

Starter Quiz

GRE Subject Test · GRE Psychology

Name: _____ Score: _____

- An SSRI's defining synaptic action is
 - ☐ blocking serotonin reuptake
 - ☐ mimicking dopamine
 - ☐ destroying serotonin
 - ☐ blocking serotonin receptors
- A key feature of Parkinson's disease is degeneration of substantia nigra neurons that release
 - ☐ serotonin
 - ☐ GABA
 - ☐ dopamine
 - ☐ acetylcholine
- In the standard axon model, intensity can be represented by the frequency of similar-sized spikes rather than proportionally larger spikes.
 - ☐ True
 - ☐ False
- During the absolute _____ period, another action potential cannot be triggered.

- A local membrane depolarisation increases in size without producing an axonal spike. Which description fits?
 - ☐ A graded potential changed.
 - ☐ A chemical transmitter crossed the entire axon.
 - ☐ A half-sized all-or-none spike occurred.
- Later in recovery, a stronger-than-usual depolarisation can trigger a second spike. Which phase best fits?
 - ☐ Relative refractory phase.
 - ☐ A phase with no excitability limit of any kind.
 - ☐ Absolute refractory phase.
- Which description best explains saltatory conduction?
 - ☐ Transmitter molecules leap between myelin segments.
 - ☐ Each node produces a larger spike than the previous node.

- A manipulation blocks calcium entry into a presynaptic terminal while a spike still reaches it. Which immediate step in the common pathway is most directly impaired?
 - ☐ The observer's ability to label the postsynaptic cell.
 - ☐ Calcium-triggered vesicle fusion and transmitter release.
 - ☐ Every electrical signal throughout the whole brain.
- Compound B binds receptor R, does not activate it, and prevents agonist A from producing its response there. Which stated action fits?
 - ☐ Reuptake inhibition.
 - ☐ Direct receptor agonism.
 - ☐ Receptor antagonism.
- After a compound is added, extracellular transmitter increases. No target-binding or transporter measurement is available. What follows?
 - ☐ The compound definitely directly activates the transmitter's receptor.
 - ☐ The observation does not uniquely identify the mechanism.
 - ☐ The compound must be a receptor antagonist.

1. **blocking serotonin reuptake**

Inhibition of serotonin reuptake targets transporters and can increase extracellular availability. This does not by itself establish direct serotonin-receptor agonism.

2. **dopamine**

Dopamine-producing neurons in the substantia nigra are affected. This is important for motor symptoms, but is not the whole disease mechanism.

3. **True**

Rate is one possible code under the stated model. This does not claim an unlimited rate increase for every stronger input or exclude other neural codes.

4. **refractory**

Refractory is the missing word. Sodium-channel inactivation is central to the absolute phase. The relative phase allows another spike with stronger depolarisation.

5. **A graded potential changed.**

Local graded signals vary in amplitude. They are distinct from the standard all-or-none model of an axonal spike.

6. **Relative refractory phase.**

A spike is possible during the relative phase but requires greater depolarisation. The absolute phase prevents another spike.

7. **Local current spreads between nodes and action potentials are regenerated at nodes.**

Nodes contain the membrane machinery for regenerative spikes; the intervening myelin changes current spread. Conduction along the axon is electrical.

8. **Calcium-triggered vesicle fusion and transmitter release.**

The intervention targets the release trigger at this terminal. It does not establish a global failure of all neural signalling.

9. **Receptor antagonism.**

B blocks the agonist’s action at the receptor without activating it. No transporter mechanism was stated.

10. **The observation does not uniquely identify the mechanism.**

Release, uptake or breakdown changes could affect availability. A downstream observation alone does not specify the drug’s target.