



Core Health: The Microbiome & The Foundation of Your Patient's Health

A CLINICIAN-TO-CLINICIAN PERSPECTIVE ON MICROFLORA, LEAKY GUT, AND 21ST CENTURY DISEASE

By Dr. Jack Tips (Ph.D., C.C.N.)

Changes in diet automatically mean changes in our microbiome¹—the teaming conglomerate of bacteria that inhabit our intestines. When the microbiome changes, the body's genetic response to food changes—for better or worse. Thus the profound



statement, “we are what we eat” and it irrefutably establishes that food quality is integral to health and disease.

Regarding core nutrition in the 21st Century, the chief

concern is the body's cellular inflammation that stems from the microbiome's struggle with antibiotics, altered foods, and environmental toxins. Altered microbiome colonies equals altered health.

Researchers state that 85% of a human's microbiome should be the beneficial probiotic bacteria and 15% should be potential pathogens. Why the pathogens at all? They maintain immunity. Concerns of over-

sterilization arise based on the “use it or lose it” perspective. Pathogens keep the immune system vigilant and the probiotics keep the pathogens in check – Nature's perfection.

The New Hot Microbiome Button

The microbiome is the new and exciting hot button in nutrition. Researchers are delving into this profound, microscopic world and pulling out astounding connections between having happy bacteria in the tummy and having a happy, healthy life. Here, let's grab an overview on what is unfolding.

Adapt to survive. That's the *prime directive* of all life forms—Plantae, Animalia, Protista, Monera, Fungi, and Bacteria. Simply put, that which adapts well is more fit to survive. That which does not, dies. Nature's admonition is simply, “Adapt or die.”

Human beings live in a complex and delicate symbiotic relationship of dependency with all kingdoms of life. For example, bacteria must occupy root nodules of plants so that plants can receive nourishment from the soil. That nourishment passes to the human body through food.

¹ Turnbaugh, Ridaura, Faith, Rey, Knight, Gordon, The Effect of Diet on the Human Gut Microbiome: A Metagenomic Analysis in Humanized Gnotobiotic Mice, *Sci Transl Med*. 2009 Nov 11; 1(6): 6ra14.

Such symbiotic relationships abound. The cow's rumen (stomach), harbors microorganisms from the Animalia kingdom that ferment grass and provide protein (from the grass and their dead cells) to support the cow's life. (This also means that cows are not vegetarians as much of their dietary protein comes from the microscopic animal kingdom.)



Worms such as *helminths* in the intestines can engage the immune system's attention and prevent it from attacking the intestines. Despite the disgusting thought, worms can serve to prevent autoimmune activity. The bacteria, *lactococcus lactis*, ferments milk, consumes the lactose, and renders milk nutrients more bioavailable for adults who lose lactase enzyme production after weaning, thus allowing fermented animal milk products to serve humans nutritionally.

The bacterial life cycles upon which human life rests are chiefly found in the human intestines, but skin bacteria is cited as helping perpetuate the human species by helping choose the loves of our lives—our mates—via subliminal sense of smell². Skin bacteria establish the cultural *mōrēs* against incest by controlling the pheromones that communicate with the brain about our potential mates' immune systems. Nature prefers immunological diversity as a species survival trait. People with similar immune systems limit diversity and can be more vulnerable to disease. [I'll take this moment to

² Wedekind, Penn, MHC genes, body odours, and odour preferences. Oxford Journal, Nephrol. Dial. Transplant. (2000) 15 (9) 1269-1271.

thank my bacteria for my wonderful wife! Way to go, guys!]

In our intestines, our bacterial microbiome (collection of teeming bacteria) is busy working for our survival and health. With a population of 100 trillion (last time I counted) compared to the 10 trillion cells that comprise our bodies, our microbiome outnumbers our cells 10:1. Certainly a humbling vote count about who's really running the show.

Bidirectional Symbiosis. So, gut bacteria and humans share the same directive, *adapt to survive*. The body and bacteria work together for mutual self-interests. Bacteria establish a neural network and leverage their



ecosystem to actually program the brain and stress response³. The microbiome can cause the brain, for better or worse,

to experience states of increased boldness, anxiety, calm, increased rate of learning, enhanced memory and various moods depending upon the ratio of beneficial bacteria to pathogens. Conversely, the brain can alter the microbiome via hormones and neurotransmitters such as serotonin, dopamine, acetylcholine, melatonin, cortisol, and norepinephrine that impact the activities of the colonies.

