



**Riordan
Clinic**

Health Hunters Newsletter

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Inside This Issue

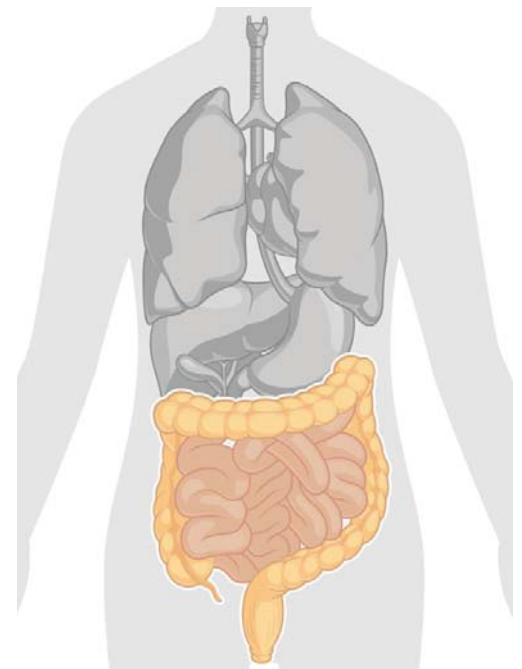
Small Intestine Bacterial Overgrowth—SIBO: Putting things Back in Order	1-3
Know Your Nutrients	3
Patient Profile	4
Diagnosis of Small Intestinal Bacterial Overgrowth	4
Best Lifestyle	5-8
New Restriction on Compound IV Products and How this Affects You	6-7



Small Intestine Bacterial Overgrowth—SIBO: Putting things Back in Order

by Karen Wheeler APRN

The human body is an amazing thing. We actually have about 100 trillion of cells in our body but only one in 10 of those cells is actually a human cell. The rest are bacteria, virus and other microbes. It turns out that the human body needs these other microorganisms to work correctly. This is especially true when it comes to the gastrointestinal tract where we depend on “good” bacteria to extract vitamins and other nutrients as well as keeping the “bad” bacteria and other microorganisms, like yeast, under control.



The small intestine is supposed to have much fewer bacteria living in it than the large intestine (aka colon). But sometimes things go awry and the bacteria from the colon can shift into the small intestine where they can cause problems. Risk factors for developing SIBO include the use of medications or conditions that would decrease stomach acid, motility disorders like those that occur with neurological, muscular disorders or diabetes, anatomical abnormalities like diverticula or after surgeries on the small bowel or fistulas that form with inflammatory bowel diseases and problems with a person’s immune system may contribute to bacterial overgrowth.

Symptoms of SIBO include gas, abdominal bloating, distention and pain. Also, it can cause either diarrhea or constipation which makes some healthcare providers think that irritable bowel syndrome is caused by SIBO. Some SIBO patients report chronic fatigue, generalized body aches and weight loss. Some with severe bacterial overgrowth can have low levels of vitamins and minerals, because absorption of these is affected. Symptoms are quite variable in intensity which contributes to making a clear diagnosis take months or years.

SIBO: Putting Things Back in Order continues on page 2...

Contact the Editor

Please send any comments or suggestions to newseditor@riordanclinic.org.

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Sean Osler
Editor

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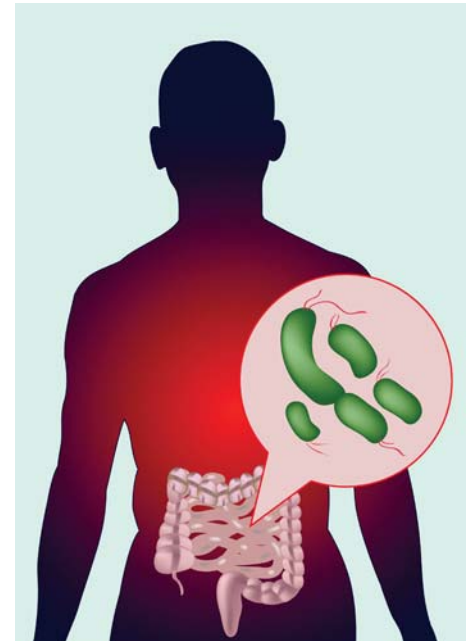
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SIBO: Putting Things Back in Order continued from page 1...

