DR. WILL COLE

THE FUTURE OF NATURAL HEALTH

Heal Your Gut Guide

A Functional Medicine Approach To A Healthy Microbiome

"This gut microbiome is an extremely intelligent bacterial ecosystem which your immune system is mainly comprised of, your body in actuality is 10 times more bacteria than human cells."

The Age of the Microbiome

When dealing with underlying health issues it is incredibly important to consider your gut. Your microbiome is immensely vast and complex. The importance of it cannot be underscored enough.

This gut microbiome is an extremely intelligent bacterial ecosystem which your immune system is mainly comprised of, your body in actuality is 10 times more bacteria than human cells.

What sounds like science fiction is actually fact! These trillions of microbes and their colonies are the manufacturers and managers of how you look, feel and think. Researchers are quickly learning how much it regulates just about every system of your body.

Conditions such as leaky gut syndrome and small intestinal bacterial overgrowth (SIBO) can do a number on your microbiome. As the age-old Hippocratic saying goes, "All disease begins in the gut"; when your microbiome is weakened or damaged, it can "switch on" a number of potential disease processes throughout the body.

It's important to note that you don't have to be experiencing gastrointestinal symptoms to have poor microbiome health. We are just beginning to understand the microbiome, but below are some of the surprising ways an unhealthy microbiome can wreck your health:

Autoimmune Conditions

The last century has seen a rapid rise of autoimmune diseases. As of now, there are around 100 recognized autoimmune conditions and about 40 other diseases that have an autoimmune component. Because 80% of your immune system resides in your gut, it is no surprise that a damaged microbiome and leaky gut syndrome is a precondition for autoimmunity.

Mental Conditions

Your gut and brain are inextricably through the communication lines that are referred to as the gut-brain axis. In the medical literature, your gut is actually referred to as "the second brain." An unhealthy microbiome has been linked to mental health conditions such as anxiety and depression.

Poor Immune Health

Should be no surprise here, but if you find yourself sick often, you'll want to know your microbiome health. Chronically low immune system health can be largely due to weak a microbiome health; an overgrowth of opportunistic bacteria, yeast or fungus; or a parasite.

Heart Disease

A possible correlation between the microbiome and cardiovascular disease was recently found. Certain bacteria produce higher levels of TMAO (trimethylamine-N-oxide) which is linked to a higher risk of heart attack & stroke. It still unclear which microorganism produces more TMAO, but researchers are hoping, that in the future, manipulation of

microbiome species can help in the prevention and treatment of heart.

Type II Diabetes

This chronic degenerative disease recently been linked to microbiome disturbances. One study found that transplanting the microbiome of diabetic mice into healthy mice made them diabetic as well!

Skin Conditions

Skin problems like acne, psoriasis, eczema and dermatitis all have a microbiome and inflammatory-autoimmune component to them. For many, the missing link to healing their skin issues is healing their microbiome.

Weight Gain & Obesity

An imbalance of bacteria in the microbiome has been shown to cause weight loss resistance and obesity. Studies in mice found that overweight mice had a higher amount of the Firmicutes bacteria, while thin mice had a higher proportion ofBacteroidetes. In the human cases, the beneficial bacteria called Lactobacillus rhamnosus was found to be helpful for weight loss in women.The microbiome factor in weight gain cases is a key component for many to lose weight their body has been holding on to for years.

Acid Reflux

Millions of people suffer from acid reflux, or the more serious GERD. These problems are correlated with a microbiome dysfunction called SIBO, or small intestinal bacterial overgrowth.

Cancer

A fascinating study out of the University of North Carolina suggests that damage and inflammation of the gut severely decreased the variety of bacterial species in the microbiome. This loss of microbiome diversity allowed a pathogenic bacterial overgrowth of E. coli. Eighty percent of mice with E. coliinfection developed colorectal cancer.

Constipation or Diarrhea

This is obvious, but digestive problems are so common, it's important to mention. One study found that there was significantly lower amounts of the bacteria Prevotella and increased levels of Firmicutes in constipated patients. Interestingly, the conventional probiotics that people take, Lactobacillus andBifidobacteria, were not decreased in the microbiomes of the constipated patients.

Asthma & Chronic Sinus Infections

Dysbiosis of microbiome bacteria and an overgrowth of Corynebacterium tuberculostearicum, was shown to be a frequent underlying culprit for asthma and chronic rhinosinusitis (CRS).

