

THE BRAIN CHEMICALS

and how they influence mood and health



What are the brain chemicals?

The brain chemicals, neurotransmitters, and hormones play a crucial role in regulating various bodily functions, including mood, sleep, appetite, memory, and muscle movement. More than 100 chemical substances produced in the body have been identified as neurotransmitters, which transmit signals from nerve cells to target cells and help regulate bodily functions.

Hormones, on the other hand, act as chemical messengers once released by glands into the bloodstream, controlling everything from the way our body functions to how we feel.

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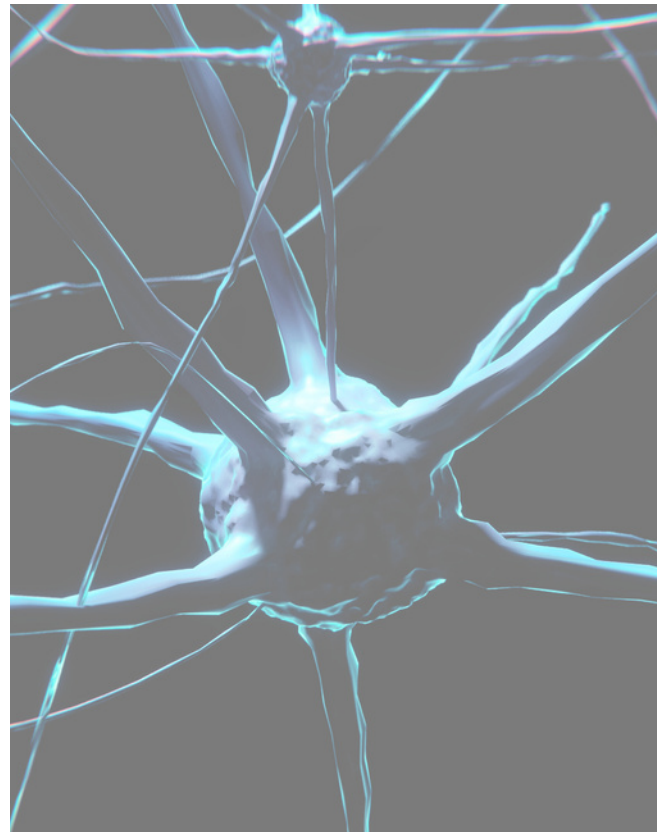
The four most important hormones in psychological health are:

dopamine,
serotonin,
endorphins,
and oxytocin.

Each of these hormones plays a key role in regulating different aspects of our mood and behaviour.

The impact of stress on the body

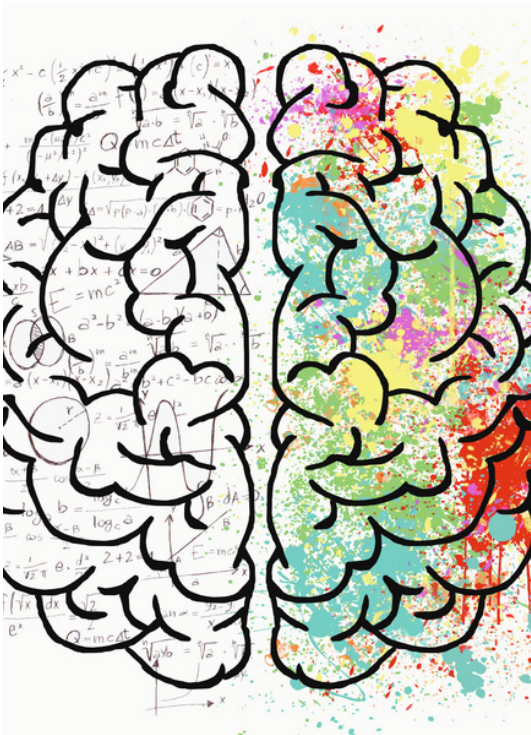
Stress can have an impact on the immune system by affecting hormone and neurotransmitter levels. Dopamine is associated with motivation, pleasure, and reward. Serotonin is involved in regulating mood, appetite, and social behaviour. Endorphins are our body's natural painkillers and are released during exercise, excitement, and orgasm. Oxytocin is involved in social bonding and is released during physical touch, childbirth, and breastfeeding.



Overall, the effects of stress on the immune system involve complex interactions between hormones and neurotransmitters.

Hormones

The adrenal glands, located on top of the kidneys, produce hormones that regulate the body's response to stress, including the immune system response. The adrenal glands produce cortisol, which can have both positive and negative effects on the immune system depending on the level and duration of exposure to stress. Cortisol can reduce inflammation and suppress the immune response, but chronic stress and elevated cortisol levels can reduce the number of natural killer cells and lymphocytes, which are needed to fight viruses and other pathogens.



Neurotransmitters

Norepinephrine and epinephrine, are also involved in the stress response and can modulate the immune system. These neurotransmitters can stimulate the body's response by increasing heart rate, blood pressure, and blood flow to the muscles. They can also heighten attention and focus to allow individuals to react to stressors.

Serotonin, another neurotransmitter, plays a role in mood regulation, sleep, and digestion, among other functions. Serotonin levels that are too low or too high can cause physical and psychological symptoms. Studies suggest that serotonin may also play a role in regulating the immune system.

THE TAKE HOME MESSAGE

Optimal health and well-being require a balance of these chemicals, neurotransmitters, and hormones in the body.

There are several natural ways to increase the levels of serotonin and other helpful hormones in the body:

1. **Exercise:** Regular physical activity can increase the production of endorphins, which are hormones that can help to reduce stress and improve mood. Exercise can also increase serotonin levels in the brain, which can help to regulate mood and promote feelings of well-being.
2. **Sunlight exposure:** Sunlight can increase the production of vitamin D, which is a hormone that plays a role in regulating mood and reducing symptoms of depression. Spending time outdoors and getting enough sunlight can help to increase vitamin D levels and improve mood.
3. **Healthy diet:** Eating a diet that is rich in nutrients, such as vitamins and minerals, can help to support the production of hormones and neurotransmitters. Foods that are high in tryptophan, such as turkey, chicken, eggs, and nuts, can help to increase serotonin levels in the brain.
4. **Relaxation techniques:** Practicing relaxation techniques, such as yoga, meditation, and deep breathing, can help to reduce stress and increase the production of hormones that promote feelings of calm and well-being.
5. **Social support:** Having strong social connections and a support system can help to reduce stress and increase the production of hormones that promote feelings of happiness and well-being.