Testing for overgrowth of small bowel bacteria is done best by a hydrogen breath test. For this test to give the most accurate results, the patient restricts their intake of any foods or drinks that would feed the gut bacteria for 1–2 days. The test is done in a fasting state when the patient has not had anything to eat or drink for 12 hours. A baseline breath sample is obtained for comparison. The patient then drinks a set amount of lactulose, or glucose. Next, the patient breathes into a collection chamber every 15 minutes for 3 more hours to monitor for generation of Hydrogen and Methane gases.



Lactulose is a sugar that that human body cannot digest. It is digested by bacteria that normally live inside the colon and produce methane gas as a byproduct. In a normal patient, there is only one peak of the gas generated from the digestion of lactulose, indicating the time that the sample enters the large intestine and bacteria located there start digesting it. In patients who have SIBO, there is usually more than one peak of the gas, indicating that some digestion is being done by bacteria prior to the time that the sample could enter the large intestine. Glucose has also been used at times to do this test. Glucose is easily digested and should be gone before reaching the colon, so normally there is no gas in the breath of the patient who ingests glucose. Detecting gas in the patient's sample after drinking glucose would indicate that there are bacteria in the small intestine reacting to it. In some cases, patients will need to have endoscopy to look directly at the gut lining and biopsies taken of the stomach and duodenum to verify this diagnosis. Some providers choose to treat the patient with symptoms of SIBO based on their symptoms without any testing.

Treatment options include conventional antibiotics such as Rifaximin, Neomycin or Metronidazole, natural antibiotics such as Berberine, Oregano, garlic or cinnamon, and diet changes. Since bacteria in the gut live on the carbohydrates that a person ingests, the diet changes are based on the restriction of these for various lengths of time. An elemental diet consists of replacing meals with powdered nutrients, including basic amino acids, fatty acids, and glucose, plus vitamins and minerals. There are many brands of these formulas available to purchase, but there are also recipes for patients to make their own. The patient would stay on this diet for a minimum of 2 weeks to starve the bacteria in the small intestine. A few of the diets designed to treat SIBO include Specific Carbohydrate Diet (SCD), the Gut and Psychology Syndrome Diet (Gaps diet), and Low FODMAP (LFD) diet. A combination of SCD and LFD has also been used. Other diets are also available to treat SIBO.

The SCD diet allows meat, fish and poultry, some eggs and beans, lactose-free dairy, non-starchy vegetables, ripe fruit, nuts and seeds, honey and saccharine. Grains, starchy vegetables, lactose,



SIBO: Putting Things Back in Order continues on page 3...

KNOW YOUR NUTRIENTS

Probiotic Complex

is formulated with *Saccharomyces boulardii*, a proven potentiator for good bacteria that removes pathogens from the gut. This action enables a more effective probiotic presence, encouraging a healthy environment for vitamin uptake and immune support.



Probiotic Complete

is a unique combination of colonizing and transient strains providing broad coverage to support a healthy balance of microflora across the entire gastrointestinal tract. Scientifically formulated with a full spectrum of synergistic and complementary species, Probiotic Complete is designed for individuals who require significantly higher amounts of several different types of probiotic species to help support intestinal health.



Blue Heron is a combination of all-natural fibers and herbs to absorb and eliminate toxins improving colon function. Blue Heron is a comprehensive, encapsulated, bulk fiber supplement.



This proprietary formula combines psyllium, demulcents, absorbents, and probiotics with time-tested Ayurvedic herbs to provide effective, yet gentle, intestinal support. Dietary fiber supports gastrointestinal and colon health.

For more information about our Nutrient store please visit <http://store.riordanclinic.org>

SIBO: Putting Things Back in Order continued from page 2...

and any other sweeteners are not allowed. This method starts with an introduction diet and progresses as the intestines heal. The book explaining this diet includes recipes. Websites are available for more information. It has a 75–85% success rate if it is followed strictly.

The Gaps diet is basically the SCD diet with a few modifications allowing less beans, no baking soda or store-bought juice. The protein casein is introduced more slowly and altered vegetables are emphasized in place of yogurt. Several books and websites are available for support and information when following this diet.