Some have predicted that this year will be the year of the microbiome. Over the coming years, as we continue to learn more about the microbiome, I suspect this might become the decade of the microbiome.

SIBO

SIBO, an acronym for Small Intestinal Bacterial Overgrowth, has been a term increasingly on people's radar, especially in the health blogosphere. But like the terms "adrenal fatigue" or "leaky gut," what does it mean for your health, why should you care?

With the exciting research coming out about gut health and the microbiome, SIBO has become better understood. Your gut is comprised of the small and large intestines. During the night and in between meals, your gut normally has a function called the migrating motor complex (MMC), which pushes gut bacteria down into the large intestines.

Typically, when there is a decreased function of the MMC, the bacteria can grow up into the small intestines where it doesn't belong; here comes SIBO.

The bacteria will eat what you eat, fermenting the food in the wrong area, causing gas, swelling and, eventually, "leaky gut syndrome," which is linked to many chronic and autoimmune conditions. Now you can see why SIBO is a big deal to your health!

Common SIBO Gut Symptoms:

- Constipation
- Diarrhea
- Irritable Bowel Syndrome (IBS)
- Cramping
- Gas
- Nausea
- Acid Reflux/Heartburn/GERD

Because your gut controls 80% of your immune system and can regulate your mood and genetic expression, we're just beginning to see the far reaching associations between SIBO and autoimmune conditions like autoimmune thyroiditis (Hashimoto's), skin conditions like rosacea, chronic conditions like diabetes and seemingly unrelated conditions like fibromyalgia.

So what can we do to help aide in the healing process of SIBO, how do we become proactive about our health? First things first:

Compile a complete health history.

NSAID use and SIBO appear to be associated, though the relationship is not totally clear; past food poisonings, chronic gut infections and prior intestinal surgeries can also disturb the gut and could be of interest to a medical professional. Getting a complete health history can help rule determine whether SIBO may be a factor.

Seek out comprehensive diagnostic testing.

Functional medicine is concerned with the underlying mechanisms of the health condition. The lab I run on my patients is a fasting lactulose breath test which measures the gases (methane and hydrogen) released by the bacterial overgrowth.

Avoid high-FODMAP foods.

FODMAP stands for Fermentable Oligo-, Di-, Monosaccharides And Polyols. Some foods that are high in FODMAPS are onions, cabbage, beans, apples and rye. These foods can aggravate SIBO. Monash University, a leader in research on this topic, has a great app to help you stick to low FODMAPs. Again, a customized approach is very helpful.

Avoid snacking.

Allowing time between meals is a small modification that can allow the migrating motor complex to work more efficiently.

Try herbal antibiotics

I recommend a wide spectrum blend of herbal antibiotics that includes extracts from oregano, goldenseal, uva ursi and garlic, among others. This is an anecdotal gut overgrowth bomb that is a piece of the SIBO puzzle.

Take probiotics.

A combination of Bifidobacteria, Enterococcus and Lactobacillus has been shown to have a positive effect on irritable bowel syndrome. Avoid probiotics that contain prebiotics, which can feed the bacterial overgrowth. As always, seek help from a medical professional to treat any symptoms you experience.

The next thing we need to discuss would be the importance of understanding and healing a Leaky Gut. Mainstream medicine once considered leaky gut syndrome a fake diagnosis given by alternative quacks. But today, research is confirming that a leaky gut, or increased gut permeability, is indeed a major factor in chronic and autoimmune diseases.

So let's start to look beyond symptoms and start seeking the cause. Hippocrates, the father of modern medicine, said thousands of years ago, "All disease begins in the gut." Science is catching up with antiquity. We need to start looking at this foundational system of our health.

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Leaky Gut

Despite its unfortunate name, a "leaky gut" is when your intestinal lining is damaged, allowing undigested food proteins and bacteria to pass into the blood stream, causing an immune response and inflammation throughout the body. In addition to the list in the beginning of this book the following conditions have aslo all been linked to increased gut lining permeability:

- arthritis
- asthma
- autism
- autoimmune diseases
- an inflamed brain
- fatigue
- heart disease
- irritable bowel syndrome (IBS)
- type I and type II diabetes
- skin disorders
- thyroid disorders
- weight loss resistance

Thus why gut health is so important and can affect many people in many different ways. In short, if you have chronic or unexplained health problems, it's possible you have a leaky gut.

What causes leaky gut?

