Fundamentals of Addiction Science

Health And Science · Answer Key · 18 Questions

1. Which part of the brain is responsible for decision-making and impulse control, which is still developing throughout childhood?

A) The brain stem
B) The prefrontal cortex
C) The cerebellum
D) The occipital lobe

2. What is the primary chemical messenger in the brain associated with the 'reward circuit' and motivation?

A) Dopamine
B) Adrenaline
C) Insulin
D) Serotonin

3. What happens to the number of dopamine receptors in the brain when a person repeatedly uses addictive substances?

A) They increase
B) They stay exactly the same
C) They decrease
D) They turn into neurons

4. Which organ is primarily responsible for filtering toxins and substances from the bloodstream?

A) The heart
B) The lungs
C) The liver
D) The pancreas

5. What does the term 'tolerance' mean in the context of addiction science?

A) The body needs less of a substance to feel the effect
B) The brain creates new memories instantly
C) The body needs more of a substance to feel the same effect
D) The substance is completely removed from the body

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

A) Withdrawal
B) Adaptation
C) Recovery
D) Immunity

7. Which brain structure is primarily responsible for processing emotions and forming new memories?

A) The hippocampus
B) The thalamus
C) The corpus callosum
D) The pineal gland

8. In neuroscience, what is the 'reward pathway' primarily designed to encourage?

A) Sleep cycles
B) Survival behaviors like eating
C) Color perception
D) Hair growth

9. What is the impact of nicotine on the developing brains of children and adolescents?

A) It improves memory focus
B) It permanently alters synapse formation
C) It speeds up physical growth
D) It has no effect on the brain

10. How do neurotransmitters typically transmit signals across the space between two neurons?

A) Through electrical wires
B) By releasing chemicals into the synapse
C) By physical touch
D) Through blood flow

11. What is the process called when the brain physically changes its structure and function in response to new experiences or substances?

A) Neuroplasticity
B) Cellular decay
C) Synaptic freezing
D) Anatomy

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12. Which substance acts as a central nervous system depressant, slowing down brain activity and physical coordination?

A) Caffeine
B) Nicotine
C) Alcohol
D) Amphetamines

13. What is the definition of a 'stimulant' in pharmacology?

A) A substance that calms the heart rate
B) A substance that slows down brain activity
C) A substance that increases activity in the central nervous system
D) A substance that acts as a pain reliever

14. Why is substance use during adolescence particularly harmful to the brain's 'pruning' process?

A) It speeds up aging
B) It disrupts the healthy maturation of neural pathways
C) It makes the skull thinner
D) It prevents the growth of new hair

15. What is the role of the 'synapse' in the nervous system?

A) It creates blood cells
B) It acts as a junction for chemical communication between neurons
C) It protects the brain from injury
D) It produces adrenaline

16. Which of these is a known long-term effect of substances that disrupt the reward system?

A) Increased ability to focus on schoolwork
B) Difficulty feeling pleasure from natural rewards
C) Heightened sense of smell
D) Faster bone growth

17. What is the primary function of the myelin sheath that surrounds axons?

A) To filter toxins
B) To provide structural support to the skull
C) To speed up the transmission of electrical signals
D) To store glucose

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18. When a substance 'mimics' a neurotransmitter, what does it do?

A) It cleans the brain

B) It tricks the brain into activating specific pathways

C) It permanently destroys the neuron

D) It changes the color of the brain

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