

## **Microbiome Replenishment (Probiotic Re-Seeding)**

- Extremely high-potency colonizers
- 10 probiotic species
- Enteric coat for effective delivery
- Aerobic and anaerobic probiotics
- High attachment & transient species
- Works "synbiotically" with LGUT to optimize the intestinal terrain



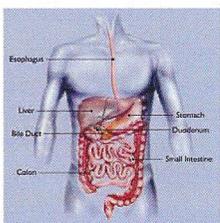
## THE MICROBIOME OVERVIEW



Biomes are ecosystems of life-forms. The intestinal microbiome refers specifically to the combined microorganisms (beneficial and pathogenic) that inhabit the intestines. In the recent few years, science has

discovered an astounding new significance to the intestinal biome – it has a strong and persuasive influence over how our bodies work. In fact, the microbiome is so profoundly involved with health, disease, and metabolic functions it's being called "the second brain."

Actually, the intestinal microbiome is much more expansive than a conglomerate of bacteria that hang out in our digestive tracts. It includes the impact of the microorganisms on the enterocyte cells that line the Gastro-Intestinal (G.I.) tract. It also includes the intestinal mucosa (*lamina propria*) and the Gut-Associated Lymphoid Tissue (GALT) which is part of the body's first-line immune defense against pathogens.



In the colon, there are three layers of bacterial colonies. There's a layer of anaerobic bacteria that create biofilms and rests on the colon's enterocyte cells (*colonocytes*) and create an exclusion barrier to pathogens. The middle layer is comprised of both aerobic and anaerobic resident species that allows some pathogens to hang around, but keeps

them behaving nicely. The outer layer is the mucous interface and it contains a teeming mass of transients that stay around when the food is good and move on when it's time to ramble.

### Definitions

**Dysbiosis** – a breakdown in the balance between protective versus harmful intestinal bacteria. This includes both pathogens as well as beneficial bacteria in the wrong location, e.g. fermenting strains moving into the small intestine where they cause gas.

**Intestinal Microbiome** – the microorganisms and the body's regulatory tissues. Includes the combined genetic material of the micro-organisms in a particular environment.

**Prebiotics** – non-digestible food components that support overall health by promoting the activity of probiotic bacteria in the large intestine.

**Probiotics** – bacteria which are beneficial to a person's health, either through protecting the body against pathogenic bacteria or assisting in recovery from an illness.

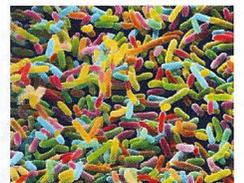
**Symbiosis** – a close and usually obligatory association of two organisms of different species that live together, often to their mutual benefit

**Synbiotics** – refers to nutritional supplements that combine probiotics and prebiotics in a form of synergism, hence synbiotics. Examples: *Lactobacillus rhamnosus* and inulins; or *Bifidobacteria* and fructooligosaccharides (FOS).

When looking at the entirety of the intestinal microbiome, it's really about DNA and intestinal inner-cellular processes that communicate with other cells throughout the body via the enteric nervous system, as well as the immune, lymphatic, endocrine, circulatory systems. It's also about how the body communicates and regulates the microbiome bacteria. **So the intestinal microbiome is really a two-way communication between colonizing bacteria and the body's innate regulatory processes at the cellular level.**

**Biochemical Individuality.** Many areas of the body have microbiomes. The nasal sinus, skin, lungs, and urogenital areas have specifically different microbiomes that have a beneficial, symbiotic relationship with the human being's ability to adapt and survive. Within the G.I. tract, there are "sub-microbiomes" localized along the journey from mouth to rectum, e.g. mouth, esophagus, stomach, duodenum, small intestines and colon. These sub-colonies are largely determined by the immune system based on the body's genetics and innate intelligence. So they are unique to each individual.

