THE GUT MICROBIOME



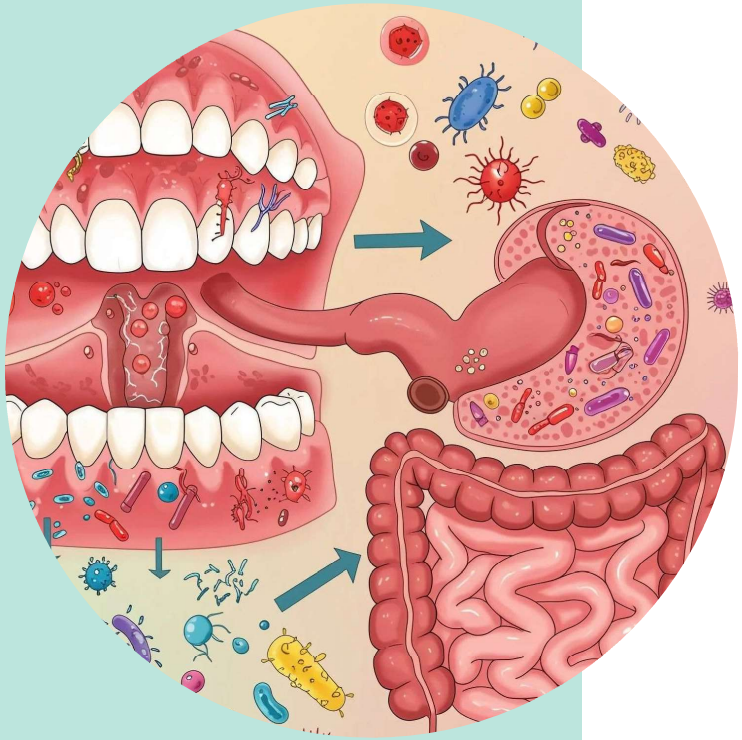
AN ARMY INSIDE YOU

AGENDA

- WHAT IS THE MICROBIOME?
- DIGESTION
- NUTRIENT ABSORPTION
- HORMONE FUNCTION
- IMMUNITY
- MENTAL HEALTH
- IMMUNE HEALTH
- HABITS THAT INFLUENCE THE MICROBIOME
- FOODS THAT SUPPORT A HEALTHY MICROBIOME

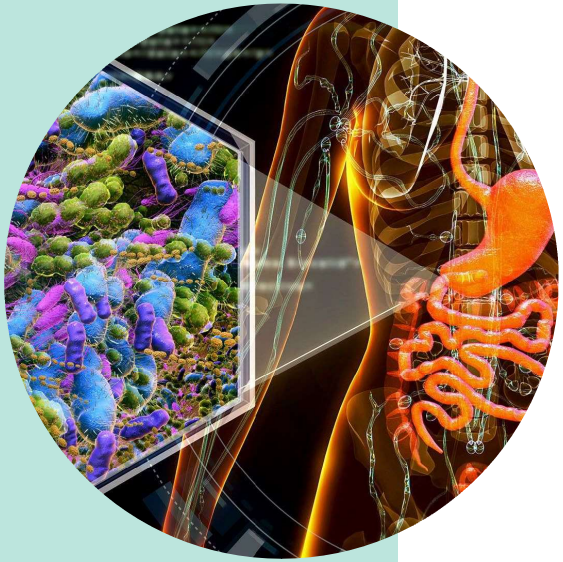
"All disease begins in the gut"