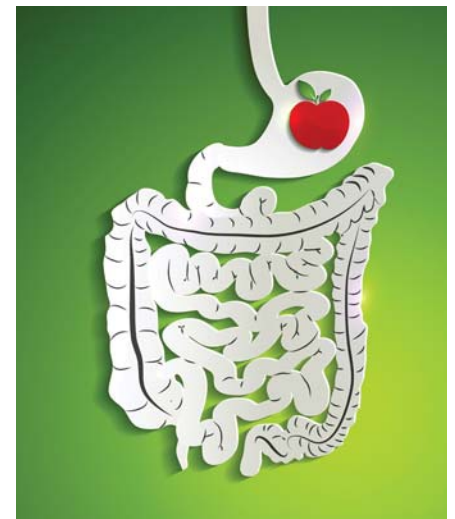
FODMAP stands for Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols. This diet allows grains, fiber, sugar and other fermentable carbohydrates and has had excellent success rates in treating IBS and other GI conditions. It may need to be adapted for patients with SIBO because of the carbohydrates allowed. Resources can be found online and in books.

Most often, people have to be on these diet changes for more than a year, and some for a lifetime. The best news is that people with SIBO often feel better within a few weeks of making diet changes and other treatments. Children often respond faster than adults. It's important to realize that a combination of these treatment options may be needed. More than one round of conventional or natural antibiotics may be needed to achieve results.

This is another condition where prevention is the key. Being mindful of what a person eats and drinks will contribute to overall good health. Follow a diet that is low in sugar and has proper portion sizes. Take steps for normal digestion by protecting the hydrochloric acid in the stomach by avoiding medications that suppress the acid, or by taking supplemental HCL, apple cider vinegar or bitter herbs. Digestive enzyme supplements may also help. Taking probiotics are important to maintain normal gut flora and help with small bowel motility.



Make certain that you purchase all supplements from a reputable supplier as these are not monitored by the FDA and have been found to not contain what the person thinks they're buying. Riordan Clinic Nutrient Store can provide you with many of the supplements mentioned in this article. Our supplements are tested for quality assurance by an independent lab. The providers here at Riordan Clinic are all capable of helping you with any digestive or elimination issues that you may be experiencing, as well as any other conditions that may need attention. We look forward to seeing you and helping you achieve and maintain excellent health.



For more information, go to www.siboinfo.com.

PATIENT PROFILE

by Annette Chlumsky, RN

I come from a long line of avid vegetable gardeners, even competing with my 88 year old father who is a retired farmer, still living by himself on the farm so he can continue to grow his own organic produce. He definitely knows the value of wholesome food after beating Hodgkin's Disease over 40 years ago with holistic treatment. So, I love the analogy of "changing the terrain" (think garden soil) in the body so diseases like cancer and other chronic diseases can't take root and grow.

Hippocrates, the "Father of Medicine" said over 2000 years ago that "all disease begins in the gut."

Just as in the garden soil, the gut needs to be assessed for damage and then for nutrient uptake, absorption, pH, moisture, barriers and the variety of microbes available to break down organic matter.

A 58 year old female came to the clinic with chronic throat irritation, post nasal drainage and a white coating on the tongue. She had taken a significant amount of antibiotics in her lifetime. An endoscopy procedure showed no abnormalities and no reflux. Our doctors suggested testing through Genova Diagnostics with the Comprehensive Digestive Stool Analysis. This test revealed a low level of lactobacilli and Bifidobacteria which are friendly gut bacteria that are important for normal gut functioning as they are involved in vitamin synthesis, natural antibiotic production, immune defense, digestion, detox of pro-carcinogens and a host of other activities. The patient also completed an Organic Acids urine test through Great Plains Laboratory, which showed several elevated yeast and fungal metabolites and high malabsorption and bacterial markers. She started a vigorous program of a sinus anti-fungal medication and several natural anti-fungal supplements, probiotics, and digestive enzymes. After 5 months, she feels like she is still "a work in progress", but definitely improving. Her diet is very low in carbohydrates, and specifically sugar.

After investigating the different influences on the intestinal environment, such as nutrient levels, irritants, physical activity, and sleep quality, the co-learner and doctor were able to understand the nuances of the gut environment and were able to manipulate it to begin to gain improved health. This may be revised and refined as time goes on to get the desired results in the microbial community at work in the gut.



