Neurotransmitters are chemicals that relay, amplify, and modulate signals within the brain. When we introduce drugs into the system it disrupts these pathways and interferes with the way the body and brain communicate.

**DOPAMINE**
- **Affects:** pleasure/reward, movement, attention, memory
- **Drugs that affect it:** virtually all drugs of use directly or indirectly alter dopamine in the reward pathway

**SEROTONIN**
- **Affects:** regulation of mood and impulsivity, sleep, sexual desire, appetite
- **Drugs that affect it:** cocaine, anti-depressants, stimulants, alcohol, hallucinogens

**THE HIPPOCAMPUS (GABA AND SEROTONIN)**
- **Affects:** learning, memory, and depression
- **Drugs that affect it:** alcohol, marijuana

**GLUTAMATE (WIDELY DISTRIBUTED IN BRAIN)**
- **Affects:** neuron activity, learning, cognition, memory
- **Drugs that affect it:** alcohol

**GABA**
- **Affects:** slowed neuron activity, anxiety, memory, anesthesia
- **Drugs that affect it:** alcohol, depressant drugs, marijuana, benzodiazepines

**ENDORPHINS & ENDOGENOUS OPIOIDS**
- **Affects:** pain relief, sedation, rate of bodily functions, mood, reward/punishment
- **Drugs that affect it:** heroin, opioids, morphine, prescription pain relievers

**NOREPINEPHRINE**
- **Affects:** arousal and alertness, sleep, energy and feelings of pleasure
- **Drugs that affect it:** cocaine and methamphetamine
WANT MORE?

HEAD OVER TO SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION AT SAMHSA.GOV FOR MORE INFORMATION OR HELP.

Other resources in this series can be found through Southeast Addiction Technology Transfer Center Network at https://attcnetwork.org/centers/southeast-attc/home

Sources by American Addiction Centers, National Institute on Drug Abuse, Mental Help, Las Vegas Recovery, and Laguna Treatment.