

NEUROTRANSMITTER REFERENCE GUIDE ACTIVITY

Teacher Guide



Lessons in Mental Health

Neurotransmitters play a vital role in regulating our moods, thoughts, and behaviors.

In this activity, you will create a reference guide on the six most important neurotransmitters and their role in our behavior.

- Acetylcholine
- Dopamine
- Norepinephrine
- GABA (gamma-aminobutyric acid)
- Glutamate
- Serotonin

For each neurotransmitter, provide the following information:

1. Name of neurotransmitter.
2. Is it inhibitory or excitatory?
3. What effects does it have on a person's behavior?
4. What mental health disorders are commonly associated with it?
5. What medications are used to treat imbalances in this neurotransmitter?

1. Acetylcholine

- **Inhibitory or Excitatory:** Primarily excitatory
- **Effects on Behavior:** Involved in memory, attention, learning and muscle activation
- **Mental Health Disorders:**
 - A. Excess: Not commonly associated with excess
 - B. Deficiency: Alzheimer's disease

2. Dopamine

- **Inhibitory or Excitatory:** Primarily excitatory
- **Effects on Behavior:** Reward, pleasure, motivation, movement, attention
- **Mental Health Disorders:**
 - A. Excess: Schizophrenia
 - B. Deficiency: Parkinson's disease, depression

3. Norepinephrine

- **Inhibitory or Excitatory:** Primarily excitatory

- **Effects on Behavior:** Alertness, attention, response to stress, fight-or-flight response
- **Mental Health Disorders:**
 - A. Excess: Anxiety and panic disorders
 - B. Deficiency: Depression, attention deficit hyperactivity disorder (ADHD)

4. GABA (Gamma-Aminobutyric Acid)

- **Inhibitory or Excitatory:** Primarily inhibitory
- **Effects on Behavior:** Calming, relaxation, sleep
- **Mental Health Disorders:**
 - A. Excess: Oversedation
 - B. Deficiency: Anxiety disorders, epilepsy, insomnia

5. Glutamate

- **Inhibitory or Excitatory:** Primarily excitatory
- **Effects on Behavior:** Learning, memory, synaptic plasticity
- **Mental Health Disorders:**
 - A. Excess: Excitotoxicity (neuron damage), seizures
 - B. Deficiency: Memory problems, cognitive decline

6. Serotonin

- **Inhibitory or Excitatory:** Primarily inhibitory
- **Effects on Behavior:** Regulates mood, appetite, sleep, pain perception
- **Mental Health Disorders:**
 - A. Excess: Not commonly associated with excess
 - B. Deficiency: Depression, anxiety disorders, obsessive-compulsive disorder