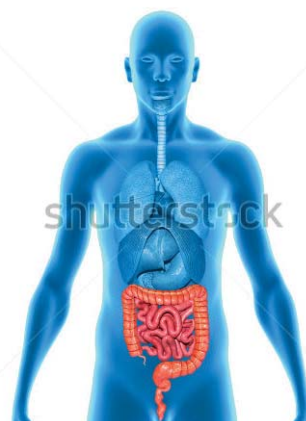
Diagnosis of Small Intestinal Bacterial Overgrowth (SIBO)

By Charles T Hinshaw, Jr, Director, BioCenter Laboratory, Riordan Clinic

There are four different tests for the diagnosis of SIBO. Each of these four tests takes a different approach. The tests are (1) a malabsorption test, (2) a quantitative test measuring the number of bacteria in the small intestine, (3) breath tests, as described in lead article, and (4) biopsies of the small intestine. None of these tests are performed at the BioCenter Laboratory at the Riordan Clinic, but the breath sampling test is readily available here and is an excellent test



- **Malabsorption Test:** Xylose is a sugar that does not require enzymes to be digested. In the test, a measured quantity of xylose is ingested by the patient as a drink. Normally, the easily absorbed xylose is then found in the patient's urine and blood. If there is no xylose in the urine and blood, it is apparent that the small bowel is not absorbing properly
- **Quantitative Test:** The small bowel has a normal bacterial count of less than 10,000 bacteria per milliliter in jejunal aspirates; when the count exceeds 100,000 the test is considered positive
- **Breath Test:** Breath tests are based on bacterial metabolism of carbohydrates to hydrogen and/or methane. This test is well-described elsewhere in this issue
- **Biopsies:** Small tissue samples (biopsies) of the small intestine are sometimes obtained when patients are undergoing gastroscopy of the stomach and duodenum with an endoscopic camera. The microscopic changes in the lining of the duodenum and jejunum are difficult to distinguish from the changes in celiac disease, making the correct diagnosis very challenging
- Finally, some physicians believe that if the suspicion of SIBO is high enough, the best diagnostic test is a trial of treatment.





Food as Medicine

A foundational nutrition course

There are a lot of questions in today's world about what to eat, how to eat and why.

This in-depth course will connect the dots and address some fundamental questions behind how our diet impacts our health and well-being and how it contributes to the progression of chronic disease.

Held every Tuesday from 2:30 – 4:30 pm at the Riordan Clinic.

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The Best Lifestyle

by Dr. Ron Hunninghake

Part 1—Your Gut and Your Genes

“Is there one BEST lifestyle for me?”

- Should I eat vegan? Low carb? Paleo? Atkins? Does diet ever matter that much?
- How much sleep or exercise do I really need?
- Will science ever KNOW what's best for me?

Yes! The new key is to know your Gut and your Genes!

- These two pathways will give you extraordinary control of your health!
- Two extraordinary fields of science have emerged that are game-changers:
- The Human Microbiome (Your Gut)
- Nutrigenomics (Your Genes)

Let's start by exploring the Human Microbiome (Your Gut)

The human microbiome is a term coined by Nobel laureate Joshua Lederberg: "the ecological community of commensal, symbiotic, and pathogenic microorganisms that literally share our body space."

Your Gut is amazing and it has many diverse functions!

- Acts as a habitat for trillions of beneficial bacteria
- Digests your food
- Absorbs nutrients
- Houses the immune system
 - ▶ 70–80% of the immune system is located in the lymphoid tissues of the gut
 - ▶ Serves to distinguish "dangerous strangers" in our food
- A new food may be a stranger...but not a danger
- A pathogenic bacteria or parasite, however, is recognized as dangerous
- Home of trillions of microbes—an inner ecosystem
 - ▶ Every one of your microbes has its own set of genes!
 - ▶ For every one human gene in the human body there are 100 microbial genes
 - ▶ This inner ecosystem is like a rain forest

Your Magical Microbiome

- Your microbiome makeup
 - ▶ 3.5 to 4.5 pounds of bacteria
 - ▶ Includes yeasts, viruses, and sometimes parasites
 - ▶ Makes B vitamins and some essential amino acids
- Facilitates the breakdown and digestion of foods (*Foods that are not digested well can become toxic to your system*)
- Increases the rate of renewal of the intestinal lining (*every 5 days*)
- Protects against infections by forming biofilm barriers
- Facilitates metabolism
- Interacts with your brain (*Central Nervous System*)
 - ▶ Interacts through the Enteric Nervous System of the gut
 - ▶ Gut and brain are connected via the vagus nerve
- Even if this nerve is cut, the two systems keep on working

Gut is often referred to as "The 2nd Brain"

- Gut manufactures many neurotransmitters
- Serotonin: 80–90% is made in the gut

The Best Lifestyle continues on page 6...

