Addiction Science Fundamentals

Neuroscience Of Addiction · Answer Key · 8 Questions

1. Which primary neurotransmitter is most directly associated with the brain's reward system and the reinforcement of addictive behaviors?

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

2. What is the specific name for the brain's ability to reorganize itself by forming new neural connections throughout life, which can be negatively affected by addiction?

A) Neurogenesis
B) Synaptic pruning
C) Neuroplasticity
D) Myelination

3. Which part of the brain is primarily responsible for executive functions like impulse control, decision-making, and planning, which are often impaired by substance use?

A) Prefrontal cortex
B) Cerebellum
C) Brainstem
D) Occipital lobe

4. What term describes the process where the body requires a higher dose of a substance to achieve the same initial effect?

A) Withdrawal
B) Tolerance
C) Dependence
D) Relapse

5. The VTA (Ventral Tegmental Area) is a critical part of which specific system that processes rewarding stimuli?

A) Endocrine system
B) Mesolimbic pathway
C) Autonomic nervous system
D) Visual cortex

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6. What is the term for the set of negative physical and mental symptoms that occur when a person stops using a substance they have become dependent on?

A) Tolerance
B) Withdrawal
C) Homeostasis
D) Saturation

7. Which brain structure, often called the brain's 'relay station,' processes sensory information and plays a role in how we perceive the world during substance use?

A) Thalamus
B) Hippocampus
C) Amygdala
D) Hypothalamus

8. How does long-term substance use typically alter the density of dopamine receptors in the brain's reward center?

A) Increases them permanently
B) Has no effect
C) Decreases them
D) Doubles the production rate

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