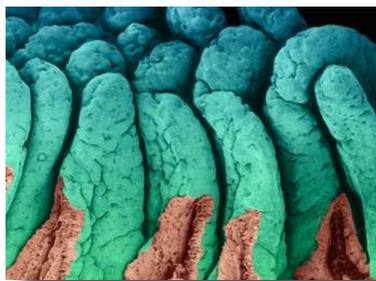
The two nervous systems influence and alter each

³ Diaz Hejtz R, Wang S, Anuar F, Qian Y, Björkholm B, Samuelsson A, Hibberd ML, Forssberg H, Pettersson S. Normal gut microbiota modulates brain development and behavior. Proc Natl Acad Sci U S A. 2011 Feb 15;108(7):3047-52. Epub 2011 Jan 31.

other's processes with stress being detrimental to both. Immune signaling molecules (inflammatory cytokines) produced in the intestines directly affect the brain and engender moods such as anxiety and depression. So it may actually be bacteria, singin' the blues.

Thus human beings have two brains – the fatty matter between the ears, and the gut-based enteric nervous system comprised of a hundred million neurons. These two brains are in constant cahoots via both the vagus nerve and messenger molecules to discuss how to adapt and survive the hostile external environment.

Celiac & Leaky Gut. The latest scientific research establishes a new perspective about self-destiny and proves the gut/brain connection that natural health practitioners have been advocating for over 25 years. When the modulating molecule, *zonulin*, and/or chronic



inflammation opens the intestine's tight junctions, large molecules invade the body triggering an immunological

response. This is part of celiac disease. Zonulin also loosens the blood/brain barrier allowing toxins such as mercury from dental fillings and vaccinations, and pesticides in foods, to enter the brain where they can cause cellular inflammation and neurotransmitter disruption. This is why forward-thinking medical practitioners include probiotic therapy as a component of autism treatment.

The Open Sesame of Leaky Gut Syndrome

Chronic inflammation of the small intestines causes degeneration in the intestinal tissue whereby the enterocytes (absorptive cells lining the intestines) fail and allow large, complex molecules to pass into the bloodstream. Once these food molecules



enter the bloodstream, the immune system's lymphocytes must attack them because they are foreign to the body. The use of lymphocytes to complete the digestion

process is taxing to the immune system and can lead to chronic fatigue syndrome. Further, this constant immunological excitement is a significant cause of autoimmune processes, fatigue, malaise, and inflammatory processes that impact the hypothalamus and brain.

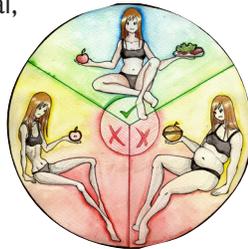
Gluten (gliadin and other grain protein) reactions contribute to the intestinal derangement that opens the door to pathogens thus establishing the pathogen connection with leaky gut syndrome. So there is a self-perpetuating reactivity in the intestines based on the inflammatory immune-excitement regarding gluten and the immunological battle with pathogens. The result leaves the intestinal lining a scarred battlefield resulting in poor nutritional uptake, pain, suffering, and a host of chronic, degenerative and autoimmune diseases.

The “zonulin story” is basically what is called *Leaky Gut Syndrome*. Natural health practitioners are familiar with leaky gut as a factor that physically alarms the immune system and launches chronic-inflammatory and autoimmune diseases. They cite candida, pathogens, allergenic food molecules such as *gluten* and *gliadin* as causing inflammation that alters the intestinal ecology and opens the tight junctions. For years, natural health practitioners

have addressed this with diet, enzymes, nutrients, probiotics, and a slew of antibacterial, antifungal “candida” programs with some success, but exciting new research points the way to even more effective therapeutics!

Astounding Gut Instinct. Even though the natural health model pioneered the leaky gut theory (now medical fact), that concept is “kindergarten material” in light of the latest microbiome research. Here’s some emerging facts and perspectives:

- It’s not so much “you are what you eat” – it’s “you are what your bacteria eat” that sets the standard for your body’s life processes.
- Your microbiome is unique to your genetics⁴. It’s a personal, biochemically individual, microbiome, whose integrity is linked to your optimal health. Your genetics adapt to certain foods that feed the bacteria and help set the *terrain* for certain species to thrive and others to fail. It’s teamwork.
- Your intestines are sterile at birth and your microbiome is your mother’s legacy to you. It was “seeded” for the duration of your life by nursing (colostrum and breast milk). Your skin microbiome was seeded during vaginal birth. There are over 1000 bacterial species that can comprise your biome⁵.



