



Small Intestinal Microbial Environment

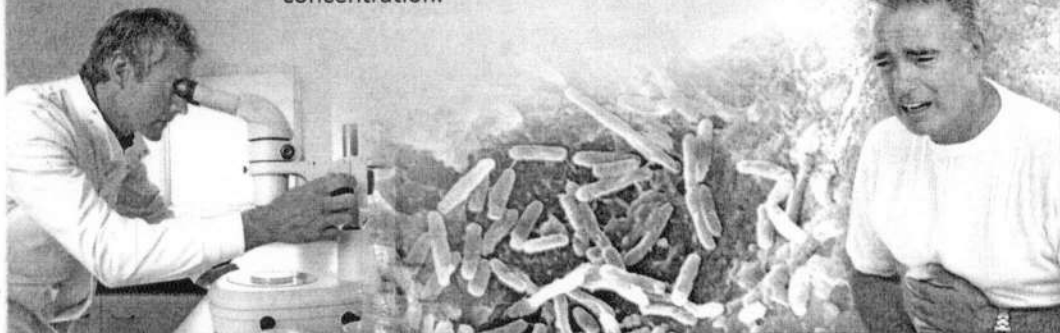
Dietary and Nutritional Guide

Introduction

This guide is intended to provide a combination of nutritional and dietary recommendations to support development of healthy bacterial environment and growth in the small intestine.*

The human digestive tract is divided into the small and large intestines. Once food is broken down, the critical nutrients are absorbed in the small intestine, and waste products are formed and eliminated through the large intestine (or colon).

The small and large intestines perform different functions and therefore have different microbial environments. One major difference between them is the amount of normal healthy bacteria. The large intestine normally has a very high bacterial concentration of 10^{11} /ml, whereas the small intestine only has about 10^3 - 10^4 /ml concentration.



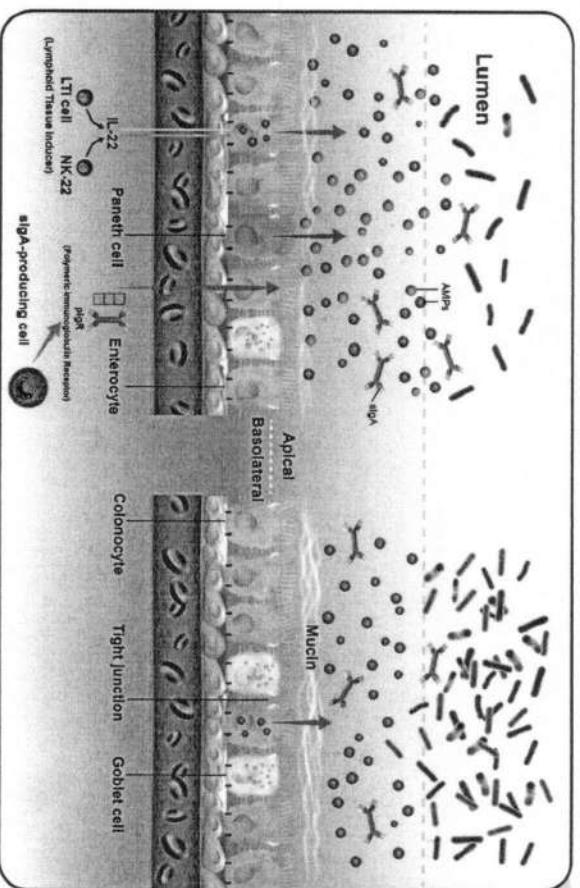
Small Intestinal Microbial Environment

The body intentionally keeps the bacterial amount low in the small intestine. There are several mechanisms that can explain why the concentration of bacteria is normally so low in the small intestine while fairly high (up to 10^9 /ml) in the terminal ileum, which is located at the end of the small intestine. These include the following:

