

A Review of Important Neurotransmitters and Their Functions

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Ray 114 Chakra System Study Notes

Introduction

Inside the body, the neurotransmitters are the chemical messengers. They play a vital role in human development and numerous body, and mental functions [1].

There are several types of neurotransmitters that act on different aspects of mental and bodily functions. Let us have a look at the important neurotransmitters and their functions.

So far scientists have identified over 100 neurotransmitters. However, the ten of them are most vital. In this article, we'll take a closer look at the main neurotransmitters in your body. These are dopamine, glutamate, GABA, endorphins, serotonin, melatonin, acetylcholine (ACH), adrenaline, oxytocin, and norepinephrine.

We'll also explain the impact these chemical messengers may have on your body, mind, and behaviour. We will also explain how the 114 chakras in the body help to keep the neurotransmitters in balance in order to promote physical, mental, emotional, and total well-being.

What is a Neurotransmitter?

Neurotransmitters are chemical messengers in the body. Neurotransmitters help neurons communicate with one another. Neurons don't touch each other. There is a tiny space between neurons called a synapse. When one neuron "fires," which means it becomes active, it transfers a neurotransmitter to the next neuron in the chain, and the process continues. After neurotransmitters deliver their messages, the body breaks them down or recycles them.

The human brain is estimated to contain about 86 billion neurons and each of the neurons has on average 7,000 synaptic connections to other neurons [2]. Human body has about 37.2 trillion cells [3]. Now, [how many chakras in human body?](#) Our body system is a network of 114 chakras that nourish the body's 37.2 trillion cells and the brain's billions of neurons. These chemical messengers or the neurotransmitters are linked to the chakras in the body to control our behaviour. Chakras are not physical entity. They are intelligent virtual energy processing units in our mind-body and spirit energy system.

Those billions of brain cells communicate by sending chemical messages across the synapse, the small gap between cells, in a process known as neurotransmission. Those chemical messages are carried by distinct chemicals molecules known as neurotransmitters.

Difference between hormones and neurotransmitters

Hormones are chemical signals produced into the circulatory system by the endocrine glands that carry regulatory messages throughout the body. **Neurotransmitters, on the other hand, are brain chemicals** that transmit information throughout the body.

Hormones are chemical signals produced into the circulatory system by the endocrine glands that carry regulatory messages throughout the body. Neurotransmitters, on the other hand, are brain chemicals that relay information throughout the brain and body.

Neurotransmitters function locally and act quickly. Hormones and neurotransmitters both have an impact on our behaviour, ideas, motivations, and ability to learn and concentrate. However, the activities of neurotransmitters are brief, whereas hormones have a longer duration of action.

Types of Neurotransmitters

Neurotransmitters can be broadly classified into two groups: excitatory or inhibitory. These classifications are based on how a neurotransmitter behaves at the synaptic juncture of the neurons. Excitatory neurotransmitters transmit signals that stimulate the brain. Glutamate is the primary excitatory transmitter in the central nervous system.

Excitatory neurotransmitters "arouse" the neuron, causing it to "start firing the signals," which means the chemical message is passed on to the next cell. Glutamate, epinephrine, and norepinephrine are examples of excitatory neurotransmitters.

Inhibitory neurotransmitters transmit signals to calm the brain down and create stability and balance. GABA is the main inhibitory neurotransmitter. Inhibitory neurotransmitters are generally responsible for calming the mind and inducing sleep.

To [open the 114 chakras](#), you need to balance the excitatory and inhibitory neurotransmitters in the body [4]. For example, the excitatory neurotransmitters that can contribute to anxiety can be slowed down by GABA; it works like a brake on them.

Anxiety disorders are common in people who have insufficient levels of the neurotransmitter GABA. When you know, the [map of the 114 chakras](#) in the body, you can do neurotransmitter or hormone specific meditation to bring balance to the neurotransmitters.

To understand the map of the 114 chakras, you need to understand the relationship of the chakras with the neurotransmitters and the hormones of the body.

Each neurotransmitter attaches to a specific group of chakras. Among the 114 chakras, some of the brain chakras can both store and release dopamine and glutamate, serotonin and glutamate, and acetylcholine and glutamate, and work as both inhibitory and excitatory.

Functions of the Neurotransmitters

Neurotransmitters control many different physical and mental processes, including:

- Mood and behaviour
- Memory and learning
- Emotions
- Sleep-wake cycle

- Heart rate
- Blood flow regulation
- Movement regulations
- Growth and development
- Reproduction

- Focus and concentration.

List of Neurotransmitters

1. Dopamine – Related to pleasure, reward and addictions

Dopamine plays a major role in the reward centre of the brain. Dopamine is responsible for pleasure, reward management, movement regulation, motivation, and learning. It is produced in the substantia nigra, ventral tegmental area (VTA), and hypothalamus of the brain [5]. It works as both excitatory and inhibitory.

Dopamine (DA) is known as the "pleasure molecule." When one receive a reward for their behaviour, which could be food, drugs, internet search, or video games the dopamine is released. Some of the common functions of dopamine include:

- Linked with reward mechanisms in the brain.
- Associated with mental processes, emotional states, physical activity, and decision-making.
- Excessive amounts of dopamine in the frontal lobes linked to schizophrenia.
- Too little dopamine in the motor areas of the brain linked to Parkinson's disease.
- Low dopamine may relate to social anxiety.
- Motivation, decision-making, locomotion, reward processing, attention, memory, and learning are all affected by dopamine.