Researchers have counted more than 700 species of beneficial bacteria in human breast milk. Just as soil microflora is easily influenced by environmental and other factors, the study also found that the composition of breast milk microflora is influenced by the mother’s weight, as well as her method of delivery.



“Milk from obese mothers tended to contain a different and less diverse bacterial community compared with milk from normal-weight mothers.

Milk samples from elective, but not from nonelective, mothers who underwent cesarean delivery contained a different bacterial community than did milk samples from individuals giving birth by vaginal delivery, suggesting that it is not the operation per se but rather the absence of physiological stress or hormonal signals that could influence the microbial transmission process to milk.”

Research has proven that breastfed babies develop entirely different gut flora compared to bottle-fed babies. Infant formula is not a healthy replacement to breast milk, for a number of reasons, as it cannot duplicate the diverse microbial species found in breast milk, and therefore leads to altered gut flora.

Breast milk, but not formula, appears to promote a healthy colonization of beneficial biofilms. These biofilms are essentially thin, sticky bacterial domes that adhere to the intestinal wall to block out pathogens and infectious agents. Breast fed babies experience greatly reduced infections as well as a lowered risk of developing allergies, type I diabetes, multiple sclerosis and other diseases, once again reaffirming the importance of nourishing and supporting the microbiome as foundational to health.

⁴ Structure, function and diversity of the healthy human microbiome, Nature486, 207–214 (14 June 2012) doi:10.1038/nature11234.

⁵ Qin, Li, Raes, Arumugam, et. al. A human gut microbial gene catalogue established by metagenomic sequencing Nature464, 59-65 (4 March 2010) | doi:10.1038/nature08821; Received 14 August 2009; Accepted 23 December 2009

The Systemic Formula's Meta-Oxy® Test

provides clinicians an accurate, inexpensive way to determine if the cell membranes throughout the body are experiencing free radical damage and inflammation as measured by the lipid peroxide radicals occurring. With the set point of the level of immune system sensitivity toward inflammation being established in the intestines

and communicated via the enteric nervous system, clinicians often turn to a microbiome-supportive or leaky gut type program to encourage patients' bodies to "turn down the heat" and reduce cell membrane damage. Thus the Meta-Oxy Test and a focus on improving G.I. tract health is fundamental to successful lowering the level of inflammation throughout the body as revealed by the Meta-Oxy Test showing lower levels of malondialdehyde in the urine (the end product of lipid peroxidase damage to fat cells, cell membranes, and mitochondrial membranes).



- Antibiotics kill and/or alter your microbiome. Replacement probiotics can only aspire to being second-best because they are not *your* personal strains.
- Your microbiome can directly influence your thoughts, feelings, and food cravings⁶.
- Your microbiome has a direct link to the level of autoimmune activity against your thyroid⁷, thus the gut/thyroid link of thyroid dysfunctions.

6 Carpenter, Dr. Siri, That gut feeling, American Psychological Association, September 2012, Vol 43, No. 8, With a sophisticated neural network transmitting messages from trillions of bacteria, the brain in your gut exerts a powerful influence over the one in your head, new research suggests.

7 Naiyer AJ, Shah J, Hernandez L, Kim SY, Ciaccio EJ, Cheng J, Manavalan S, Bhagat G, Green, Thyroid and Celiac Autoantibodies. *Thyroid*. 2008 Nov;18(11):1171-8. doi: 10.1089/thy.2008.0110.

- Your microbiome is your first-line immunological defense against pathogens and helps establish the immune system's set point of inflammation throughout your body. Even low-level inflammation in the small intestines creates a higher inflammatory "set point" of immune activity and is linked with allergies and cell membrane inflammation that *Time Magazine* labeled "The Silent Killer," causing Alzheimer's and heart disease.
- Your microbiome directly influences glucose metabolism (blood sugar) and thus is linked to insulin-resistance diseases – diabetes⁸, obesity⁹, and heart disease¹⁰.
- The intestinal microbiome has a profound influence over health. It is directly related to your hormone balance including the brains' leptin (hormone of satiety) receptors that play a huge factor in appetite and the storage of fat—thus your bacteria predispose your weight¹¹.