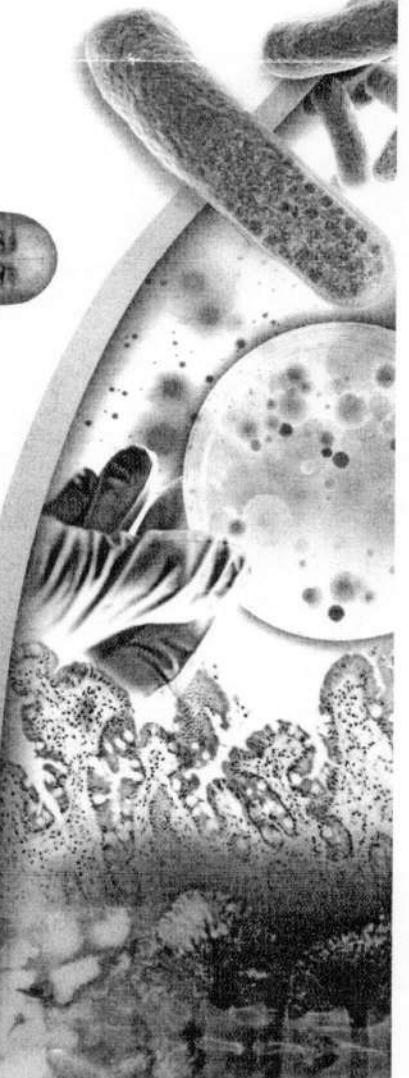
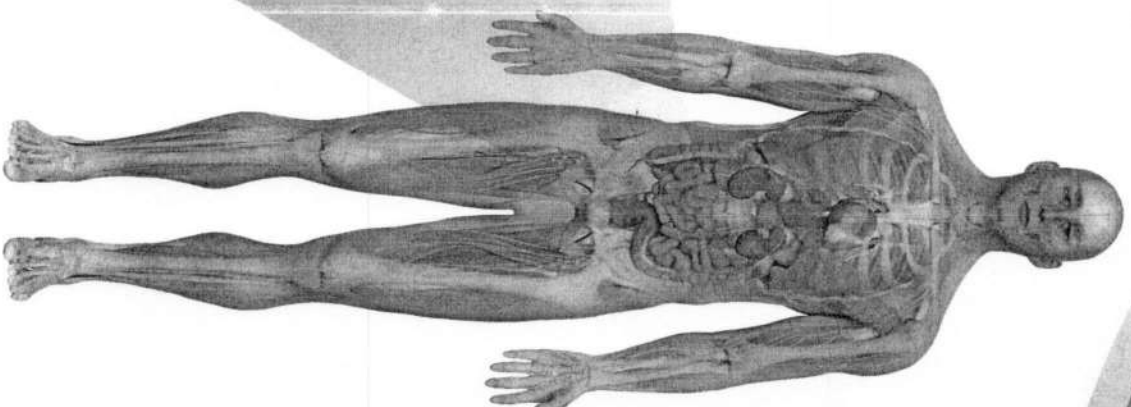
- Many ingested bacteria are destroyed in the stomach (via acid) and the proximal small intestine (via bile and enzymes).
- Intestinal peristaltic activities significantly limit the amount of bacteria on the mucosal layer by forcefully transporting the bacteria forward. This mechanism, in addition to the ileocecal valve, prevent the bacteria from moving from the colon back to the ileum.¹
- The immune system and secretory IgA (sIgA) play a role in selectively preventing the proliferation of certain bacteria.

Small Intestine

Large Intestine



LTI: Lymphoid Tissue Inducer pIgR: Polymeric Immunoglobulin Receptor



- However, these mechanisms may function at suboptimal levels for multiple reasons, including:
- Stress.
 - A weakened immune system.
 - Lowered gastric acid—for instance, in those who regularly consume over-the-counter antacids, in the elderly, etc.
 - Irregular peristalsis—peristalsis can be affected in those who, for example, have stressful lifestyles or bad sleeping patterns. These irregular muscle movements may present with either decreased or increased bowel frequency, and/or a combination of both.

These factors can increase the chance for a higher bacterial presence in the small intestine, which can cause digestive discomfort due to fermentation and gas formation, especially after ingestion of sugars, fiber, certain probiotics, and starch. If left unchecked, the altered environment of the small intestine can affect the absorption of essential nutrients, such as fats and proteins.

Foods to Avoid

Proteins

- Beef
- Lamb
- Pork

Sugars (Fructose)

- Natural and artificial sweeteners (honey, agave, stevia, sorbitol, mannitol, xylitol, etc)
- Anything made with corn syrup

Grains

- All wheat products
- All gluten-free grains (amaranth, quinoa, millet, buckwheat, tapioca, etc)
- All corn products (cornstarch, corn flour, cornmeal, etc)
- Rice

Legumes/Galactans

- Beans
- Lentils
- Chickpeas
- Peas
- Soybeans

Dairy Products (Lactose and Casein)

- All animal milk and whey sources

High-Fructan (Fructose Polymers) Vegetables

- Artichokes
- Asparagus
- Beets
- Brussels sprouts
- Cabbage
- Cauliflower
- Green peppers
- Lettuce
- Mushrooms
- Okra
- Onions
- Peas
- Shallots

High-Starch Vegetables

- Plantains
- Potatoes
- Sweet Potatoes
- Yucca

High-Fructose Fruits

- Apples
- Bananas
- Cherries
- Grapes
- Mangos
- Watermelon

Diet

An appropriately planned diet and lifestyle can play an important role in supporting the intestinal terrain and function. However, conventional medical intervention by a licensed healthcare professional should be sought prior to implementation to treat any background condition that can affect small intestinal movements and the microbial environment.

The goal of a dietary plan is to provide nutrient-rich foods to the individual but to restrict food choices that promote the growth of abnormal small intestinal bacteria and yeast. Foods such as sugars and starch found in fruit juice, high fructose-containing products, and rice and other grains promote adverse bacterial growth. However, foods that do not contain starch and sugar—such as non-starchy vegetables, meat, fish, poultry, eggs, nuts, and low-fructose fruits—are allowed in this type of plan. Strict dietary restriction is necessary for positive outcomes. Daily exposures to even small amounts of sugars and starches can lead to an altered intestinal microbial environment.

