

Neurons, neurotransmitters and drugs:

1. What is the main job of neurotransmitters?
 - a) To carry chemical messages between neurons.
 - b) To protect neurons.
 - c) To connect neurons.
2. What does dopamine help the brain do?
 - a) Only make us happy.
 - b) Learn about rewards and motivate behavior.
 - c) Only help us memorize things.
3. What does tolerance mean?
 - a) A substance always works the same way.
 - b) The body becomes immune to all drugs.
 - c) The same amount of a substance produces less effect over time.
4. Are tolerance and addiction the same thing?
 - a) Yes.
 - b) No, tolerance can occur without addiction.
5. Why can addiction be difficult to overcome?
 - a) Because it changes brain function and behavior.
 - b) Because people cannot learn new habits.
 - c) Because recovery is impossible.
6. Can the brain change and adapt over time?
 - a) Only during infancy.
 - b) No, it never changes.
 - c) Yes, through neuroplasticity.
7. If neurons communicate using electrical signals, why do they need chemical messengers at all?
8. Would the brain be able to control its responses as flexibly if every message had exactly the same effect?
9. If a neurotransmitter is released into a synapse, does that automatically mean that next neuron will send an electrical signal?

10. If a drug has almost the same shape as a natural neurotransmitter, does that mean that it will necessarily have the same effect on the neuron?
11. Why isn't every medicine that affects the brain addictive?
12. Does developing tolerance mean a drug has become safer?
13. Why might a familiar place trigger cravings after someone has stopped using a substance?
14. If the brain can change during addiction, how can that same ability help with recovery?
15. During physical dependence, why is it better to slowly decrease substance usage, rather than completely stopping the intake?

Minor research project: Heroin (or any other drug of interest)

1. What kind of drug is Heroin? Is it agonist, antagonist or reuptake inhibitor?
2. How does Heroin act in the brain? Why does it cause addiction?
3. Why is Heroin one of the fastest addicting drugs?