

NUTRI-SPEC



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THE NUTRI-SPEC LETTER

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From:
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Dear Doctor,

FUN QUIZ: If you can correctly answer these multiple choice questions, then you are primed to serve your patients with ...

THE GREATEST HEALTH-PROMOTING FORCE IMAGINABLE ...

Question 1: The number of bacteria constituting the typical human microbiota --- in other words, the number of critters living on the mucus and epithelial surfaces of your very own body is ...

- A. One million microbes
- B. One billion microbes
- C. One trillion microbes
- D. One hundred trillion microbes

Question 2: How many different species of bacteria constitute your very own personal microbiota --- the critters living in your very own gut?

- A. Three --- the good Lactobacillus and Bifidobacteria, and the bad E. coli.
- B. Thirty different species live in my gut.
- C. Three hundred different species live in my gut.
- D. Over a thousand different species live in my gut.

Question 3: Your gut is the major surface for microbial activity influencing nutrition, metabolism, and immune function. The surface area of your gut is:

- A. 10 square feet
- B. The size of a living room rug --- 110 square feet.
- C. The size of my family room --- 300 square feet.
- D. The size of a tennis court --- nearly 3,000 square feet.

[You can sneak a peek at the answers at the end of this Letter if you like, but if you pick 3 answers beyond your wildest imaginings, you will score 100%.]

Look at yourself in the mirror. You may think you are seeing your entire essence, but actually --- and this is no exaggeration --- you are merely looking at a receptacle for bacteria.

- There are 10X as many bacterial cells as human cells in your body.
- There are more than 100X the microbiota genes in your body than there is human DNA. (Read that again, and think ...)
- It would not be too much of a stretch to say that those 100 trillion microbes living within your epithelial encasement are YOU ...

--- They give you your identity. Through the Gut-Liver Axis, the Gut-Muscle Axis, and the Gut-Adipose Axis they control your metabolism. Through the Gut-Brain Axis, they influence many aspects of your personality and your mood. Via the Gut-Immune Axis, they control not only your resistance to disease, but also your rate of inflammaging --- your physiological age relative to your chronological age. Truly ...

THE HUMAN MICROBIOME IS PROVING TO BE VASTLY MORE IMPORTANT TO OUR HEALTH THAN THE HUMAN GENOME.

How do we as Metabolic Therapists capture this health-generating power in serving our patients? How do we optimize Metabolic Balance, energetic efficiency, and immune system strength by specific intervention into the microbiota? --- You might reflexly answer that question with, "Obviously --- we need to give our patients a good probiotic supplement." --- Whoops! You may recall that we shattered the myth of the "good" probiotic in last month's Letter. We particularly showed that the very King of all probiotics, *Lactobacillus acidophilus*, does not even necessarily benefit the gut, actually exacerbating inflammatory bowel conditions --- and --- even more significantly, has such devastating systemic metabolic effects that it makes people fat.

[NUTRI-SPEC does not "make this stuff up." We have posted an Article on your website giving all the details and all the references from

the Literature highlighting the potential harm from acidophilus supplementation.]

We have been surveying the probiotic market for several decades now and have yet to find anything we could unhesitatingly recommend as a “good” probiotic. Most probiotic supplements are a non-specific conglomeration of pro-inflammatory bacteria + anti-inflammatory bacteria; some bacteria that suppress Th1 immune reactivity, and some that stimulate Th1 immune reactivity; some that activate Th2 immune reactions, and some that suppress Th2 immune reactions; some bacteria that cause weight gain, and some that help weight loss; some bacteria that control candidiasis, and some that actually provoke yeast infections. ----- You get the point. --- Probiotic formulations are put together by ignorant pill peddlers with no concept of specificity.

So much for the qualitative considerations in “good” probiotic supplements. Now quantitatively speaking --- if you have over a thousand different species of bacteria living in your gut, and those thousand species are covering like a blanket an entire tennis court, how much influence are you going to have on the overall microbiota by swallowing just a few grams of just a few bacteria species?

Yes, perhaps ...

