The Power of the "Cuddle Chemical"

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What if a simple hug could reduce depression? Is it possible? The human body is both cool and complex. Perhaps it's possible.

The Good Book says that we are "incredibly and wonderfully made" (Psa. 139:14). That thought is undoubtedly apparent when one considers the construction of the human body. From top to bottom, inside out, the human body is composed of chemicals and systems, with those systems having multiple subsystems (Dutfield & Rettner, 2021; Helmenstine, 2019).

Two primary systems in the body are the nervous system and the endocrine system. The nervous system, which is made up of all the nerve cells in the body, is like an information highway (InformedHealth.org; 2016; Stangor & Walinga, n.d.). The nervous system is how our body communicates with the world around us. The body takes in information by way of our five senses, and then that information is carried via neurons. One of the major subsystems of the nervous system is the central nervous system (CNS). The CNS includes the spinal cord and the brain. The job of the CNS is to be an interpreter of the information taken into the body by our five senses (Stangor & Walinga, n.d.). When information is interpreted, the body reacts accordingly.

A simple illustration may help to explain this process. Imagine that one is involved in a home improvement project. Let us say that they are putting an addition to their house. The foundation has been laid, and one is ready to start framing the walls. Instead of using a nail gun to drive the nails into the wood studs, one uses a hammer. On the first strike, one hits their thumb with the hammer. Immediately they grab their thumb. This reflexive action is concurrent with pain signals traveling to the brain via the CNS.

In addition to the CNS, the nervous system also has a subsystem called the peripheral nervous system (PNS), where the autonomic nervous system (ANS) resides. The ANS has two systems: the sympathetic nervous system, which prepares the body for behavior, and the parasympathetic nervous system, which calms the body after behaviors caused by the sympathetic nervous system (Stangor & Walinga, n.d.). Every day and throughout the day, these systems interact with one another—as in the case when the hammer hit them thumb and the other hand grabbed the thumb.

Another example is in order. Imagine that one has a deadline for a school assignment or work project. They waited until the last minute, and today is the last day before the deadline. While one would not normally skip a meal because of the sympathetic nervous system response, one goes all day without being hungry. One is stressed by the deadline and concerned about meeting the deadline. The body enters into "fight" mode as one works feverishly to complete the project or assignment. After several hours of work, one sees the finish line and knows that they will meet the deadline and everything will be okay. Suddenly, one starts to experience hunger, and a sense of calm and relaxation is experienced simultaneously. A parasympathetic response has taken place in the body, and the body is experiencing homeostasis (ClevelandClinic.org, n.d.).

Let us go back to the beginning. We said that the body consists of both systems and chemicals. Another system that makes up the human body is the endocrine system. This system interacts with the sympathetic and parasympathetic systems to "elicit chemicals" for another means of "influencing our feelings and behaviors" (Stangor & Walinga, n.d., para 10). The endocrine system is comprised of glands and organs. It uses hormones, or "chemical messengers," to "coordinate your body's metabolism, energy level, reproduction, growth and development, and response to injury, stress, and mood" (ClevelandClinic.org, n.d.; HopkinsMedicine.org, n.d.). An essential part of the endocrine system is the hypothalamus because it is the primary link between the nervous system and the endocrine system and keeps one's body in balance (ClevelandClinic.org, n.d.).

The hypothalamus, located in the brain, is like the control pad in a smart house. It sends a signal, in the form of hormones, to different glands in the body (ClevelandClinic.org, n.d.). A critical chemical messenger is the hormone oxytocin. The hypothalamus produces oxytocin, sends it to the pituitary gland, located below the brain, and binds to "oxytocin receptors to influence behavior and physiology" (DeAngelis, 2008, p. 30). The natural hormone oxytocin is critical in such behaviors and interactions as sexual arousal, trust, attachment, and the bonding between mother and infant (ClevelandClincic.org., n.d.).

Oxytocin is a unique hormone in that it is part of a positive loop—the more that is released, the more one receives (ClevelandClincic.org., n.d.). It has been dubbed the queen of the hormones, the tend and befriend hormone, the love hormone, the cuddle chemical, and the attachment hormone (ClevelandClincic.org., n.d.; DeAngelis, 2008). While much is still to be learned about oxytocin, the hormone is critical. Many agree that low oxytocin levels are linked to depression (Watson, 2021).

What can be done about low oxytocin levels? There are several studies ongoing about synthetic oxytocin treatments. However, research suggests natural ways to boost the hormone (DeAngelis, 2008). Listening to music, singing with a group, martial arts, giving/getting a massage, and making love with one's spouse all have been shown to boost oxytocin and reduce depression (Watson, 2021). Others have suggested that oxytocin can be increased through exercise, spending time with friends, a hug, meaningful conversations, acts of kindness, and cuddling with a pet (Raypole, 2020).

Point? The body is complex and incredible! It is made of multiple chemicals and systems. These parts influence how we interact with and interpret the world around us. Those interpretations result in psychological and physiological responses—some positive and others negative. One such example is when we have reduced connection with people—especially human touch, and we find ourselves bereft of something called oxytocin—the attachment hormone. Consequently, due to a lack of touch, we may experience symptoms of depression. Lesson? Engage in activities that yield an increase in oxytocin, and perhaps one will find a decrease in the symptoms of depression.

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