Intestinal Problems and ‘Whole-Body’ Symptoms
Gut 101-the Effect of Foods
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The idea that disruptions in gut function might be implicated in systemic disease is an ancient one. From an ancient Ayurvedic text comes a definition of health as profound as any modern one: ‘A person whose basic emotional and physical tendencies are in balance, whose digestive power is balanced, whose bodily tissues, elimination functions and activities are in balance, and whose mind, senses and soul are filled with vitality, that person is said to be healthy.’ We have been warned for over 2000 years that the health of the body is heavily influenced by the gut. Hippocrates told us “bad digestion is the root of all evil.” The idea was further promoted in the 19th century by the great Naturopath Louis Kühne and in the early 20th century by Nobel laureate Elie Metchnikoff. Kühne proposed that an inappropriate diet led to intestinal toxicity, with increased growth of bacteria in the bowel causing disease. Elie Metchnikoff won the Nobel Prize in Medicine for his work on the good bacteria in the intestines. One of his most famous messages to us? “Death Begins in the Colon.”

In this series of 3 articles, we are going to walk through the most important concepts of the gut’s contribution to our overall health. From autism to infertility, from the tummy to the brain, from the heart to the joints, from gallstones to tears in the protective ‘cheesecloth’ of the brain called the Blood-Brain-Barrier, there is no system of the body that is immune to disease from problems in the gut.

In 2004, we published a paper that demonstrated the very common link that gluten sensitivity has as an initiator of a step-by-step process leading to the development of Autism. We demonstrated that in 80% of children who had received a diagnosis of Autism, they not only produced antibodies to gluten, they also produced antibodies to their brain. This attack on the brain, in genetically vulnerable people, from a sensitivity to gluten, damaged the gut (called Intestinal Permeability, aka ‘Leaky Gut’), which triggered an auto-immune response, that initiates an inflammatory reaction (‘Fire in the Brain’). Intestinal Permeability is one of three common mechanisms by which sensitivity to gluten can cause the end-stage symptoms that produce a child diagnosed as being on the Autism Spectrum.

The second mechanism is the opiate theory. We know that when the proteins in wheat are not digested thoroughly, some of the products produced are peptides (protein fragments) called Glutemorphins and Prodynorphins. These molecules are called opioid peptides because they bind to the opiate receptors in the brain, have a morphine-like psychoactive nature and thus activate the message to ‘feel good’. Ever wonder why so many autistic children absolutely refuse to eat any but a few foods? Look at the foods they crave and you often find if that food is poorly digested, it produces an opioid molecule which will stimulate the brain- ‘feel good’, ‘feel good’, ‘feel good’, ‘feel good’. Who wouldn’t want to eat only foods that gave their brains a ‘buzz’, a stimulant effect to ‘feel good’?

A third common mechanism causing the symptoms that get diagnosed as Autism Spectrum Disorder from gluten sensitivity is malabsorption. Because damage from the ‘Fire in the Belly’ includes wearing down the absorptive surfaces inside the intestines (villous atrophy), it is
extremely common that in patients with gluten sensitivity, they lose the ability to absorb nutrients through the intestines and develop fat-soluble vitamin deficiencies (Vitamins A, D, E, K, and the Essential Fatty Acids). Now it so happens these are the nutrients critical to building a healthy communication system in the brain-one neuron talking to the next neuron. Deficiencies of fat-soluble vitamins = poor brain cell communication = poor brain cell function.

In this first of 3 articles, let’s look at Intestinal Permeability, aka ‘Leaky Gut Syndrome’ and how it might affect your child. We know there are many theories as to the cause of autism. Some carry more weight than others. What we’ll talk about here is not a theory. We’ll talk about how when basic physiology is altered, there are consequences. My common phrase is: “this causes that, which causes this, which causes that, which then affects this, and then here come the symptoms”. And we often focus on the symptoms. Of course we all want to feel better, and function better, but if we focus exclusively on the symptoms, it’s often the dog chasing its tail-you catch it, it’s gone. You catch it, it’s gone. And the symptom pattern is as varied as the individual and determined by genetic vulnerability and environmental exposures. From Inflammatory Bowel Disease (Ulcerative Colitis and Crohn’s Disease), to numerous autoimmune diseases (Rheumatoid Arthritis, Psoriasis, Type 1 Diabetes, Spondylitis, etc.), from Gluten Sensitivity and Celiac disease, to Food Allergies, from Neurological conditions (Autism Spectrum Disorder, Depression, Anxiety, ADHD, Guillain Barre Syndrome, etc),... the list goes on and on of the symptoms that may be triggered by Intestinal Permeability. This is why Intestinal Permeability has been called ‘The Gateway to Autoimmunity’. So of course you want to treat your depression. Of course you want to treat your autistic child. AND we must correct the intestinal permeability (if it’s there), or the therapies being administered never have a chance to produce their best results.

