

Acetylcholine (ACh)

Distributed widely throughout the central nervous system, where it is involved in arousal, attention, memory, motivation, and movement. Involved in muscle action through presence at *neuromuscular junctions* (specialized type of synapse where neurons connect to muscle cells). Degeneration of neurons that produce ACh have been linked to Alzheimer's disease. Too much can lead to spasms and tremors; too little, to paralysis or torpor.

Dopamine

Involved in a wide variety of behaviors and emotions, including pleasure. Implicated in schizophrenia and Parkinson's disease.

Serotonin

Involved in the regulation of sleep, dreaming, mood, eating, pain, and aggressive behavior. Implicated in depression.

Norepinephrine

Affects arousal, wakefulness, learning, memory, and mood.

Endorphins

Involved in the inhibition of pain. Released during strenuous exercise. May be responsible for "runner's high."

Glutamate

Involved in long-term memory and the perception of pain.

GABA

(Gamma aminobutyric acid)

A largely inhibitory neurotransmitter distributed widely throughout the central nervous system. Implicated in sleep and eating disorders. Low levels of GABA have also been linked to extreme anxiety.

Glycine

Principally responsible for inhibition in the spinal cord and lower brain centers.