

Foundations of Addiction Science

Addiction Science · Practice Test · 12 Questions

1. Which neurotransmitter is primarily associated with the brain's reward system and the reinforcing effects of addictive substances?

- A) Acetylcholine
- B) Dopamine
- C) Serotonin
- D) GABA

2. Which brain region, often referred to as the 'executive control center', is responsible for decision-making and impulse regulation, and is frequently impaired in addiction?

- A) Prefrontal cortex
- B) Cerebellum
- C) Hippocampus
- D) Occipital lobe

3. What is the term for the physiological state where the body adapts to a substance, requiring larger doses to achieve the same initial effect?

- A) Withdrawal
- B) Sensitization
- C) Tolerance
- D) Craving

4. Which protein-based mechanism describes the process by which neurons communicate, a process often hijacked by chronic drug use?

- A) Synaptic plasticity
- B) Neural pruning
- C) Axonal atrophy
- D) Glial scarring

5. According to the Incentive Salience Theory, what is the primary role of dopamine in addiction?

- A) Producing the feeling of pleasure
- B) Encoding the value of cues that predict rewards
- C) Reducing the physical symptoms of withdrawal
- D) Increasing the rate of drug metabolism

6. Which pharmacological class of drugs works by binding to mu-opioid receptors, effectively blocking the brain's pain-processing pathways?

- A) Stimulants
- B) Opioids
- C) Benzodiazepines
- D) Hallucinogens

7. What term describes the psychological and physical symptoms that occur when an individual ceases or reduces the use of a substance after prolonged use?

- A) Relapse
- B) Tolerance
- C) Withdrawal
- D) Habituation

8. In the context of addiction, what does the term 'cross-tolerance' mean?

- A) Tolerance to one drug resulting in tolerance to another of the same class
- B) The inability to develop tolerance to any substance
- C) Developing tolerance to a drug while abstaining from others
- D) The interaction between psychological stress and drug tolerance

9. Which brain structure is primarily involved in the formation of conditioned associations between drug-related environmental cues and the rewarding effects of the drug?

- A) Amygdala
- B) Thalamus
- C) Pons
- D) Medulla

10. Chronic exposure to substances of abuse can lead to long-lasting changes in gene expression without altering the DNA sequence; what is this field of study called?

- A) Genomics
- B) Epigenetics
- C) Proteomics
- D) Metabolomics

11. Which neurotransmitter system is the primary target for benzodiazepines, which are often used to manage alcohol withdrawal symptoms?

- A) Dopamine
- B) Serotonin
- C) GABA
- D) Glutamate

12. What is the effect of chronic cocaine exposure on the dopamine transporter (DAT) levels in the brain?

- A) An increase in DAT density
- B) A decrease in DAT density
- C) No change in DAT expression
- D) The total destruction of DAT proteins