- Hippocrates



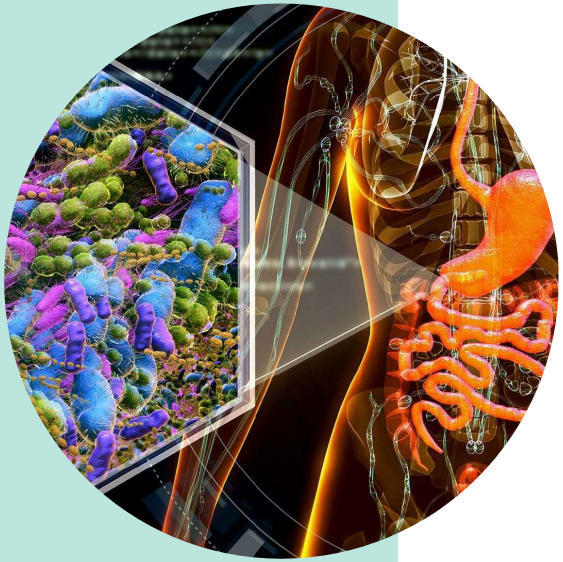
THE GUT MICROBIOME

- The gut microbiome is a living collection of microscopic organisms (i.e., bacteria, fungi, viruses, etc.) that reside inside you from the mouth to the anus
- The microbiome works to support optimal human function when it is diverse and balanced, much like a thriving garden.
- The gut microbiome plays a crucial role in proper function of:
  - Digestion – gut health, inflammation, gut lining integrity, nutrient absorption
  - Nutrient absorption – energy, muscle, bone, tissue building and repair
  - Hormone function – sleep, sexual health, body composition, fat metabolism
  - Immune health – slows aging, reduces disease risk, organ and cellular health
  - Mental health – optimal serotonin levels support mood, emotion, sleep, cognition, and the central nervous system
  - Inflammatory response – reduction in pain, improved recovery following physical activity, reduction of inflammatory related diseases
- A balanced microbiome full of the good guys and a few of the bad guys helps the human body thrive! Dysbiosis (imbalance and low diversity) of the microbiome lends to disease and dysfunction.



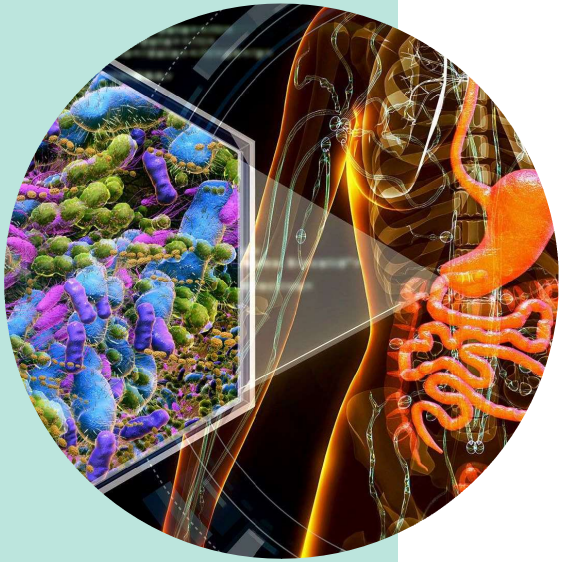
DIGESTION

- Microbes are essential in further breaking down food as part of digestion. This occurs when food leaves the stomach and enters the small intestine where a small number of bacteria assist in breaking down less complex carbohydrates. As food passes to the large intestine where the majority of gut microbes live, they further ferment and breakdown food that previously escaped digestion.
- Here gut microbes use fiber and polyphenols (bright colored pigments found naturally in food) as fuel to create bioproducts essential to human function.
- These biproducts include nutrients such as:
  - Vitamins that support methylation, detoxification, and mental health
    - B9 (folate)
    - B1 (thiamine)
    - B12 (cobalamin)
    - B7 (biotin)
    - B6 (pyroxidine)
  - Short Chain Fatty Acids (SCFAs) trigger the secretion of natural GLP-1s. This enhances insulin sensitivity, delays gastric emptying, aids in hormone signaling for fullness after eating, promotes safe fat storage preventing fat from accumulating in the liver or skeletal muscle.
    - 20-35% of total weight loss from synthetic prescription GLP-1 medications are from lean muscle tissue essential to overall health, functional movement and blood sugar regulation