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New Restriction On Compounded IV Products and How This Affects You

by Nichole Kunkel RN, Clinic Coordinator

A few years ago a meningitis outbreak occurred in the New England area after contaminated batches of compounded injectable products were distributed. Due to this event, the government has placed extensive regulations on all compounded pharmacies. Recent changes in the Federal Drug Administration's regulatory control of compounded products now necessitate a substantial change in how we order and deliver your IV nutrients to you. Patient specific means that your IV or IM nutrition or chelation therapy can only be ordered with your doctor's prescription that is specific to you.

Riordan Clinic patients who are currently receiving IV therapies already have an IV prescription on order in our electronic charting system. (Current orders are active for 6 months from the date on the prescription. Beyond that, a new appointment for a current prescription will be required). Patients that are current and are having IV therapies at this time will need to contact us 7 business days prior to their next treatment to place an IV order along with prepayment. A one-time "patient specific IV prescriptions" acknowledgement form must be signed prior to the order being placed.

We realize this creates additional inconvenience for you as a patient and for us as providers. This is a national policy change that will affect ALL IV nutrient providers. The change is meant to mutually assure greater safety and better quality control. Our nurses have all received training on the new process for placing IV prescription orders, managing the

New Restriction on Compound IV Products and How this Affects You continues on page 7...

- Any neurotransmitter found in the brain is also found in the gut
- Many emotional "gut reactions" originate as signals from the microbiome
- Our gut/brain interacts with and influences our own genes (*epigenetics*—see page 8)

The microbiome has its own genes

- They are constantly responding to changes in the gut environment
- The human genome numbers 23,000 genes in every cell
- The microbiome (*hundreds of bacterial species living in our gut*) numbers in the millions!
- We are learning how "our genes" interact with "their genes"



We acquire the microbiome as babies

- These bacteria "educate" our immune cells
- Gut Associated Lymph Tissue—at least 70% of our immune system
- Early on, helpful and harmful bacteria are tagged
 - ▶ If this process occurs properly, lower food sensitivity rates
 - ▶ If an improper microbiome forms, severe food sensitivities can manifest

Digestive problems are linked to a wide range of illnesses

- Migraine headaches
- Fibromyalgia and Chronic Fatigue Syndrome
- Depression and "brain fog"
- Arthritis
- Autoimmune disorders (*many, such as MS, Lupus, Rheumatoid arthritis*)

Disease begins in the gut...so does HEALTH!

- Affects mood in the form of toxic emotions, depression, brain fog
- Affects visceral fat and inflammation
- Affects insulin resistance, which gives rise to diabetes and a whole host of chronic illnesses
- Hormonal disruption

The Microbiome communication system uses chemical messages

- Gut wall cells and microbes "talk" with each other
- Together they influence gut wall inflammation and permeability—"Leaky gut syndrome"
- They also communicate with the brain
- The Total Body Nervous System parts:
 - ▶ Central Nervous System (*brain*)
 - ▶ Peripheral Nervous System (*nerves*)
 - ▶ Enteric Nervous System (*gut*)



Gut microbiome disruptors/destroyers:

- Antibiotics—prescription and in dairy and feedlot meat
- Stress—fight/flight/or freeze
- High sugar intake—low glycemic fruits are okay
- High fat diet—in spite of popularity of Paleo—kills Bifidous bacteria
- Birth Control pills—estrogen dominance
- Bio-identical hormones—IF out of balance
- Chemicals—like chlorine, fluoride, and bromine in breads
- GMO foods—research showing the creation of "monster strains" resistant to common antibiotics

New Restriction on Compound IV Products and How this Affects You continued from page 6...

prescriptions in house as well as helping to keep patients involved in the management process. We are all eager to help and excited that we have a process that has helped to keep our IV costs from skyrocketing to unrealistic and unaffordable prices. If you have any questions please call us at: 316-927-4789.

The Best Lifestyle continued from page 6...

Summary of Microbiome:

- Gut flora is influenced by
 - ▶ diet and genes
 - ▶ body burden of toxins
 - ▶ drugs
 - ▶ even our thoughts (stressful vs. peaceful)
- Clear evidence that diet rapidly alters the gut microbiome
- What you eat today alters your gut microbiome tomorrow
- Microbiome even controls a clock in your gut
 - ▶ Affects the quality of your sleep



What about GENES?

