

What Is Dopamine?

[Dopamine](#) is a type of neurotransmitter. Your body makes it, and your [nervous system](#) uses it to send messages between nerve cells. That's why it's sometimes called a chemical messenger.

Dopamine plays a role in how we feel pleasure. It's a big part of our unique human ability to think and plan. It helps us strive, focus, and find things interesting.

Your body spreads it along four major pathways in the [brain](#). Like most other systems in the body, you don't notice it (or maybe even know about it) until there's a problem.

Too much or too little of it can lead to a vast range of health issues. Some are serious, like Parkinson's disease. Others are much less dire.

Dopamine Basics

It affects many parts of your behavior and physical functions, such as:

- Learning
- Motivation
- [Heart rate](#)
- [Blood](#) vessel function
- [Kidney](#) function
- Lactation
- [Sleep](#)
- Mood
- Attention
- Control of [nausea and vomiting](#)
- [Pain](#) processing
- Movement

Role in Mental Health

It's hard to pinpoint a single cause of most [mental health](#) disorders and challenges. But they're often linked to too much or too little dopamine in different parts of the brain. Examples include:

Schizophrenia. Decades ago, researchers believed that symptoms stemmed from a hyperactive dopamine system. Now we know that some are due to too much of this chemical in certain parts of the brain. This includes [hallucinations](#) and [delusions](#). A lack of it in other parts can cause different signs, such as lack of motivation and desire.

ADHD. No one knows for sure what causes [attention deficit hyperactivity disorder](#) (ADHD). Some research shows it may be due to a shortage of dopamine. This problem may be due to your genes. The ADHD drug [methylphenidate](#) (Ritalin) works by boosting dopamine.

Drug misuse and addiction. Drugs such as [cocaine](#) can cause a big, fast increase of dopamine in your brain. That satisfies your natural reward system in a big way. But repeated drug use also raises the threshold for this kind of pleasure. This means you need to take more to get the same high. Meanwhile, drugs make your body less able to produce dopamine naturally. This leads to emotional lows when you're sober.

Dopamine in Other Diseases

It also plays a role in diseases that aren't related to mental health. One of these is Parkinson's disease. Another is [obesity](#), which the American Medical Association classified as a disease in 2013.

Parkinson's disease. Dopamine enables neurons in your brain to communicate and control movement. In Parkinson's, one type of neuron steadily degenerates. It doesn't have a signal to send anymore, so your body makes less dopamine. The chemical imbalance causes physical symptoms. These include tremor, stiffness, slowness of spontaneous movement, poor balance, and poor coordination. Doctors treat these symptoms with [medications](#) that raise levels of this chemical.

Obesity. Most of the time, if you take in more calories than you burn, you'll [gain weight](#). So why can't [obese](#) people simply eat less and slim down? The answer isn't that simple. They may face obstacles that others don't. They could have problems with their natural reward systems. This can affect the amount of food they eat before they feel satisfied. Imaging studies suggest that in people with this condition, the body may not release enough dopamine and another feel-good [hormone](#), serotonin.

Dopamine Can Save Lives

This chemical usually plays a secondary role in the body, but in certain medical situations, it's literally a lifesaver. Doctors use prescription dopamine (Inotropin) to treat:

- [Low blood pressure](#)
- Poor cardiac output (when the [heart](#) doesn't pump out enough blood)
- Poor blood flow to vital organs
- Some cases of [septic shock](#)

There are possible complications with any drug, even if taken under close supervision. The main ones associated with dopamine include:

- [Irregular heartbeat](#)
- Faster heart rate
- [Trouble breathing](#)
- [Chest pain](#)
- Nausea and vomiting
- [Headache](#)

Because many drugs interact with it, it's important that your doctor knows all the medications you take.