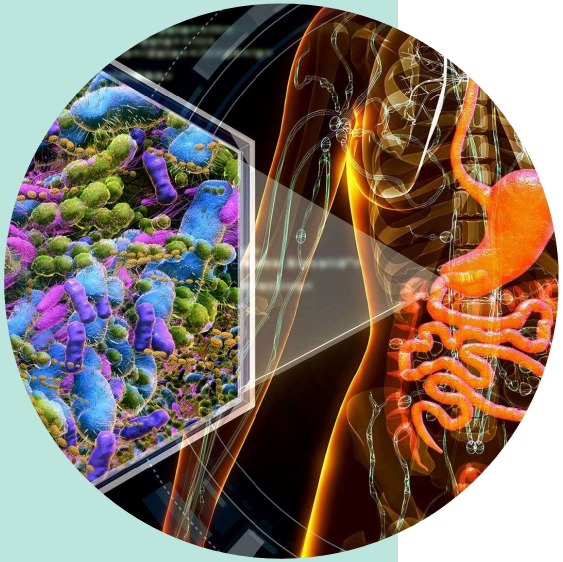
NUTRIENT ABSORPTION

- Microbes are essential in maintaining gut lining integrity. The gut lining is a microscopic, single cell layer lined with mucus that has tight gap junctions where nutrients can be absorbed through the gut lining directly into the bloodstream.
- Gut bacteria like Akkermansia mucinaphilus use the mucus lining of the intestinal tract as their primary energy source by eating old mucus aiding in mucin turnover. This stimulates stem cells to produce fresh new cells reinforcing the gut barrier from toxic biproducts made from bad bacteria. This is foundational in stopping chronic inflammation.
- As Akkermansia breaks down mucin it also creates SCFAs sealing the gut barrier further, reducing leaky gut.
- Without systemic inflammation from leaky gut interfering with cellular function, insulin sensitivity improves allowing the body to more easily clear glucose from the blood. This improves fasting blood sugar levels and reduces massive cellular glycation (oxidation caused by sugar).
- Akkermansia also improves bile acid and reduces the number of toxins bombarding the liver, downregulating liver enzyme stress. Bile acid is essential in breaking down dietary fat and is a key structure of cell membranes and function, including absorption of fat-soluble vitamins A, D, E and K.



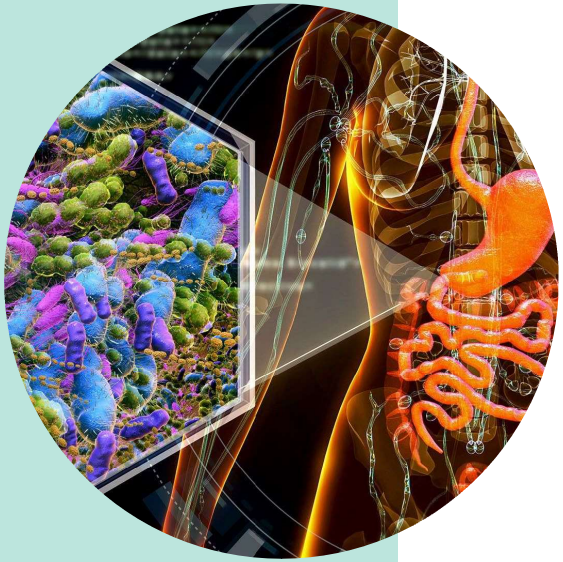
HORMONE FUNCTION

- Hormones like serotonin Gut bacteria such as lactobacillus and bifidobacterium produce SCFAs that signal EC cells to make 90-95% of the body's serotonin essential to mood regulation, digestion and restorative sleep.
- Sexual health can be heavily impacted when gut bacteria are in dysbiosis. Too much or too little enzyme activity as a biproduct of gut bacteria can cause estrogen levels to drop or build excessively, leading to issues like low libido or polyendocrine metabolic ovarian syndrome (PMOS). Gut bacteria also metabolize and help regulate testosterone production. An imbalanced gut microbiome can cause low testosterone and erectile dysfunction.
- An imbalanced gut microbiome triggers cortisol production leading to weight gain, dampening libido, and impairing blood flow essential to



MENTAL HEALTH

- Biproducts made by gut bacteria including SCFAs, serotonin (essential to mood regulation, cognition, optimal sleep cycles, and nervous system regulation), dopamine, and glutamate play an important role in neurological and immunological functions and signaling of the brain. This includes managing cortisol.
- An imbalance of gut bacteria is strongly associated with mental health disorders including anxiety, depression, PTSD, and schizophrenia.
- Inflammation and signaling from pathogenic microbes pass directly from the gut to the vagus nerve to the brain. This can include signally of food cravings or sugar necessary for pathogenic bacteria to reproduce.



IMMUNE HEALTH

- SCFAs acetate, propionate and butyrate made by gut bacteria support liver function, blood sugar regulation, promote the making of the body's own GLP-1s, and reduce inflammation by supporting tight gap junctions in the intestinal lining which ultimately improves immunity.
- When all of these things are functioning well, fat metabolism becomes easier when paired with a proper diet and exercise.