THE MOST IMPORTANT THING YOU CAN DO FOR A PATIENT IS DEVELOP AND MAINTAIN A VIBRANTLY HEALTHY MICROBIOTA,

but no, the way to do that is not with a few randomly chosen critters. The key is to create in each patient fertile ground for a blossoming microbiota. Just as in cultivating a garden, put down rich soil and dress it with huge quantities of compost. Your garden will grow magnificently. The same is true of the “good guys” among intestinal bacteria. They will thrive in an environment cultivated by thoughtful selection of ...

PREBIOTICS.

Feed the good guys --- a nurture that should have begun at birth --- and they will flourish.

--- At birth? Yes, before seeing the light of day, babies should have devoured their “first meal.” While wiggling through the birth canal, baby is slurping down a huge portion of Mom’s vaginal microbiota. Yum!!! --- Meanwhile, every inch of baby’s skin emerges crawling with critters.

Within a day, baby's entire alimentary canal --- mouth to rectum --- is coated with a thick slime --- a glorious carpet teeming with life. The rapidly multiplying microbiota is already nourishing the baby with short-chain fatty acids, while activating both immune system resistance and immune system tolerance. The protective function of the gut absolutely requires the microbial stimulation of this initial bacterial colonization. Caesarean birth? --- Tough luck kid. Mom had yucky vaginal microbiota? --- No joy for either baby or Mommy --- as the poor infant is continuously fussy, crying, colicky, runny-nosed, and soon develops atopic dermatitis. Sad.

The jumpstart of the immune system begun with the first meal is further accelerated by Mother nursing her baby. Human milk contains prebiotic oligosaccharides, just like the oligosaccharide-enriched inulin you are giving your patients. Breast-fed infants use inulin-type fructans to produce increased bifidobacteria and some lactobacilli, whereas formula-fed infants produce more enterococci and enterobacteria. Again, the flora stimulated by prebiotic fermentation is essential to the development and sustainment of intestinal barrier function. For example, normal flora stimulates the synthesis and secretion of secretory immunoglobulin A, the antibody that coats and protects mucosal surfaces of the GI tract and the respiratory tract against harmful bacterial invasion.

In addition, appropriate colonization of the gut helps to produce a balanced T helper cell response, facilitating the natural shift from the Th2 dominance of the prenatal state toward the development of Th1 immune defenses. (Th2 imbalance contributes to atopic disease, while Th1 imbalance contributes to juvenile rheumatoid arthritis and juvenile-onset diabetes.) Furthermore, a series of pattern recognition receptors, such as toll-like receptors, interact with bacterial toxins, helping modulate both intestinal innate immunity and an appropriate adaptive immune response.

Inulin-type fructans, being bifidogenic and promoting the generation of SCFA (such as the all-important butyrate), will stimulate, and must stimulate, a balanced and effective mucosal immune system in newborns and infants. This is why you absolutely must supplement infants and young children as your highest priority. Any fussy baby, any colicky baby, any baby with skin rashes, and any baby who suffers from "teething," is simply revealing to Mom and to you an imbalanced microbiota. Baby does not outgrow these immune system imbalances --- they merely manifest through childhood, adolescence, and adulthood as the chronic diseases that plague all your patients. Supplement these children now!

Before adoption of our (debilitating) modern diet, humans consumed up to 10X as much prebiotic fiber as we do, and their bodies were flooded with far more fermentation by-products. Our fiber-poor modern diet has weakened the signals along the Gut-Brain Axis, the Gut-Immune System Axis, and the Gut-Liver Axis so as to produce a state of what one researcher calls, “simmering hyperactivity” --- creating an overwhelming ImmunoNeuroEndocrine stress. That researcher claims that all the chronic diseases of inflammaging result from “starving our microbial self.” --- We simply are not adequately feeding our essential microbiota.

