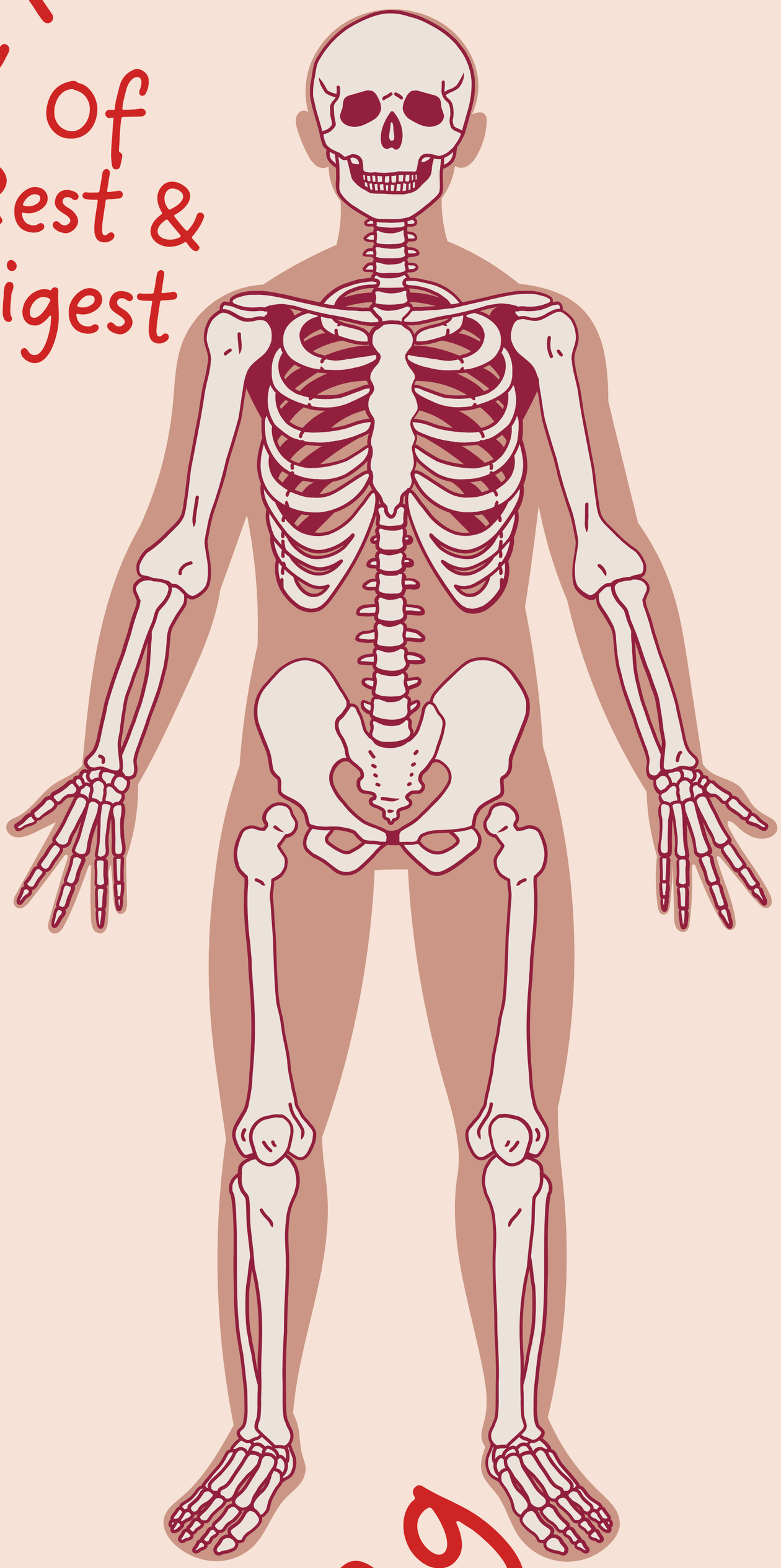
# THE HEART(LAND) of Rest & Digest



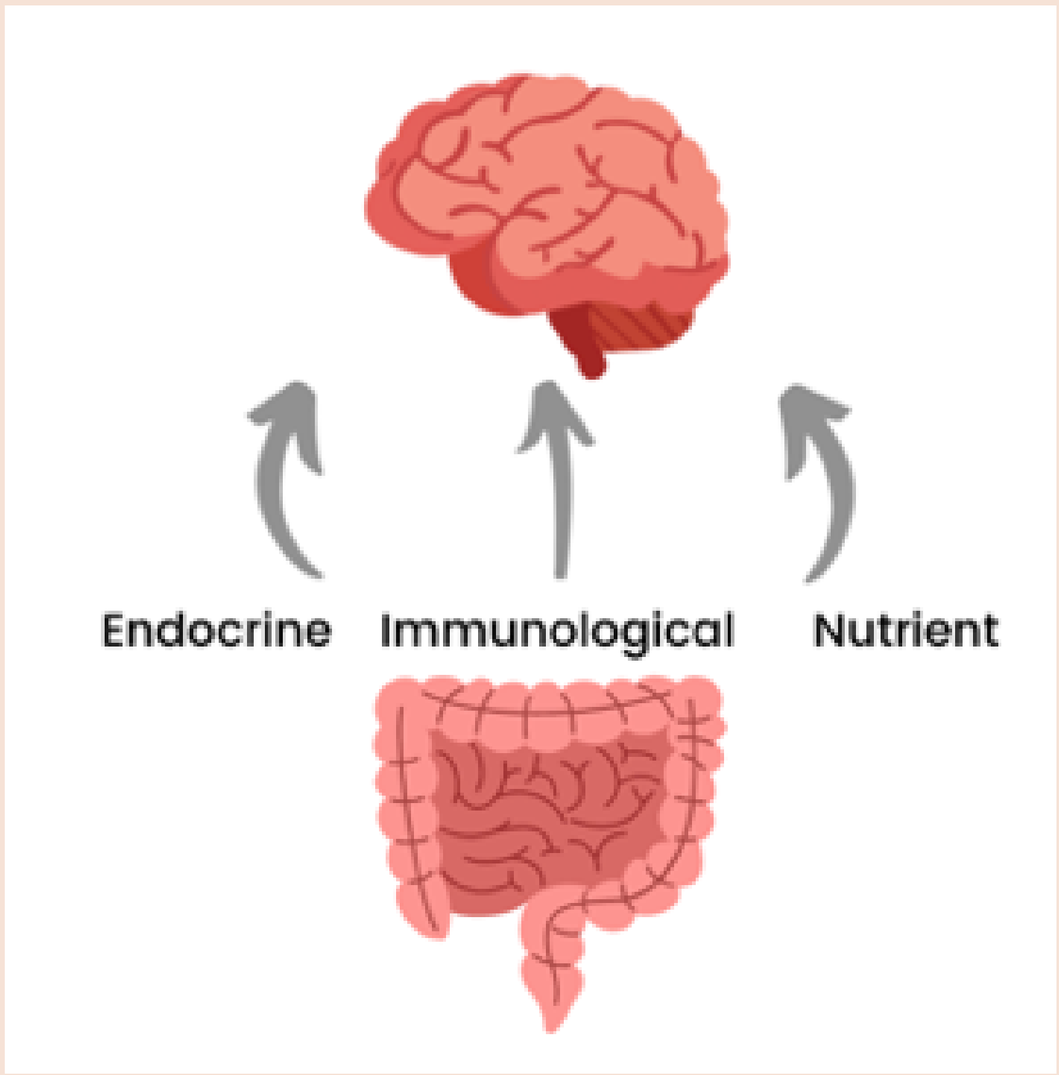
# Exploring THE VAGUS NERVE

The Vagus nerve is the predominant nerve involved in the parasympathetic nervous system, which controls specific body functions including heart rate, digestion, breathing, speech, and the immune system. As the tenth cranial nerve, the Vagus nerve begins in the brainstem through the neck, and down to the abdomen. Because of its long path through the human body, it has also been described as the "wanderer nerve" (1). The function of the Vagus nerve is to bring information from the brain to our organs, primarily the gut, liver, heart, and lungs in a two-way method of communication. Specifically in the gastrointestinal tract, the Vagus nerve works to increase bowel movement and secretion of hormones for digestion, working intricately through what is known as the gut-brain connection. Let's break this down a little further.