Genetics vs Genomics—not interchangeable

- Genetics—the study of specific genes
- Examples of the major role a single, specific gene can play in your inheritance
 - ▶ Down's syndrome
 - ▶ Neurotubular defects
 - ▶ Sickle cell anemia
 - ▶ Cystic fibrosis
- Genetics is an old science that has been around since the 1800's when Gregor Mendel studied the genetics of plants

Genomics refers to your entire genetic makeup...your GENOME

- Genomics includes how your genome interacts with your environment
- Your entire genome interacts with your lifestyle and diet
- Examples of this genomic interaction
 - ▶ Do you exercise?
 - ▶ Do you exercise too much? ...or not enough?
 - ▶ Do you smoke?
 - ▶ Is your diet the right diet for your genome?
 - ▶ Are you exposed to an environment of harmful chemicals?
 - ▶ How well does your detoxification system handle those specific chemicals?

Genomics can help you prevent or deal with serious diseases

- Examples Include: Cardiovascular disease
Diabetes
Autoimmune disorders such as Rheumatoid arthritis
Cancer
These complex conditions are not caused by a single gene

2003—the human genome mapping was completed

- Genomic risk analysis of chronic illness was first started in 1980s
- It is time to take genomics out of the lab and into your hands now!

Nutrigenomics

- Finding an optimal match for our genes to our food and lifestyle
 - ▶ A scientific basis for defining truly healthy choices for you!
 - ▶ A tool that defines personalized lifestyle targets
 - Example: you have the genes for diabetes*
- Knowing this and other genetic traits, you can now target specific lifestyle choices that can prevent these genomes from expressing



Health is...
Student Project Contest

Calling all 5th – 7th grade students!

Riordan Clinic is holding their annual **Health Is...** project contest where you can enter art, technology or written projects explaining what health means to you.



Submit your project by **April 22nd** for your chance to win an **iPad Mini 16GB!**

riordanclinic.org/health-is-contest-information

The Best Lifestyle continues on page 8...

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Nutrigenomics: "what's the best diet?"

- This science may finally put an end to this endless debate
- There isn't a "best lifestyle" or RDA diet for everyone.
- There's just a one best lifestyle for you! (*This answers the question at the beginning*)
- This is made known through DNA testing.

The Gut/Gene Conversation

- There is a conversation going on between the food we eat, our genome, and the genomes of our gut's bacteria
 - ▶ The food we eat actually "talks to" the bacteria in our gut
 - ▶ This same food sends messages to our genome
 - ▶ Our bacteria have their own genes that are "listening"
 - ▶ Our food choices trigger expression or suppression of these genes as well
 - ▶ That's trillions of bacteria "listening in" (*Talk about social media!*)

DNA testing quantifies our risks for many illness states

- Obesity
- Heart disease
- Diabetes (Metabolic Syndrome or Insulin Resistance)
- Inflammation and Oxidative Stress
- Detoxification overload
- Stress management
- "Clock genes" that tell us how much sleep we need
- Which supplements do we actually need?
- Medical applications
 - ▶ Appropriate use of psychotropic drugs
 - ▶ Chemotherapeutic drug selection in cancer
 - ▶ Pharmaceutical detoxification issues are clarified



DNA Debunking!

- The mistaken notion of "genetic determinism" is debunked!
- You are NOT a victim of your genes!
- If your parents had heart disease, Alzheimer's, cancer, etc...
- That does not mean you are destined to get these illnesses!
- DNA testing shows you a way to live differently from your parents
- That can change your genetic destiny!

Epigenetics

- What "turns on" or "turns off" our genetic inheritance?
- The ability to map an individual's genome changes everything!
- This "map" is NOT genetic destiny...it IS genetic choice.
- This will give you a GPS "viewpoint" of your genomic "roadways"
- You will be able to see the polymorphisms or SNP's that represent...
- "Traffic jams" or "roadblocks" that need to be detoured
- How? With DNA targeted diet, supplements, and lifestyle choices
- DNA Targeting is how epigenetics leads you and I to our best health

In summary

- The future of medicine is in the prevention and care of chronic illness
- This brave new future hinges on a dual breakthrough: Gut Microbiome and DNA Targeting
- Know your gut and know your genes - two keys to a better life, less illness
- Giving us a sublime appreciation for just how important it is...
- To make **Genetically-Targeted** lifestyle choices.

As Dr. Hugh Riordan once said,

"Once you KNOW, you cannot NOT KNOW...and you are forever changed!"



Every person is unique. Do you know your nutrient numbers?

Including more than 70 different lab measurements, the Mega Panel will give you a comprehensive look at your current nutritional status. With 40 years of experience, the Bio-Center Laboratory at Riordan Clinic is a source you can trust for accurate and useful information.

riordanclinic.org/laboratory
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