This 21st Century research raises questions about the dangers of genetically-modified (GM) food. With 85% of the corn consumed in the USA being Bt-Corn (*Bacillus thuringiensis* modified –

8 American Diabetes Association, doi: 10.2337/db06-S015 *Diabetes* December 2006 vol. 55 no. Supplement 2 S114-S121.

9 Tilg, Kaser, Gut microbiome, obesity, and metabolic dysfunction. *J Clin Invest*. 2011;121(6):2126–2132. doi:10.1172/JCI58109.

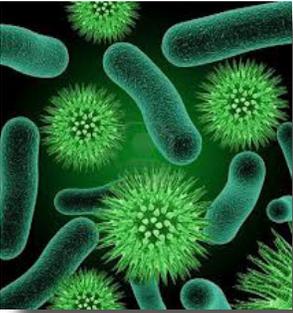
10 Davidson. *Nature*. Flagging flora: heart disease link 2011 Sep 7;477(7363):162. doi: 10.1038/477162d.

11 Turnbaugh, Ley, Mahowald, Magrini, Mardis, Gordon, An obesity-associated gut microbiome with increased capacity for energy harvest. *Nature*, Vol 444|21/28 December 2006|doi:10.1038/nature05414.

the bacteria gene is spliced into the corn to create more pesticide molecules in the corn kernels), and the fact that Bt toxin was found in the blood of 93% of pregnant women at the Sherbrooke University Hospital, suspicions suggest that the human microbiome is acquiring the Bt genes and producing pesticides inside our bodies¹².

The varied influences from the bacteria colonies provide messages to the body via their presence as well as their excreted metabolites. The enterocyte cells that form the gastro-intestinal tract lining receive the bacteria's chemical messengers and communicate with the body via the enteric nervous system. Thus the collective bacterial presence in the intestines "talks" directly to the brain and this is part of the system called *innate intelligence*.

Recent research shows that signals from the bacteria affect the way the body epigenetically expresses information



from the human genome (chromosomes) about how to live in either health or disease. Simplistically, bacterial messages instruct our cells' RNA transcriptional processes

(how our genes tell our cells what to do) to elicit "peace and health," or they transcribe disease processes that create symptoms. So in the very heart of cellular life, the microbiome has a voice in our life experiences.

¹² Why Did Officials Approve this Toxic Corn Chip that Creates a 'Pesticide Factory' in Your Gut? Mercola, October 08, 2010.

21st Century Nutritional Solutions. Clinicians who work holistically with nutrition are excited about this deeply foundational information because it helps correct a myriad health issues. In today's clinical practices, clinicians use soluble and insoluble fiber supplements as food for the microflora because food-fibers dictate what colonies flourish or decline¹³.

Whole food probiotics (raw, fermented, organic vegetables) are mandatory. No supplement can be superior to food for the human body—human adaptability and survival is predicated on bioenergetic and biochemical responses to Nature's nutrients. Clinicians advise patients to make or purchase raw, organic, fermented vegetables—beets, cabbage (sauerkraut), carrots—and use a couple of tablespoons daily.

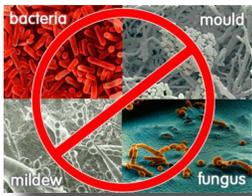
Probiotic supplement manufacturers and companies marketing probiotic-rich beverages are improving the availability of health-promoting strains. Medical research is proving the efficacy of herbs. Boswellia, echinacea, turmeric, cumin, bacopa, saffron, and many more are now proven to have powerful health-promoting effects through microbiome adaptation, messaging, and epigenetic expression attesting to the importance of having a wide variety of non-irradiated herbs and spices in the diet. This means that Science is proving the efficacy and power of herbs and herbal medicine.

¹³ Tasse, Bercovici, Pizzut-Serin, Robe, Tap, Klopp, Cantarel, Coutinho, Henrissat, Leclerc, Doré, Monsan, Remaud-Simeon, Potocki-Veronese. Functional metagenomics to mine the human gut microbiome for dietary fiber catabolic enzymes. *Genome Res.* 2010 Nov;20(11):1605-12. doi: 10.1101/gr.108332.110.

