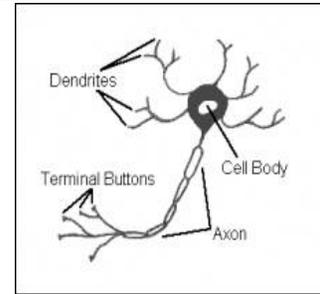


# Neurotransmitters

Information comes into the neuron through the **Dendrites** from other neurons. It then continues to the **Cell Body (soma)** which is the main part of the neuron, which contains the nucleus and maintains the life sustaining functions of the neuron. The soma processes information and then passes it along the **Axon**. At the end of the axon are bulb-like structures called **Terminal Buttons** that pass the information on to glands, muscles, or other neurons. Information is carried by biochemical substances called **neurotransmitters**. The terminal buttons and the dendrites of other neurons do not touch, but instead pass the information containing neurotransmitters through a **Synapse**.



Neurotransmitters have been studied quite a bit in relation to psychology and human behavior. What we have found is that several neurotransmitters play a role in the way we behave, learn, the way we feel, and sleep. And, some play a role in mental illnesses. The following are those neurotransmitters which play a significant role in our mental health.

	Too Much*	Too Little
<b>Acetylcholine</b> – involved in <i>voluntary</i> movement, learning, <u>memory</u> , and sleep	Too much acetylcholine is associated with <b>depression</b>	Too little in the hippocampus has been associated with dementia & <b>Alzheimers</b>
<b>Dopamine</b> – correlated with movement, mood, attention, and learning	Too much dopamine has been associated with <b>schizophrenia</b> (most likely too many dopamine <i>receptors</i> )	Too little is associated with some forms of <b>depression</b> as well as the muscular rigidity and tremors found in <b>Parkinson's</b> disease.
<b>Norepinephrine</b> – associated with eating, alertness, stress responses	Too much has been associated with <b>schizophrenia</b>	Too little norepinephrine has been associated with <b>depression</b>
<b>Epinephrine</b> – involved in energy, and glucose metabolism	Too much epinephrine can result in restlessness and <b>anxiety</b>	Too little epinephrine has been associated with <b>depression</b>
<b>Serotonin</b> – plays a role in mood, sleep, appetite, body temperature and impulsive and aggressive behavior	Some antidepressant medications increase the availability of serotonin at the receptor sites. If too much serotonin is available, heart problems and mental confusion could occur (not likely to be naturally occurring)	Too little serotonin is associated with <b>depression</b> and some <b>anxiety</b> disorders, especially <b>obsessive-compulsive disorder</b>
<b>GABA</b> (Gamma-Amino Butyric Acid) – inhibits excitation and anxiety	Too much GABA and we are overly relaxed and <b>sedated</b> , often to the point that normal reactions are impaired.	Too little GABA is associated with <b>anxiety</b> and anxiety disorders & seizures
<b>Endorphins</b> – involved in pain relief and feelings of pleasure and contentedness		

*Please note that these associations are merely correlations, and do not necessarily demonstrate any cause and effect relationship. We don't know what other variables may be affecting both the neurotransmitter and the mental illness, and we don't know if the change in the neurotransmitter causes the illness, or the illness causes the change in the*