## MICROFLORA FACTS

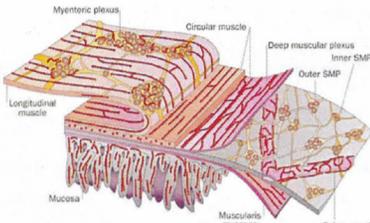


- **Tabula rasa.** Before birth, the G.I. tract is considered sterile, lacking bacteria.
- **Innate colonization.** Within hours of an infant's first nursing, the personal microbiome is established from colostrum and breast milk, as well as from strains acquired on the skin (lips) via passage through the birth canal.
- **Colonizing influences.** While breastfeeding, the microbiome quickly evolves, further influenced by the environment, specific genetics, stress, and other ambient factors (thoughts, emotions).
- **More of them than you.** There are some 100 trillion microorganisms in your G.I. tract (and only 10 trillion cells in your body – you're outnumbered 10:1.)
- **Symbiosis.** Humans live in symbiosis with their microbiome cultures. The micro-biome provides an "exclusion barrier" to prevent bacteria and pathogens from gaining entrance to your body, as well as assimilable nutrients, nascent vitamins, metabolic proteins, and information about the external environment. The intestines provide food, shelter, and environment for proliferation.
- **Digestion/Absorption.** The microbiome helps digest and absorb food (carbohydrates, proteins, and fat), and assimilate minerals (calcium, magnesium) for nutritional health.
- **Nascent vitamins.** In your intestines, nascent nutrients such as Vitamin B-12, Vitamin K, Biotin, and Folate are manufactured. This is a survival factor that provides a back up when nutrition can't provide the certain nutrients.
- **600 different species** of microorganisms make up your biome.
- **The good, the bad, and the ugly.** The best ratio of probiotic "good guys" to pathogenic "bad guys" is 85:15. The reason for the 15% pathogens is they, too, are productive members of your intestinal culture when they are properly controlled by the probiotics. They remind the immune system to be vigilant and some species contribute nutrients. (The ugly? They are the ones that cause acute diseases and are best avoided.)

- **Know thyself.** Your brain is aware of pathogenic microbes in your G.I. Tract<sup>1</sup>. This knowledge influences the immune system's "set point" of inflammatory set point

## ADAPTIVE IMMUNITY AND THE MICROBIOME

Human beings have two immune systems, the Innate and the Adaptive, and both are adaptive. Together, they feature the ability to: 1) adapt quickly to specific threats, and 2) remember that specific threat in case of future encounters. Adaptive immunity is the basis of the symbiotic relationship between the body and the teaming hoards of bacteria that would like to take up residence inside the body. With each encounter with microbes, the body's adaptive immunity decides to promote either a mutually beneficial symbiosis or to maintain a host defense. Thus it's either a mutually-beneficial relationship or war.



Adaptive immunity gained humans an advanced symbiosis with bacteria that is important for our health and survival. The bacteria feed and protect the host. They manufacture cellular proteins that support and

communicate with the human enteric nervous system that in turn communicates (e.g. helps regulate) activities throughout with the entire body. However, the mechanisms of adaptive immunity coupled with the influences of the hundred-trillion microorganisms has a fundamental flaw that should never have been exposed.

The flaw? Immune-mediated diseases occur when the immune system is pushed into implementing chronic, inflammatory responses. More specifically, it's the chronic, cellular inflammation that underlies all the chronic-degenerative and autoimmune diseases plaguing humanity in the 21st Century. This startling fact recalls the old naturopathic adage, "All diseases start in the gut."

The benefit of adaptive immunity is survival. A person with a chronic disease can procreate. And that's worked well over the millennia as humans have become the dominant species. The "flaw" occurs because the system does not account for tens of thousands of immune challenges that occur every day in the toxic environment. Human estrangement from Nature's balanced ecosystem is causing the penalty of poor health despite the best laid plans of the body and its microbiome.

Adaptive immunity means that our bodies can respond to pathogens and immunological challenges, win the battles, and remember the offender in case there are future encounters, and then stand down in times of peace. The problem today is that there is no time of peace when the food contains pesticides and lacks the proper nutrients to support both the microbiome and the body's tissues and life-processes.