Diets high in polyunsaturates (HOHUM PUFAs) as well as sugars deplete anti-inflammatory bacteria, thin the mucus layer of the gut, and foster systemic inflammation. Potentially dangerous opportunists bloom in the gut. In one study on human volunteers, it was found that switching to a high-oil, high-protein, low-fiber diet spurred an expansion of bile-tolerant bacteria that are linked to inflammatory bowel disease. On the other hand, preventing the skewing of microbial self is not difficult. Nothing more complicated than adding prebiotics to the diet keeps the health-enhancing microbes proliferating, the mucus layer healthy, and the gut barrier intact, all the while preventing systemic inflammation.

Allergies? --- Countless studies on both mice and humans to determine the effect of prebiotics on allergy show a preventive effect of prebiotics. An anti-allergic effect of fructooligosaccharides (FOS) was characterized by a reduction in mast cell levels, and in the rate of edema formation in the duodenum during sensitization. It is consistently shown that FOS decrease the Th2 response and induces activation of the Th1 pathway when mice are sensitized. In humans, infants with a parental history of atopic eczema, allergic rhinitis, or asthma showed a decreased incidence of atopic disease, wheezing, and allergic urticaria when given an inulin supplement. In these infants, there was an increase in Bifidobacteria in the feces and a fall in the level of excess Immunoglobulin G, and in cow’s milk protein-specific Immunoglobulin E. One comprehensive study of allergies in humans concludes:

A PREBIOTIC STRATGEY APPEARS TO BE MORE PROMISING THAN A PROBIOTC STRATEGY IN THE PREVENTION OF ALLERGY.

But the truly incredible power of prebiotic supplementation --- and the reason why we began this Letter alluding to THE GREATEST HEALTH-PROMOTING FORCE IMAGINABLE --- is the power to prevent and even reverse inflammaging. --- And --- much of that power relates to the ability of prebiotics to control all the inflammatory causes of, and all the inflammatory effects of ...

METABOLIC SYNDROME.

Study after study shows that prebiotic supplementation improves insulin sensitivity. This decreasing of insulin resistance explains the benefits of prebiotic supplementation on weight loss, diabetes, and high triglycerides. Truly ...

CONTROLLING THE IMMUNO-NEURO-ENDOCRINE STRESS ASSOCIATED WITH METABOLIC SYNDROME AND ALL ITS MANIFESTATIONS (OBESITY, CARDIOVASCULAR DISEASE, CANCER) IS THE GREATEST BENEFIT OF PREBIOTIC SUPPLEMENTATION.

Obesity --- particularly the tubby tummy type --- is a perfect indicator of insulin resistance and inflammaging. We highlighted in last month's Letter how weight loss diets only succeed long-term, not when they yield the short-term changes associated with calorie restriction, but when they permanently change the gut microbiota. Obesity (and virtually all physical, mental, and emotional disorders associated with insulin resistance) is tightly linked to a chronic low-grade state of inflammation (elevated levels of inflammatory markers such as Interleukin 6 and C-reactive protein).

Only perversions within the microbial ecology can induce a metabolic shift toward this pro-inflammatory phenotype, with whole body, liver, and adipose tissue weight gain, and impaired glucose metabolism. It is factors of microbial origin (such as bacterial lipopolysaccharide) that lie at the basis of such systemic inflammatory effects. --- Here is the bottom line --- mounting evidence suggests that the systemic inflammation observed in obesity does not result from the accumulation of fat, but causes it. (Read that again, and think ...)

Yucky gut bacteria (often starting in infancy) comes first --- insidious and eventually overwhelming inflammation comes second --- insulin resistance comes third --- then, finally comes the tubby tummy, the rising blood pressure, the fatigue, the depression, the rising triglycerides --- and ultimately --- cardiovascular disease, Type II diabetes, and a high risk of cancer. The power for good, as well as the power for evil, lurks among the 100 trillion microbes representing over 1,000 different species harbored in a gut with the area the size of a tennis court. A human being with 10X as many bacterial cells as human cells in the body, representing more than 100X the microbial genes than human genes, is physically, mentally, and emotionally at the mercy of the microbiota within. The greatest health-promoting force imaginable comes from prebiotic supplementation. And who offers the 3 best? You do. Give IMMUNO-SYMBIOTIC to all your patients.