

The Hormonal Brain: How we Think and Feel

April 2019



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Hormones are chemical messengers that evolved early in evolution. A hormone is a molecule excreted by one cell to affect another cell. That other cell can be next door, downstream, or the cell itself (as a form of self-control). Plants had hormones before animals evolved. As organisms became larger and more complex, more coordination became necessary. In addition to more complex hormonal systems, animals developed a faster system based on electricity, called the nervous system. Hormones are like snail mail, while nerves work like email. While email is faster, we still need snail mail for certain functions. And most importantly, since hormones evolved first, they affect every nerve, including those in the brain.

Phases of Life

While we typically think of hormonal life beginning at puberty, there are several phases of life when hormones change. The first phase is at birth, where the mother's hormones are cut off from the fetus and replaced with other hormones in breast milk.

The adrenal glands, which produce stress-survival hormones, are influenced during gestation, and increase production from 3-8 years old. Traumas at this age (physical, medical, emotional) can cause long-term effects on hormones and the brain.

During puberty, the ovaries and testes turn children into reproductively-enabled adults. Starting in the early forties, sexual and adrenal hormones begin to decline. These hormonal phases are influenced by regions of the brain such as the pituitary gland, hypothalamus and limbic system (emotion). Brain function therefore is not only influenced by, but also influences these phases. Problems with anorexia, anxiety, puberty and dementia demonstrate the complex brain-hormonal relationships during life.

Hormones and the Brain

Each hormone, connected to survival, pushes the emotional and cognitive (thinking) systems in certain directions to increase the chances of survival. While we many sexist jokes are told of hormones and the female brain, the male version can look like sexual impulsivity, violence, erectile dysfunction, poor judgment and mood. The brain is affected by other hormones, including adrenal (stress), thyroid, insulin, and others. For example, adrenaline drives flight-fight, while oxytocin affects love and connection. Leptin influences hunger and metabolism. Hormones also interact with neurotransmitters and related biomolecules.

Certain important hormones, though rarely addressed in

conventional medicine, can have important effects on neurological function. Pregnenolone is involved in concentration and short-term memory. DHEA affects sex and immune systems and has been used for certain autoimmune dis-eases. Aldosterone can help with tinnitus and hearing loss.

Other Factors: Gut, Toxins, Deficiencies, Infections

The "gut-brain" or "second brain" refers to the fact that the gastro-intestinal system has its own nervous system that influences brain function. What we do and do not put into our belly can how we think and feel. Toxins such as mercury, lead, fluoride, bromide, plastics, pesticides and electro-magnetic fields (phones and wireless technology)

are often not addressed. Infections such as Lyme and Epstein Barr are sometimes hard to detect and treat. Our soils have been depleted since the 1930's and the RDA's for certain nutrients such as lithium, niacin, boron and omega-3 oils are too low or are not established. Sleep, a nutrient that is frequently deficient has a powerful affect on the brain and hormones. With our world-wide epidemic of deficiency and toxicity, the epidemic of crazy behavior is understandable.

Holistic Options

The Holistic toolbox is robust with ways of measuring and treating the

factors listed above. Understanding and desire for healing are all that is needed to make the lifestyle and other changes that can naturally and powerfully improve quality of life.

IMPORTANT NOTES:

1. **This educational material may not be used to influence medical care without supervision by a licensed practitioner.**
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3. Dr. Cheikin's website has related articles such as "Hormonal Web," "Adrenal Fatigue", Neurotransmitters" and many others.

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