The world we live in today is vastly different than it was even just a few decades ago. From toxins in our environment to our hybridized, modified and sterilized food supply, we've rapidly sped past the simpler world in which our grandparents grew up.

The radical change of our environment and food in a short period of time is affecting our health in ways that we are only beginning to understand. For ages, our genes have evolved and adapted to our environment. The relatively sudden shift of the world around us has caused a mismatch between our surroundings and our genetics. Medications such as NSAIDs and chronic stress can also contribute to a "leaky gut".

Why doesn't my doctor address this if it's so important?

Mainstream medicine trains doctors to diagnose a disease and match it with a corresponding drug. When there is a drug on the market for leaky gut, then my assumption is everyone will be tested for a leaky gut. Today, with industry funding outpacing what the government spends by billions of dollars, it's no surprise that a pharmaceutical drug for celiac disease is in the works, called Larazotide. Something tells me the term "leaky gut" will be making its way into your doctor's office in the near future.

How do I heal my gut?

The last thing we need is to wait for the next "wonder drug" to come on the market. There's so much you can do now to naturally start healing your gut.

I explained what leaky gut syndrome was, how it can wreak havoc throughout your body. We've also touched on the different causes of leaky gut syndrome and issues that can be associated with the gut.

If you have leaky gut syndrome, what do you do now? Well, we have a couple options based on patient symptoms and diagnostic test results.

L-Glutamine

This amino acid has been shown to bring healing to damaged gut lining. This healing tool may help repair the gut and reverse the effects of leaky gut syndrome.

Bone Broth

This ancient superfood can do wonders for your gut health. Bone broth is abundant in fat-soluble vitamins and minerals to boost your overall immune health and digestion. Bone broth is also rich in gelatin, which can heal your gut from the inside out. Bones should be from grass-fed cattle or organic chickens.

Herbal Remedies

There are several herbs that can help heal gut lining damage. Slippery elm, marshmallow root and Deglycyrrhizinated licorice are some remedies that have been used for hundreds of years to repair the protective lining of your gut.

Fermented Foods

Your gut is home to around 100 trillion microorganisms. Fermented foods such as kimchi, sauerkraut, kefir, and kombucha provide your gut with trillions of beneficial bacteria. This will help rebuild and balance healthy bacteria levels that are destroyed with leaky gut syndrome.

Coconut Oil

This is another superfood no one should be without. The healthy saturated fats are an integral part to healing your gut. Lauric, capric and

caprylic acids in coconut oil have antimicrobial, anti-fungal and antiviral properties. This is a real food medicine way to gently clean your GI system. Coconut oil should be organic, extra virgin and cold pressed.

Intermittent Fasting

Giving your body a little break from digesting food can be very healing. Intermittent fasting is not a full fast, but limiting your daily caloric intake to 500 or 600 a day. This restriction for a few days will allow your body to repair the gut's lining. The healing foods listed above are perfect choices to eat during intermittent fasting.

Customized Health Solutions

What works for one person may not be right for the next. A health program should be customized based on the patients health history and labs. This tailored and individualized approach is what I do for people all around the world through my virtual Functional Medicine practice.

What Is Going On In YOUR Gut?

The test I run most often on patients suspected of "leaky gut" is a simple blood test to look for an elevation of two things:

Zonulin: Zonulin is a protein the body makes. Its job it is to open the tight junctions, your gut's "gatekeepers" to the blood stream. If there is an elevation of zonulin, you are at risk for a "leaky gut."