Imagine if you would, the inside of your intestines are lined with shag carpeting. Each shag allows only specific-sized molecules to get through. If the food molecules haven’t been broken down small enough yet by digestive enzymes from your stomach, intestines, gall bladder and pancreas, the molecules can’t get through into the blood stream-(‘PEARL-some children need help with better digestive enzyme production-ask your doctor). Each shag is covered with a cheesecloth that only lets the smallest of molecules access to the blood stream-everything else has to wait until it has been broken down via digestion into smaller pieces. If you get tears in this cheesecloth that covers the shags, then larger molecules can slip through. Every person with Gluten Sensitivity can develop these tears in the cheesecloth if they’re exposed to gluten⁹. Some studies say 80%¹⁰, some studies say 100% of those with Gluten Sensitivity develop Intestinal Permeability. It’s safe to say “almost everyone” with this food sensitivity will have damage in their gut. And up to 70% of their first-degree relatives¹¹! These macromolecules that are now in the bloodstream, can travel to the brain, and cause a tear in the protective cheesecloth of the brain-the Blood Brain Barrier. And now we have a ‘Leaky Brain’ which allows damaging molecules to get into the brain that act as ‘gasoline on the fire’ causing excessive brain inflammation xii, and a symptom pattern that varies depending on the individual patient. In some sensitive individuals-the symptom pattern may be Autism Spectrum Disorder.

So where do you start?
With new patients we always begin the same way—a 2 part protocol that includes determining what tests to do (such as Intestinal Permeability), and beginning immediately on an eating style that avoids, for a period of time, the foods that are common allergens. Stop throwing gasoline on the fire. Restricting foods from the diet that alarm the immune system reduces symptoms (and conversely, their reintroduction may exacerbate symptoms)\textsuperscript{xiv}. Sometimes, simply avoiding certain foods will eliminate the symptoms. The topic of food elimination diets is best summed up by Dr. Steven McClave:

“The doctor must question whether dietary changes should be initiated. In other words, the clinician should evaluate the extent of the disease involvement, assess overall level of symptomatic control, look for any complications, and determine a plan for medical therapy. The process is not complete, however, until the clinician asks, “How can diet therapy alter control of this disease process?” At that point, addressing nutrition issues, identifying factors that increase or decrease symptoms, and making specific changes in the patient’s diet may be one of the most successful treatment strategies in the management of these patients.”\textsuperscript{xv}

That is why the initial protocol in treating Autism Spectrum children, where you must begin, ALWAYS includes eliminating the foods that are common irritants.

By modifying the diets of children with Autism Spectrum Disorder, parents sometimes notice a difference in a relatively short period of time. Sometimes it is dramatic. But most often, it’s noticeable. Meaning that the children have a lot of healing that has to occur from the damage that has been done, but the parents often comment about the noticeable difference.

And what about testing for Intestinal Permeability? Two decades ago, measurement of Intestinal Permeability was done by measuring the leakage of a sugar molecule, lactulose, into the bloodstream. Since then, numerous studies have questioned the clinical relevance of this marker. It is not measuring immune-offensive macromolecule passage\textsuperscript{xvi xvii xviii}. There is now a much more sensitive and accurate marker of the breakdown of a healthy intestinal barrier\textsuperscript{xix xx xxi}. This test can also be used to monitor improvements with therapies administered. More can be learned at www.cyrexlabs.com

It all starts with the Elimination Diet—healthy foods and avoidance of gluten, dairy, excess sugar, and caffeine (except for green tea). Dramatic changes occur for many people in just a few weeks. And by then test results are back, the specific imbalances can be identified and addressed. And the person can begin their journey back to health.

In the next article, Gut 201, we’ll look at the intestinal milieu—the good (and bad) bacteria that live in the intestines which have a tremendous role to play in the health of the individual.

ii 21st Century Medicine: A New Model for Medical Education and Practice, Institute for Functional Medicine, www.functionalmedicine.org


xiii Maes M, Kubera M, Leunis JC, The gut-brain barrier in major depression: Intestinal mucosal dysfunction with an increased translocation of LPS from gram negative enterobacteria (leaky gut) plays a role in the inflammatory pathophysiology of depression, Neuroendocrinol Lett 2008; 29(1):117–124

xiv Wald, ibid.

xv McClave, ibid