**What is the gut-brain connection?**

The gut-brain axis consists of all the communication between the GI tract and the brain and is involved in hunger, satiety, and nutrient absorption as well as hormone and immune function and signaling. Also referred to as the “second brain”, the gastrointestinal tract and more scientifically, the enteric nervous system, is comprised of two thin layers of millions of nerve cells lining the esophagus to the rectum. It as relies on the Vagus nerve as its line of communication with the central nervous system, or the brain. The Vagus nerve works to signal the smooth muscles of the digestive tract to push food down the esophagus into the stomach and through the intestines (2). Additionally, the Vagus nerve is involved signaling the brain that the body is hungry or full (3). Not only does the Vagus nerve work to stimulate digestion, but it works to module the gastrointestinal tract’s immune functions and inflammatory responses (4).

Another system heavily involved with the gut-brain axis is the gut microbiome. The microbiome is made up of trillions of microorganisms including bacteria, archaea, eukaryotes, and viruses that inhabit the gastrointestinal tract. It is often referred to as an additional endocrine organ because it is so heavily involved in conversation and connection with the body (5). The microbiome works to communicate the inputs and outputs of the gut to the Vagus nerve to correspond with the brain and vice versa. The microbiome is an emerging research area that is being explored for its involvement in chronic diseases like obesity, type 2 diabetes, cardiovascular disease, mental health disorders, autoimmune diseases, and more (6). Treatment of both the Vagus nerve and microbiome continue to be explored for their roles in improving health and wellbeing.




**How can one improve the function of the Vagus nerve/ gut-brain axis?**

The Vagus nerve can be stimulated through the parasympathetic nervous system or when the body is “rest and digest” mode. This is contrary to our bodies sympathetic nervous “fight or flight” mode. Deep breathing is known as one of the best ways to stimulate the Vagus nerve and improve vagal tone (7). Yoga practices have also been shown to impact Vagus nerve functioning through stimulating and increasing the vagal tone to relax the heart rate, decrease stress, and improve cognitive function (8). Increasing the vagal tone means the body can relax faster after stress and may be associated with lower blood pressure, improved blood-sugar regulation, improved digestion, better mood, reduced anxiety, and reduced risk of stroke and cardiovascular disease. To assist with increasing your vagal tone, *ACCGov provides a virtual, 30-minute Mindfulness Based Stress Reduction every Tuesday morning at 8:15 AM and more information can be found in each month’s Wellness schedule.*

Vagus nerve stimulation (VNS) is a mode of treatment that sends electrical signals to the nerve and thus its communication counterparts. This stimulation can be done both directly with a surgical implementation and through indirect electrical impulses (6).

This continues to be explored as an add-on treatment for treatment-refractory depression, posttraumatic stress disorder, and inflammatory bowel disease. It has been previously used as a treatment for seizures and epilepsy.

Additionally, the gut-microbiome has linked with mental health disorders, therefore, treatment of VNS and gut microbial function may play a role in improvement of these conditions. Strategies aimed at improving the gut-microbiome include increasing dietary fiber intake, eating a variety of colorful fruits and vegetables, improving hydration, increasing exercise/movement, and decreasing stress.

One can feed the Vagus nerve with foods rich in Acetylcholine (the primary neurotransmitter of the Vagus nerve):

·Eggs

·Spinach

·Bananas

·Sunflower seeds

·Organ meats

·Chicken

·Fish

Other strategies to decrease stress and improve the function of the Vagus nerve can be found through the following resources:

Singing, humming, charting, gargling to activate the Vagus nerve as this nerve is connected to your vocal cords

Click the underlined links below for video resources:

Tapping into the Vagus Nerve for energy

Myofascial Self-message for relaxation

Gut massage for digestion

Vagus Breathing for relaxation

There are many practices emerging that help calm, reset, and address the Vagus nerve. Working on improving the function of your gut-brain axis has many benefits that continue to be explored and improved upon as new research arises.

# Citations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