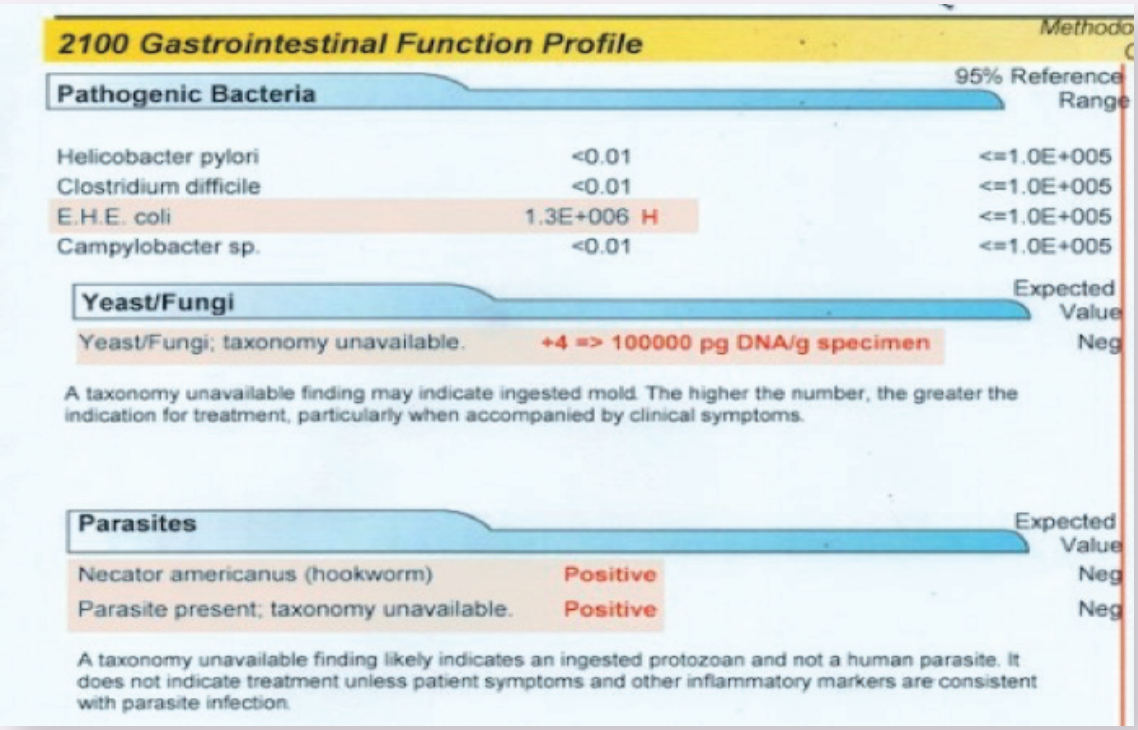
Lipopolysaccharides (LPS): These are toxins given off by some of your gut bacteria. If they're found in the blood, we know there's been a breach of your protective gut lining.

TEST	RESULT			
Array 2 – Intestinal Antigenic Permeability Screen	IN RANGE (Normal)	EQUIVOCAL*	OUT OF RANGE	REFERENCE (ELISA Index)
Actomyosin IgA **	6.47			0.0-20
Occludin/Zonulin IgG	0.44			0.2-1.5
Occludin/Zonulin IgA	0.52			0.1-1.8
Occludin/Zonulin IgM			2.25	0.1-2.1
Lipopolysaccharides (LPS) IgG	0.50			0.1-1.6
Lipopolysaccharides (LPS) IgA	0.42			0.1-1.8
Lipopolysaccharides (LPS) IgM		1.99		0.1-2.0

Food intolerance test: When the immune system is in hyperactive mode, your body can product antibodies to commonly ingested foods. Sometimes the intolerance to certain foods creates obvious symptoms, but more often it creates a low-grade systemic inflammation over time.

ARRAY 4 Gluten-Associated Cross-Reactive Foods & Foods Sensitivity**	Normal	Equivocal*	Out of Range	Numeric Value	REFERENCE (ELISA Index)
Rye,Barley,Spelt,Polish Wheat	X			0.76	0.4-1.4
Cow's Milk			X	1.43	0.1-1.3
Casein (Alpha & Beta)		X		1.02	0.1-1.2
Casomorphin	X			0.58	0.2-1.6
Milk Butyrophilin			X	1.42	0.1-1.3
Whey Protein			X	1.44	0.1-1.3
Chocolate (Milk)		X		1.13	0.1-1.4
Oats	X			0.29	0.2-1.0
Yeast	X			0.59	0.2-1.2
Coffee	X			0.99	0.2-1.2
Sesame	X			0.83	0.1-1.3
Buckwheat	X			<0.4	0.4-1.5
Sorghum	X			0.87	0.3-1.2
Millet	X			1.05	0.3-1.5
Hemp			X	1.65	0.3-1.5
Amaranth	X			0.80	0.2-1.3
Quinoa	X			0.63	0.5-1.5
Tapioca	X			0.75	0.1-1.1
Teff			X	1.12	0.2-1.1
Soy			X	1.66	0.5-1.5
Egg			X	1.78	0.2-1.7
Corn			X	1.83	0.3-1.4
Rice	X			1.04	0.4-1.6
Potato	X			0.98	0.6-1.4

Parasite test: When the intestinal system is compromised, it can be a breeding ground for parasites. Parasitic infections are often associated with tropical or developing countries, but I see them frequently in Western patients with chronic conditions.



