



PILLARS OF GI HEALTH

PATIENT HANDBOOK



Heal Your Gut, Heal Your Body

The gastrointestinal (GI) tract is one of the most sophisticated systems of the human body. We often think of the GI tract for its primary role in digesting and breaking down food, but that is only a small part of a much larger role that the GI tract plays in overall health and disease. The GI tract is truly the gateway to the rest of the body; if our GI health is compromised, our overall health is compromised. That is why it is so often the best place to start when evaluating treatment strategies.

GI disorders affect more people in the United States than those who suffer from heart disease, AIDS and cancer combined. Over 74% of Americans have lived with some type of GI-related symptoms for more than six months.¹ These illnesses can range from occasional heartburn to severe, terminal illnesses. Next to the common cold, GI discomfort is the most common reason people seek medical advice or turn to over-the-counter remedies.

As in most systems of the body, the quality of GI health is highly influenced by lifestyle choices such as diet, physical activity and sleep. Convenient and inexpensive food choices often contain little nutritional value and promote an increase of toxic burden. In addition, many people cope with daily stresses by turning to alcohol, tobacco, sugar and caffeine. Over time, these lifestyle choices impair the basic functions of the GI tract and create an environment for disease development.

The Pillars of GI Health Patient Handbook provides a specialized lifestyle plan to help you begin the journey of regaining and maintaining optimal GI function.

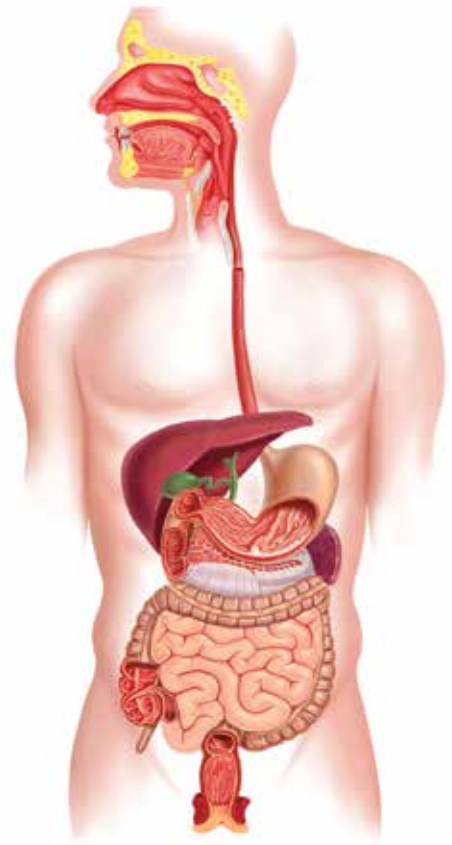


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How Macronutrients Affect GI Health

Carbohydrates

Carbohydrates are one of the most important sources of energy for your body. Carbohydrates are considered simple or complex depending on their chemical structure. Simple carbohydrates include sugars found naturally in food, as well as sugars added during food processing. Complex carbohydrates include whole grains, vegetables and legumes, all of which are good sources of fiber. Both complex and simple carbohydrates are processed in the body and turn into glucose, which is used as energy.

Dietary Fiber

Fiber is a substance found in plant food and cannot be broken down in the GI tract. Fiber is passed, intact, through the GI tract and makes up part of the stool. The two types of fiber, soluble and insoluble, are both important to a healthy diet. Fiber increases satiety, or the feeling of fullness, which can aid in healthy weight management.

Soluble fiber retains water and turns to gel during digestion. It also slows digestion and nutrient absorption from the stomach and intestines. Soluble fiber can be found in foods such as oat bran, barley, nuts, seeds, beans, lentils, fruits, and many vegetables. Soluble fiber plays a role in slowing down the absorption of fat and sugars, which can help reduce cholesterol and balance blood sugar levels.

Insoluble fiber speeds the passage of foods through the stomach and intestines and adds bulk to the stool. Insoluble fiber is usually found in foods like nuts, seeds, whole grains, vegetables and wheat bran. Insoluble fiber is effective for the treatment and prevention of constipation and of digestive disorders like irritable bowel syndrome.