<sup>1</sup> J Bienenstock and S Collins, ClinExpImmunol. 2010 April; 160(1): 85-91, 99th Dahlem Conference on Infection, Inflammation and Chronic Inflammatory Disorders: Psycho-neuroimmunology and the intestinal microbiota: clinical observations and basic mechanisms. doi: 10.1111/j.1365-2249.2010.04124.x

The bane of the 21st Century is that the gauntlet of immune challenges is thrown at our bodies literally thousands of times a day. Environmental toxins elicit a cellular immune response. Genetically-modified (GM) foods are recognized as "foreign, non-self" and up-regulate the immune system's inflammatory cytokine molecules that cause inflammation<sup>2</sup>. Toxins in vaccinations, food additives, processed foods, trans-fats, and refined sugars are pro-inflammatory. Daily stress is pro-inflammatory.

**Set Point.** The toxic environment impacts the microbiome which tells the brain and immune system that hostilities abound and to be prepared. Thus the microbiome raises the "set point" of immunological responses and the body lives in an environment of war. To the adaptive immune system, cellular inflammation is the collateral damage of the ongoing war. Cellular inflammation is the universal cause/contributor to allergies, chronic-degenerative and auto-immune disease. Simply put, the microbiome's 100 trillion messages about danger puts 10 trillion inner-body cells on edge.

Now we have a causal chain. When the microbiome is upset with toxins, unsuitable foods, lack of needed nutrients, pathogen proliferations, and chemical drugs, then the body is put on Def Con 2 – the fast-paced anticipation of all-out war. The heightened immune processes help the body survive, but the constant onslaught means that there is no reprieve from the collateral damage. Over time, inflammatory/free-radical diseases result.



A healthy microbiome is a happy microbiome, and a happy microbiome imparts that joy throughout the body. To know how to live a healthy life, we need to know what destroys our microbiome. We also need to know what keeps it happy.

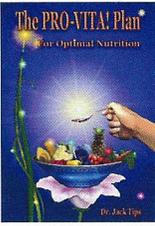
The microbiome's job is to eat and excrete. So diet is important. Consider dietary

factors that alter or degrade the microbiome, thus not optimal for whole body health:

- **Low carbohydrate diet** – the microbiome needs plants and fibers to reproduce and thrive. Nature says that the body needs a diverse diet, rich in vegetables and fruit fibers.
- **High vegetable oil intake** – Polyunsaturated fats inhibit lactobacillus proliferation. The modern fat-phobic diet lacks in a complete array of fatty acids.
- **High protein diet** – creates the proliferation of putrefactive bacteria that are needed to process proteins, thus alters balanced micro-colony ratios.
- **Lack of fermented vegetables** – the transient strains such as many lactobacilli need constant replenishment. They help keep pathogens in check.
- **Chlorine and chemicals in tap water** – science is starting to examine the impact of tap water as an environmental factor in probiotic colonization.
- **Low fiber diet** – The microbiome's primary food source is plant fibers and starches.

<sup>2</sup> Archives of Environmental Contamination and Toxicology May 2007; 52(4):596-602

Simply put: "Feed your microbiome and your microbiome will feed, protect, and help regulate you!"



Doc Wheelwright's nutritional research featured in the book, *The Pro-Vita! Diet For Optimal Nutrition*<sup>3</sup> presents a way to balance the vegetable carbohydrates and fibers with protein and fatty acids for optimal microflora proliferation and optimal health of the microbiome processes.

**Antibiotics.** The proliferation and over-use of antibiotic drugs causes the microbiome grave damage and are a leading culprit of microbiome derangement. Antibiotics often kill the innate cultures and allow opportunistic strains to proliferate causing a shift from peace to war in the intestines which raises inflammation throughout the body. Some of the person's original strains that comprise their unique, healthy microbiome may be lost forever once an antibiotic drug is taken.