Exercises to Increase Digestive Motility

(as recommended by your healthcare professional)

Gargle with several glasses of water throughout the day to activate the vagal motor nuclei by utilizing the palate muscles. Gargle aggressively to induce tearing.

Induce repeated gag reflexes by gently pressing down on the tongue.

Perform coffee enema to induce activation of enteric motility and hold enema contents for as long as possible



Recommended Foods

Proteins	
- Chicken	- Fish**
	- Eggs
Nuts	
- All nuts except pistachios	
Low-Fructose Fruits	
- Apricots	- Honeydew melons
- Avocados	- Nectarines
- Cantaloupes	- Oranges
- Grapefruit	- Peaches
	- Tomatoes
Low-Fructan (Fructose Polymers) Vegetables	
- Bamboo shoots	- Choy sum
- Bell peppers	- Courgettes
- Bok choy	- Cucumbers
- Broccoli (moderate use)	- Endives
- Carrots	- Fennel
- Celery	- Ginger
- Chard	- Kale
- Chillies	- Olives
- Chives	- Parsnips
Fats	
- Animal fat	- Oils

**Select fish that are less prone to heavy metal contamination. If you are allergic to any foods, inform your healthcare professional and avoid eating those foods during this program.



Supplements to Avoid

Several over-the-counter nutritional compounds that contain fiber, prebiotics, galactans, and sugars are recommended to be avoided to better support the small intestinal bacterial environment and its fermentation activity, which may lead to abdominal distention. Common sources of fermentation include various prebiotics, such as fructooligosaccharides (FOS), and botanicals that contain resistant starch and galactans. Consult your healthcare practitioner.

Recommended Supportive Products*

It should be noted that nutritional supplements do not treat, prevent, or cure any condition, and conventional medical intervention should be sought for these purposes. Nutritional supplements can only support intestinal nutritional demands and the intestinal environment.*



CLEARVITE-GL™ (K95): CLEARVITE-GL™ (K95) is based on our popular CLEARVITE™ formula and is designed to offer gastrointestinal and metabolic support.* This formula includes the powerful combination of hypoallergenic nutrients, amino acids, and minerals that our other CLEARVITE™ products have, but excludes sources of rice and pea protein for those with sensitivities to grains or peas, or who require low carbohydrate content.* It also contains no sugars, which makes it ideal for anti-yeast diets.* CLEARVITE-GL™ is also intended to support liver detoxification and chemical biotransformation with targeted nutritional cofactors.* It offers a pleasant, fruity flavor.

SIBOTICA™ (K97): SIBOTICA™ incorporates key strains of probiotics that are intended to support the intestinal microbial environment as well as the intestinal mucosal barrier.* This innovative product may also help support the immune system via certain immune pathways.* Ingredients include *Lactobacillus plantarum*, *Lactobacillus casei*, and *Bifidobacterium breve*.



REPAIRVITE-SE™ (K98): REPAIRVITE-SE™ is based on our popular REPAIRVITE™ formula and intends to offer targeted intestinal support.* This product includes a limited amount of ingredients to offer support for those with certain dietary restrictions.* A high-quality, selective blend that includes brush border enzymes, L-glutamine, and zinc carnosine is incorporated to help support intestinal cell metabolism and the intestinal microbial environment.*



*This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

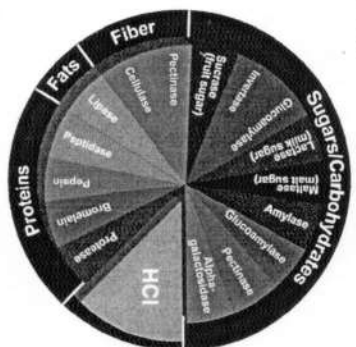
Apoor Energetics™ products are intended for nutritional use and health maintenance only and should not replace or delay the use of any medication.

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ENZYMIKXPRO™ (K99): ENZYMIKXPRO™ incorporates a special proprietary blend of various enzymes, including brush border enzymes, that has been meticulously designed to support the gastrointestinal system.*

This formula combines a broad spectrum of enzymes to help support the digestion of sugars, starches, fibers, proteins, and fats.* It also includes HCl for further digestive support.*



ENTEROVITE™ (K100): ENTEROVITE™ incorporates nutrients and a proprietary blend of fatty acids in a formulation intended to support the intestines and intestinal cell function.* This unique formulation is designed for those who are sensitive to certain food components, such as certain starches and fibers, and who want additional intestinal support.* Short-chain fatty acids (SCFAs), normal bacterial end products of complex carbohydrates, play important roles in intestinal microbial balance and function.* Diets that are low in resistant starch and fiber can result in a low production of SCFAs. This product also includes butyric acid as a key ingredient.



These and other related products are available at:

Phillips SF, Quigley EM, Kumar D, Kamath PS. Motility of the ileocolonic junction. *Gut*. 1998 Mar;29(3):390-406.

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