Systemic’s Three Step Solution

1 **2** **3** Therapeutically, improving the microbiome naturally provides tremendous leverage over health processes—and involves a triad approach (See Protocol #16 for details):

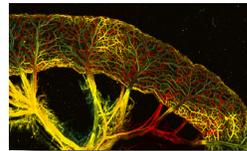
Step #1: Reduction of increased pathogenic or dysbiotic loads — includes reduction of good bacteria in the wrong place such as bowel bacteria (fermenters) inhabiting the small intestines where they cause bloating. Tools employed – anti-pathogenic botanicals and increased beneficial microbes from, raw, organic, fermented vegetables daily.



Here the concept of a “pathogen purge” is employed. Minimally, three formulas are used to span the gamut of pathogens;

and maximally, the traditional Pathogen Purge Protocol is implemented which utilizes additional enzymes and botanicals. Top clinicians routinely recommend one of these two example programs.

Step #2: Replenish the Terrain - with supplementation with probiotics, fiber blends, and supportive nutrients such as butyrate, alanine glutamine, and allantoin. To this effect, clinicians utilize **FBR (Fibers For Intestinal Health)** once or twice a day; and **ZGlutn (Gluten Control)** to help clean out food molecules that can cause inflammatory responses with the intestine’s enterocytes. **BIND (Toxin Elimination)** is added to further cleanse the terrain and assist with any issues with constipation.



The **ENZEE (Optimal Terrain Enzymes)** formula utilizes terrain-adjusting enzymes to help “clean house” and discourage yeast from becoming a fungal form. Also, adding the **Accell Therapeutic** formula provides extra support for intestinal health and this is one of the chief roles it plays in the Systemic Detoxification Program—supporting the intestine-liver leg of the Healing Triad¹⁴.

¹⁴ The Healing Triad – Your Liver –Your Lifeline (Tips). Book available at www.

G.I. WELLNESS PROTOCOL (#19, Step 1)

#3 (Bactrex)
 #4 (FungDX)
 ENZEE (Metabolizing Enzyme Complex)
 BIND (Toxin Elimination)

PATHOGEN PURGE PROTOCOL PROGRAM (#12)

#3 (Bactrex)
 #4 (FungDx)
 GOLD (Immune Shield)
 VIVI (Virox)
 CA (Cats-A-Tonic)
 ENZEE (Metabolizing Enzyme Complex)
 MELA (Optimal Terrain Enzymes)
 ATAK (Immune Rejuvenator)

Step #3: Inoculate the Culture. Re-seeding an array of beneficial bacteria that can find their niches and not overly compete with each other is a necessary



step to allow new colonies to develop biofilms and establish a healthy relationship with the body. An enhanced probiotic blend formula, MBC (Microbiome

Building Cultures), can be employed for this step. Cultures employed include: *Bifidobacterium bifidum*, *Lactobacillus casei*, *Lactobacillus paracasei*, *Bifidobacterium breve*, *Bifidobacterium longum*, *Lactobacillus acidophilus*, *Lactobacillus brevis*, *Lactobacillus plantarum*, *Lactobacillus rhamnosus*, and *Lactobacillus salivarius*.

Further, it is necessary to specifically address Leaky Gut and reestablish the intestinal integrity with nutrients such as allantoin, alanyl glutamine, human colostrum, butyrate, and herbalomic® botanicals such as black radish, aloe, berberine, and zinc. **Systemic's LGUT formula** provides specific nutrients that help tighten the tight junctions and restore the intestine's tissue integrity.

The inclusion of more organic vegetables, spices, and herbs in the diet to stimulate beneficial epigenetic transcriptional processes is important to the program. Raw vegetables, cooked vegetables, fermented

vegetables and herbs are what our microbiome, bacterial genetics, and personal epigenetic processes have used to adapt and survive over the past millennia. Supplemental probiotics and the inclusion of colony forming foods are necessary to replace what antibiotics, prescription drugs, chlorinated/fluoridated water, alcohol, and pesticides have deranged.

Take action now. For yourself, your family, and for your patients. The reestablishment of a healthier microbiome is a critically important and necessary step on the path of optimal health. Failure to address the microbiome means that the 21st Century proclivity toward the silent killer—inflammation—continues unchecked, despite the best therapies. A healthy microbiome predisposes a healthy life.

About the Author

Dr. Jack Tipton is a clinician, author of 16 books, and is a licensed clinical nutritionist, New York. He is an avid proponent of Systemic Formula's herbal products. Known internationally for his insights on solving thyroid dysfunction, you can view a free video presentation called The Hidden Diagnosis at this web address: www.NaturalHealthInsights.TV/video. More of his insights and free download articles are posted at www.OpenBookHealth.com

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