hormone that only regulates movement.
- b) Its artificial increase by drugs creates pleasurable feelings, reinforcing drug use.
- c) It is depleted by all drugs, causing immediate depression.
- d) It is not involved in addiction mechanisms.

10. The text classifies drugs into categories. Which category includes substances used specifically to "temporarily escape from reality"?

- a) Prescription Drugs
- b) Over-the-counter Drugs
- c) Stimulants
- d) Drugs prohibited by law (including intoxicants and substance abuse)

11. Why is medical supervision crucial for treating addiction, according to the text?

- a) To provide more drugs safely.
- b) Because withdrawal can be dangerous, and psychological support is needed.
- c) It is only required for psychological addiction.
- d) Doctors can prescribe alternative stimulants.

12. How do hallucinogens (inhalants) differ from stimulants in their primary effect?

- a) They decrease physical activity.
- b) They distort perception and can cause hallucinations.
- c) They are always prescribed by doctors.
- d) They specifically target dopamine reabsorption.

13. Caffeine's "energy boost" that quickly fades is attributed to its effect on:

- a) Permanently increasing dopamine levels.
- b) Temporarily raising epinephrine (adrenaline) levels.
- c) Damaging liver cells.
- d) Acting as a powerful depressant.

14. Which statement BEST summarizes why a person might progress from drug use to addiction?

- a) All drugs are immediately addictive from the first use.
- b) The development of tolerance can lead to increased use and physiological/psychological dependence.
- c) Addiction is purely a choice and not influenced by brain chemistry.
- d) Only illegal drugs cause addiction.

15. What is a common consequence shared by long-term abuse of both alcohol and inhalants?

- a) They both cause immediate lung cancer.
- b) They both act primarily as stimulants.
- c) They both can lead to permanent damage to the brain and nervous system.
- d) They both are treated exclusively with over-the-counter medicines.