Digestion and Absorption

One of the main functions of the GI tract is to digest food and absorb nutrients from it. Digestion begins in the brain, when we see and smell food. Saliva and gastric juices are released while preparing for the meal, well before the first bite of food. This is why it is so important to spend time preparing our food, as this process plays a major role in healthy digestion. When you eat a meal, your mouth, by chewing, physically breaks down large food pieces into smaller molecules. Once the nutrients have passed the intestinal barrier, they enter the bloodstream and circulate to all of your cells and tissues. These nutrients work to maintain organ function, energy production, and the growth and repair of new cells and tissues. Ultimately, food and their nutrients provide the energy for every cell in your body.

Different digestive juices are found in various areas of the GI tract. In the mouth, salivary glands release salivary amylase to moisten food and break down starches, helping food move down the esophagus. When food is chewed thoroughly, the body is better able to digest and absorb nutrients.

Digestive enzymes, hydrochloric acid in the stomach, and muscle contractions of the GI tract all play a critical role in breaking down large food particles into macronutrients (carbohydrates, fats and proteins) and micronutrients (such as vitamins D and B12, zinc, iron and iodine) that are easily absorbed into the body.





Elimination and Detoxification

Exposure to the air we breathe, the stress we feel and the food we ingest can add up to over 14 pounds of pesticides, herbicides, food additives and preservatives per year for the average American. The liver, together with the GI tract, is responsible for removing these toxins through a process called detoxification. The function of elimination and detoxification involves removing the unusable portions of the food you eat, as well as toxins. It is essential that both be completely eliminated from your body through urine and stool; otherwise, toxins build up and are stored in your tissues. A good measure of the health of the elimination pillar is how often you have bowel movements on a day-to-day basis. Ideally, you should have two to three well-formed bowel movements per day.

The digestive system is responsible for breaking down food, absorbing useful compounds, and eliminating the rest. A well-functioning gastrointestinal tract, together with the liver, works to remove toxins from the body. Toxins invade the body from three main sources: the environment, personal lifestyle, and the body's own metabolic processes. Polluted air, prescription drugs, processed foods, and even stress can increase toxins in the body. Eliminating pathogenic organisms (bacteria, viruses, fungi, parasites), toxic burden and negative food reactions can have a profound impact on numerous GI and non-GI-related conditions.

Poor dietary habits play a fundamental role in bowel health and regularity. Lack of adequate fiber and water are the biggest causes of regular constipation. Lack of physical activity can also contribute to chronic constipation. The stool removes many liver-processed toxins, so extended bowel transit times allow these toxins to be reabsorbed.



Microbial Balance

The gut microbiome is an ecosystem composed of more than 100 trillion microscopic organisms, with over 500 different strains of beneficial yeast, bacteria and microorganisms that live in the GI tract. It is primarily located in the large intestine, although there are microorganisms housed along the entirety of the GI tract and your entire body. It is one of the most metabolically active systems in your body. These organisms maintain healthy and functional digestion and absorption from the GI tract, protect against pathogens, help to regulate immune function and blood sugar levels, and assist in vitamin production.

The bacteria in the gut microbiome can have a profound effect on the health of the entire body. The microbiome aids in the production of nutrients, including vitamins B and K, but also can affect one's risk for obesity or metabolic conditions. For example, birth via C-section versus vaginally can have distinct effects on the health of the gut

and immune system. Infants born via C-section do not have the same quantity or diversity of bacteria as that of an infant born vaginally. These changes can potentially affect their long-term health by increasing the risk of certain allergic or inflammatory conditions.

It is important to keep beneficial flora in balance and in plentiful supply to help regulate the digestive system and prevent GI illnesses. Many factors, including genetic makeup, weight and environment, influence bacteria in the GI tract. Even harmless bacteria, when in the wrong place in the body, can potentially cause illness.



Barrier Function

The GI tract is one of the body's largest protective cell layers, serving as a barrier between the internal body and the external world. Its critical function is to allow nutrients into the body, while preventing harmful substances from passing into the bloodstream. Not only does increased intestinal permeability affect the GI tract, but also the immune, nervous and endocrine systems. There can be many causes of increased intestinal permeability, including poor diet, chronic stress, toxin overload, and dysbiosis. The GI tract houses the majority of the immune system in the body—about 80% is closely related to the GI tract and plays an essential role in barrier function. If this selective barrier function is not maintained, a number of harmful substances may enter the body, triggering immune-related responses such as Crohn's disease, celiac disease and food allergies.