2100 Gastrointestinal Function Profile

Methodo

Pathogenic Bacteria		95% Reference Range
Helicobacter pylori	<0.01	<=1.0E+005
Clostridium difficile	<0.01	<=1.0E+005
E.H.E. coli	1.3E+006 H	<=1.0E+005
Campylobacter sp.	<0.01	<=1.0E+005

Yeast/Fungi		Expected Value
Yeast/Fungi; taxonomy unavailable.	+4 => 100000 pg DNA/g specimen	Neg

A taxonomy unavailable finding may indicate ingested mold. The higher the number, the greater the indication for treatment, particularly when accompanied by clinical symptoms.

Parasites		Expected Value
Necator americanus (hookworm)	Positive	Neg
Parasite present; taxonomy unavailable.	Positive	Neg

A taxonomy unavailable finding likely indicates an ingested protozoan and not a human parasite. It does not indicate treatment unless patient symptoms and other inflammatory markers are consistent with parasite infection.

Bacterial dysbiosis test: Just as with chronic parasitic infections, a weakened GI system can also cause an imbalance of bacterial life, or dysbiosis. When there's a pH change in the GI system, conditions like SIBO (small intestinal bacterial overgrowth) can arise. This change in your body's pH can can also cause higher levels of opportunistic bacteria such as H. pylori and E. coli and yeast such as candida.

Toxins: We're inundated with toxins every day. From our food, environment, cleaning and beauty products — toxins come at us from every direction, and they take a toll on our health. Our bodies are resilient and can handle a certain level of the toxic onslaught, but toxicity is another potential tipping point for many autoimmune and gut issues. Heavy metals such as mercury and lead, or mycotoxins from mold are some common things that I see with people dealing with these issues. We also need to look at your body's ability to get rid toxins. Impaired detoxification pathways and genetic weaknesses can make it extra difficult for some people to eliminate toxins properly. We do this through a blood analysis.

Array 11 Chemical Immune Reactivity Screen	IN RANGE (Normal)	EQUIVOCAL*	OUT OF RANGE	REFERENCE (ELISA Index)
Aflatoxins IgG+IgA			2.06	0.4-1.8
Aflatoxins IgM	1.30			0.1-1.9
Formaldehyde and Glutaraldehyde IgG+IgA	0.89			0.3-1.4
Formaldehyde and Glutaraldehyde IgM	1.22			0.1-1.8
Isocyanate IgG+IgA		0.96		0.1-1.1
Isocyanate IgM	0.59			0.1-1.2
Trimellitic and Phthalic Anhydrides IgG+IgA		1.08		0.1-1.3
Trimellitic and Phthalic Anhydrides IgM	1.45			0.1-2.0
Benzene Ring Compounds IgG+IgA	0.99			0.2-1.3
Benzene Ring Compounds IgM	1.01			0.1-1.6
BPA Binding Protein IgG+IgA	0.78			0.2-1.8
BPA Binding Protein IgM	0.70			0.1-1.8
Bisphenol A IgG+IgA		1.43		0.1-1.8
Bisphenol A IgM	1.43			0.1-2.0
Tetrabromobisphenol A IgG+IgA	1.16			0.1-1.6
Tetrabromobisphenol A IgM	0.73			0.2-2.0
Tetrachloroethylene IgG+IgA	1.41			0.4-2.0
Tetrachloroethylene IgM	0.96			0.1-2.6
Parabens IgG+IgA		1.53		0.2-1.7
Parabens IgM	0.48			0.1-1.8
Mercury Compounds IgG+IgA		1.47		0.1-1.5
Mercury Compounds IgM	0.94			0.1-2.1
Mixed Heavy Metals IgG+IgA	1.07			0.2-1.8
Mixed Heavy Metals IgM	1.04			0.1-1.8

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If your gut is not healthy, you can not be either. Whether you have obvious gut symptoms or are struggling with autoimmune, hormonal or brain issues you need to regain gut health to regain total health.

Take advantage of our free Functional Medicine evaluation via phone or webcam. You can get your questions answered and find out if Functional Medicine is right for you- no matter who you are or where you are at in the world.

Check out www.drwillcole.com to schedule yours today.

For more information visit
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