2. Glutamate – Linked to learning and memory

Glutamate is the most plentiful excitatory neurotransmitter produced by brain nerve cells [7]. Glutamate is the most sensitive neurotransmitter in the central

nervous system. It should be present at the right concentrations in the right places at the right time.

Glutamate is associated with a variety of functions [6], including:

- Learning and memory.
- Glutamate is actually neurotoxic, and excessive amounts can kill the neurons.
- Excessive glutamate is linked with many diseases.

3. GABA – Linked to peace and tranquillity

Gamma-aminobutyric acid (GABA), is the major inhibitory neurotransmitter in the central nervous system [7]. Scientific evidence suggests that GABA deficiency may contribute to depressive disorders [8][9]. GABA is linked to a number of functions, including:

- Can stop other anxiety related excitatory neurotransmitters.
- Can protect the neurons from damage.
- Can suppress neurodegenerative diseases.
- Can improve memory as well as other cognitive functions of the brain.
- People deficient in GABA are more likely to suffer from anxiety problems.
- Can have an anti-cancer effect.
- Can prevent pancreatic damage.

4. Endorphins – Related to well-being and euphoria

Endorphins promote in pain relief, stress reduction, and overall well-being. It also promotes pleasures and happiness. The term "endorphin" originates from the words "endogenous," which means naturally occurring within the body, and "morphine," which is an opiate that is used to treat pain. This indicates that endorphins are natural pain relievers.

They are known as "feel-good" chemicals due to the fact that they have the ability to improve one's mood and overall state of well-being. You can increase

your body's endorphin naturally by meditation, exercise, dance, laughter, and listening music [10]. Endorphins are also released during painful experiences.

Endorphins have been linked to a wide range of functions, including the following:

- Improve mood and reduce pain.
- Improve self-esteem.
- Reduce levels of anxiety, stress, and sadness.
- Helps to maintain a healthy immune system
- Can bring the inflammation down.

5. Serotonin – Linked to happiness and moods

Serotonin is in charge of mood swings, emotions, appetite, and digestion. It also aids in the regulation of sleep-wake cycles and the body clock. Serotonin is an inhibitory neurotransmitter.

Researchers observed that moderate exposure to sunlight may help increase serotonin levels [8]. Serotonin is linked to emotion, mood, bowel function, memory and sleep [11]. Low serotonin levels have been linked to symptoms such as depression, restlessness, and obsessive compulsive disorder (OCD).

A number of different roles have been linked to serotonin, including:

- reduce stress, anxiety, and tensions
- repair wounds
- induce nausea
- prevent depression
- Helps to maintain good bone health.

6. Melatonin – Linked to sleep cycle

Melatonin is secreted by the pineal gland in the brain [12]. It regulates the sleep cycle by controlling the circadian rhythm. Melatonin has diverse functions that regulate the circadian rhythm, energy metabolism, and the immune system; it also inhibits oxidative stress and participates in the aging process [9]. Melatonin is often used as a “probiotic agent” with potent of producing strong neurotransmitter secretion regulatory effects [13].

Melatonin serves a variety of roles, including those listed below:

- Detoxify the free radicals.
- Powerful natural antioxidant.
- Regulate the circadian rhythms.
- Enhances immunity [[14](#)].
- Helps bone formation and protection [[15](#)].
- Increases neuroplasticity in the hippocampus.

7. Acetylcholine (ACH) – Learning and attention

Acetylcholine is responsible for stimulation of muscles, learning, memory, attention, and neuroplasticity [[16](#)]. It also helps maintain rapid eye movement (REM) sleep. It plays a key role in facilitating neuroplasticity across the cortex. Low acetylcholine is linked to Alzheimer's disease.

8. Norepinephrine (Noradrenaline) – Concentration

Norepinephrine (NE) is both a hormone and a neurotransmitter. It has been linked to mood, arousal, vigilance, memory, and stress. Norepinephrine, together with adrenaline, speeds up the rate at which the heart beats and the amount of blood that are pumped out of the heart. Additionally, it causes an increase in blood pressure, contributes to the breakdown of fat, and raises blood sugar levels, all of which serve to supply the body with extra energy. Researchers observed that norepinephrine may block chronic pain [[17](#)].

9. Oxytocin – Trust and social bondages

Oxytocin is a hormone as well as a neurotransmitter. Oxytocin released from the hypothalamus, and act directly on neurons. Studies show that oxytocin helps you feel trusting and generous. It helps in social bonding, reproduction, and childbirth. Researchers observed that oxytocin plays important roles in [leadership development](#). It improves synchronization in leader-follower interactions.[[18](#)].

10. Epinephrine (Adrenaline) – Part of fight or flight response

Adrenaline is also known as epinephrine; serve as both neurotransmitters and hormones. It work more in the heart, lungs, and arteries of skeletal muscles. A

surge of adrenaline is released into the body system whenever you are under a significant amount of stress or fear. This is known as "fight-or-flight" response, also known as the adrenaline rush, occurs when a person feels threatened [[19](#)].

Adrenaline has been linked to a wide range of functions, including:

- improve breathing and relaxation
- enhances blood sugar levels
- Increased heart rate.

Conclusion

Neurotransmitters are a vital and necessary component of human life. While your body generally carefully regulates its neurotransmitters, having too little or too much of a particular neurotransmitter might cause health issues. Several scientific studies notice that the practice of meditation activates neurotransmitters that are responsible for modulating psychological diseases like anxiety and depressions [[20](#)]. If 114 chakras are activated properly, and balanced, you can get balance in your neurotransmitters.

So, now you may have come to know about the various neurotransmitters and their functions in the human body.

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