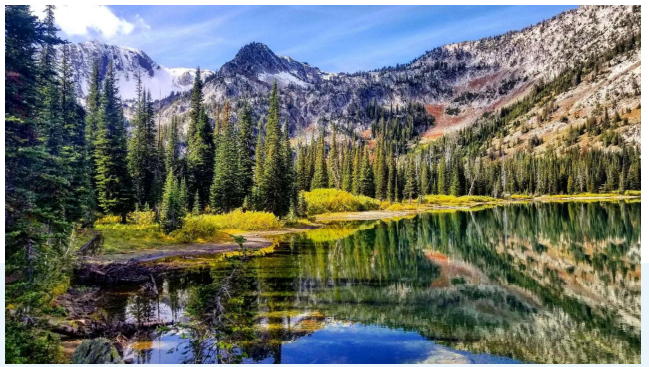
HEALTHY HABITS INFLUENCING GUT HEALTH



HEALTHY HABITS

- Slow down, relax, don't be in a hurry to eat
- Look at your food, enjoy the colors and flavors
- Express gratitude for healthy food
- Chew thoroughly until food is baby food consistency in the mouth
- Minimize consumption of liquids while eating which can dilute enzymes and HCl potency
- Consider taking a digestive enzyme before or at the beginning of meals to support optimal digestion
- Consume quality whole plant foods free of chemicals, dyes, sugar, sugar alcohols, seed oils and emulsifiers
- Consume whole food fiber (35 grams daily)
- Consume 25-30 grams of protein with meals
- Consume foods rich in color
- Consume a diverse number of fruits, vegetables, nuts, seeds, herbs, and spices variety of growing locations

HEALTHY HABITS INFLUENCING GUT HEALTH



HEALTHY HABITS

- Reduce blue light exposure
- Turn off screens one hour prior to sleep
- 8 hours of sleep
- Expose the eyes to morning and evening natural light
- Exercise – strength training
- Time outside in nature
- Establishing daily routines and processes that reduce stress and create efficiencies
- Listen to music, sing, dance and play
- Pray, meditate, read uplifting content/books
- Time spent caring for and positively engaging with loved ones
- Physical touch

UNHEALTHY HABITS INFLUENCING GUT HEALTH



UNHEALTHY HABITS

- Stress and hurry turn down enzyme production in the mouth, stomach and pancreas
- HCl and bile potency are reduced under stress because the body is preparing to run from the Tiger not consume food
- Reduced HCL and bile potency results in larger chime particles, which can encourage an immune response by damaging the gut lining and from too large of food particles passing into the blood causing white blood cells to mount an immune response to large food particles they have identified as foreign invaders
- Using harsh oral products like mouth washes and toothpastes that contain fluoride, alcohol, sugars and strong oils and/or flavorings can create bacterial imbalances in the mouth and ultimately the whole system

UNHEALTHY HABITS INFLUENCING GUT HEALTH



UNHEALTHY HABITS

- Consumption of processed foods (i.e. grains, flours, sugars) especially those that stick to the teeth
- Consumption of foods that are acidic inside the body such as coffee, sugar, food in metal cans, processed meats, cheeses, crackers, chips, cereals, desserts and dried fruits
- Use of chewing tobacco, smoking, vaping, and alcohol
- Taking prescription medications (i.e., statins, PPIs, insulin, GLP-1s, mental health medications, antibiotics, antacids) harsh natural supplements (i.e., overuse of essential oils)
- Anger/arguments/stress
- Lack of sleep



FAVORITE FOODS THAT SUPPORT A HEALTHY MICROBIOME

- RAW CRANBERRIES
- MUSHROOMS & SPROUTS
- BERRIES & GREEN APPLES
- GREEN AND NETTLE TEA
- CACAO
- FERMENTED FOODS (SAUERKRAUT/KIMCHI)
- UNSWEETENED CULTURED COTTAGE CHEESE/YOGURT
- UNRIPE BANANAS
- ASPARAGUS
- GARLIC, ONIONS AND LEEKS



FAVORITE THINGS THAT SUPPORT A HEALTHY MICROBIOME

- HYDROXYAPATITE TOOTHPASTE
- HYDROXYAPATITE DENTAL FLOSS
- DIGESTIVE ENZYMES
- RED LIGHT MAT
- BLUE LIGHT BLOCKING GLASSES
- PHYSICAL BOOKS
- PERSONAL TRAINING
- GROUP FITNESS CLASSES
- SPOTIFY SUBSCRIPTION FOR LISTENING TO MUSIC, BOOKS, AND PODCASTS
- FASTING/SUPPLEMENTATION



THANK YOU

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