ENDOCRINE SYSTEM
OVERVIEW
WHAT DOES THE ENDOCRINE SYSTEM DO?

- Hormones affect everything from mood, to weight, to bowel health.
- What causes weight fluctuations, bloating and other health symptoms throughout the course of a month? Hormones.
- What causes men to naturally put on muscle more easily or lose weight more quickly? Hormones.
- What is a huge contributing factor of growth in children? Hormones.
- What controls ovulation, reproduction, pregnancy, etc.? Hormones.
- What system makes our hormones? The endocrine System!
WHAT IS THE ENDOCRINE SYSTEM

- The body’s hormones, and the glands that produce them, make up the endocrine system.
- The endocrine system’s job is to regulate the body's metabolism, reproduction, growth and sleep.
- Like the nervous system, the endocrine system is an information signal system.
  - But rather than using neurons, it uses chemical messengers called hormones, each of which has its own unique function.
WHAT IS THE ENDOCRINE SYSTEM?

- The Endocrine system is the chemical messenger system of the body which is composed of glands that make hormones. Hormones are secreted by the glands into the bloodstream and carried throughout the body telling cells what to do and when to do it.
- Hormones help to maintain homeostasis, growth, direct sexual development, affect mood and sleep, tell you when to eat and when to stop eating, and so much more!
  - The major endocrine glands are the pituitary, pineal, thymus, thyroid, adrenal glands and pancreas.
Tired All the Time

- Several hormones are related to energy and alertness, thus constant fatigue may be a sign of one or several hormone imbalances. It would be difficult to pinpoint exactly which hormone is the issue without a blood screening.
- It is important to note, that the body is not simply a bunch of pieces all put into one, but rather every system is interconnected, thus an issue in once system of the body (immune, cardiovascular, digestive, nervous, or endocrine) may be impacting the others.

Can’t Sleep or Restless Sleep

- The hormone for sleep is melatonin. Naturally, your body will begin to produce melatonin as the sun goes down, so by the time the sun is gone you are relaxed and ready for bed. However, modern life has messed with our body’s natural ability to produce melatonin because of artificial and blue light, excessive (or ill-timed) caffeine use, and artificial melatonin supplementation.
Mood issues are often associated with neurotransmitters such as serotonin and dopamine, however, hormones also impact mood.

- Gonadal, or reproductive hormones, have a large impact on our mood, as we may be aware (time of the month, menopause, etc.). In fact, estrogen directly impacts the release (or lack of) for serotonin and dopamine.

- Low Vitamin D may also be the culprit. Vitamin D is often thought of as a vitamin, which it technically is not, it is a prohormone. Which means it is a substance that the body converts into a hormone. Vitamin D is a result of a chemical reaction when sunlight hits the skin.

- It is known to play a role in cardiovascular health, mental health, and immune health. Low Vitamin D does not allow the neurotransmitters (sometimes hormones, depends on the release mechanism) of epinephrine and norepinephrine to be released.

- It also affects the ability of serotonin and dopamine to release, which are both “happy chemicals”. On the flip side, too much Vitamin D may lead to blood calcium level issues (vitamin D and calcium require the presence of each other to work).
Several chemicals in our everyday products affect our endocrine system’s ability to regulate our metabolism and appetite. Ghrelin and leptin are the main hormones involved in appetite, though there are dozens. Ghrelin tells us when to eat and what to eat, basically gives us our appetite. Leptin tells us we are done or not hungry. If there is an imbalance you are likely to have weight management issues. The chemicals in our environments and products that affect our metabolism are called “obesogens”.

- Common Obesogens are Phthalates (make things softer), BPA (originally developed to be birth control!!! But commonly found in plastics and receipt paper), tobacco smoke, air pollution, pesticides (on our FOOD!), PCBs (found in light bulbs, cement, sealants, adhesives and more!), and flame retardants (found in many fabrics and building materials).

- It is nearly impossible to avoid exposure to all of these, but you can limit your exposure as best as possible by reducing plastic use, reading ingredients, and buying organic produce when possible.
HORMONES AND MENSTRUAL CYCLES

Estrogen and Progesterone are the two main sex hormones for females. Estrogen is responsible for the growth of breasts, pubic and underarm hair, and the regulation of the female menstrual cycle. It also helps to regulate cholesterol, protect bone, and affects the brain in terms of mood.

- The ovaries are the main source of estrogen, but the adrenal glands and at tissue also produce estrogen.
  - Low estrogen is often associated with menopause and may lead to menstrual periods that are less frequent or stop, hot flashes, trouble sleeping, dryness and thinning of the vagina, mood swings, dry skin, and low sex drive.
  - High estrogen may lead to weight gain, especially in the abdominal or thigh region, menstrual period irregularities (light or heavy bleeding), worsening PMS, non cancerous breast or ovarian lumps, fatigue, depression, or low sex drive.
Progesterone is secreted on the second half of the woman’s cycle (the weeks after ovulation). Progesterone prepares the uterus for a potential pregnancy.

- Low progesterone may make it difficult to become pregnant. Other signs include abnormal uterine bleeding, or irregular periods, spotting, and frequent miscarriages.
- Low progesterone may also lead to high estrogen.
- No serious medical issues associated with high progesterone. (Although it may increase risk of breast cancer)
Endocrine disrupting chemicals (EDCs) are substances in the environment, food sources, personal care products, and manufactured products that may interfere with the normal function of your body’s endocrine system. EDCs are non-natural chemicals or mixtures of chemicals that can mimic, block, or interfere with the way the body’s hormones work.

EDCs have been linked to health issues related to sperm mobility and quality, overall fertility, abnormalities in sex organs, endometriosis, early puberty, nervous system function, immune function, cancers, breathing problems, metabolic issues, obesity, heart health, growth, neurological and learning disabilities, and much more. Basically, they are toxic to every system of the body and can lead to some serious health concerns.

- A developing fetus or infant is more vulnerable to the effects of EDCs than an adult because organ systems are still developing.
- Of the hundreds of thousands of man-made chemicals, it is estimated that about 1,000 may have endocrine-acting properties.
- Global production of plastics grew from 50 million tons in the mid-1970s to nearly 300 million tons today
WHERE ARE EDCS FOUND?

In the Home
- Children’s products
- Industrial Solvents or Lubricants (cleaning products)
- Plastics and Food Storage Materials
- Antibacterials
- Building Materials
- Electronics

In Everyday Products
- Personal Care Products (Shampoo, Conditioner, Makeup, etc.)
- Textiles and Clothing

In our Food
- Pesticides, preservatives, chemical additives
## CHEMICALS TO AVOID (A SHORT LIST)

- Parabens (methyl, propyl, ethyl, butyl)
- Triclosan
- Sodium Lauryl Sulfate
- Phthalates
- Preservatives
- Artificial Colors (petroleum)
- Chlorhexidine
- BPA
- Oxybenzone/Avobenzone
- Synthetic Fragrance
- Peg Compounds
- Formaldehyde
- 1,4-Dioxane
- Propylene Glycol
- Tetrasodium EDTA
- Aluminum Zirconium
- Petrochemicals
- Polysorbate
- Aspartame
- Benzocaine
- BHA and BHT
- Isobutane
- Propane
- DEET (N-Diethyl3MethylBenzamide)
- Sodium Fluoride
- Methylisothiazolinone
- Alkyl Dimethylbenzylamine Chloride
WHAT CAN YOU DO?

- Healthy Fats
- Limit Caffeine
- Avoid Chemicals
- Supplement Wisely
- Prioritize Sleep
- Exercise
- Support the Gut