Today, everyone's microbiome is stressed, challenged, and altered by the toxic environment, diet, stress, lifestyle factors, and medications resulting in less than optimal microbiome congregations and less than optimal microbiome health.

Microbiome health corresponds to human health. Because of the symbiotic relationship, an ailing microbiome means an ailing person.

Natural Health Practitioners have recommended probiotic supplements for many years. However, a strategy is required to re-seed the microbiome – one that first sets the stage and then delivers viable cultures in massive quantities.



## Systemic Formulas MBC (Microbiome Colonizer)

Introducing replacement strains of the most universally-beneficial cultures—both residents and transients—are necessary to let nature take its course to improve the blends of colonies. The new cultures need food to encourage them to take up residency, colonize, reproduce and participate in the microbiome. Further, re-seeding is a numbers game. To recolonize and predominate the intestines with beneficial microflora, hundreds of billions of colonists are required.

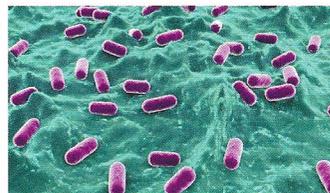
Supplement Facts	
Serving Size: 2 capsules	
Amount Per Serving	% Daily Value
Probiotic Blend.....	100 Billion *
Bifidobacterium Bifidum	
Lactobacillus Casei	
Lactobacillus Paracasei	
Bifidobacterium Breve	
Bifidobacterium Longum	
Lactobacillus Acidophilus	
Lactobacillus Brevis	
Lactobacillus Plantarum	
Lactobacillus Rhamnosus	
Lactobacillus Salivarius	
*Daily Value is not established	

<sup>3</sup> The Pro-Vita! Plan For Optimal Nutrition (Tips) –available from [www.openbookhealth.com](http://www.openbookhealth.com)

### How To Re-Colonization The Microbiome

1. Remove pathogens and dysbiotic cultures from intestinal niches (lowers inflammation and makes room). [Pathogen purge #4, VIVI, ENZEE, BIND]
2. Clean, refurbish the terrain (further lowers inflammation) and create an hospitable environment. (LGUT, Zglutn, BIND)
3. Implement a specific, scheduled strategy of reseeded massive amounts of cultures. Re-colonization efforts inevitably employ numerically inferior forces (billions of probiotics VS trillions already in the G.I. tract). High numbers of beneficial cultures, consistently employed, is required for success. [MBC, FBR]
4. Maintain the intestinal garden with periodic maintenance of beneficial cultures (occasional use of ABC), consistent use of transient species (raw fermented vegetables), and food for probiotic sustenance (Pro-Vita! diet), and FBR (Fibers).

Systemic's MBC (Microbiome Colonizer) formula provides 10 cultures and two capsules provides 100 billion organisms! The cultures are enterically coated to pass through and survive the stomach acid and duodenal alkali so they reach the desired locale in the intestines. MBC represents a significant breakthrough in the art and science of recolonizing the human intestines with a beneficial microbiome.



Without a healthy microbiome, the human being cannot experience optimal health. Without first addressing microbiome dysbiosis and inflammation-promoting communications, natural health

practitioners cannot properly help patients improve concerns regarding any of the body's systems. This makes the microbiome a premier concern, and often improving the microbiome is "Step 1" that must be taken before a person can recover their health.

### COMPLEMENTARY FORMULAS

- **LGUT (Leaky Gut Solution)** – provides nutrients and terrain factors that help reduce inflammation, supports proper immunity, and supports Tight Junction integrity.
- **FBR (Fibers For Intestinal Health)** – provides a microbiome food source for proliferation of beneficial microorganisms.
- **ABC (Acidophilus, Bifidus, Bulgaricus Complex)** – a terrific maintenance formula for both daily and occasional use to replenish beneficial cultures.
- **BIND (Toxin Elimination)** – Superactivated charcoal can help kill pathogens and remove toxins from the G.I. tract.

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