

Evolutionize Your Health!

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Dawn of the Age of the Inner Tube

It's natural to exaggerate the importance of events in our own lifetimes. We are affected most by what happens now, and it makes no sense to worry about ancient history or panic over something that will happen long after we're gone. Plus advertisers hype the latest revolutions in everything from snow tires to weight loss. As a kid I heard about "the dawning of the Age of Aquarius", and then it was gone. I missed the whole age.

Doctors and patients have to maintain proper perspective on claims of the latest revolutionary medical discovery. Real "dawning of an age" breakthroughs are pretty rare. But we may be witnessing something like that now in microbiology and nutritional health. Welcome to the Age of the Inner Tube.

Humans, like all mammals, are basically tubular structures. We have a gastrointestinal tract winding through us with an opening on each end. Like all tubes, we have outer and inner surfaces. We interact with our environment at both of these surfaces, our skin forming the interface with the outer tube and our oral and gastrointestinal mucosal membranes interfacing with the environment within.

We naturally focus more on our outer tube. It's obviously visible, for one thing, and often rather attractive. We adorn it for looks and to protect ourselves from harsh temperatures, sunlight and other threats. We can't see our inner tube, but we know how important it is—especially around three times per day (not including snacks.) For centuries medical science has advanced our understanding of nutrition. We all know that eating right can improve health. So these discoveries are not that dramatic by themselves. The dawning of a new understanding in the inner tube involves how nutrition and gut microbes (mostly bacteria) interact to affect health.

Your outer tube is designed largely as a barrier to keep out the environment and protect you within. Your inner tube is rather the opposite. Few people realize that the digestive tract has its own nervous and immune systems along with a dense network of vessels for blood and lymph flow. It's all about intense interchange—absorption and excretion on a massive microscopic scale. Your outer tube is Alcatraz; your inner tube is the floor of the New York Stock Exchange. Think what happens when poison ivy brushes across your arm. Now imagine swallowing it.

We generally think of the gut in terms of food digestion and absorption, not microorganisms. We think of gut microbes as causes of infection (viral gastroenteritis, bacterial diverticulitis, amebic



dysentery) that are unusual and exceptional departures from normal bowel function. But in the Age of the Inner Tube, we understand that the intense, everyday exchanges with our inner environment are all about microbes, and we appreciate their impact on a wide range of diseases, many never before thought related to bugs in our gut.

The human body is made up of around 40 trillion cells. Aside from our own cells, we have many hitchhikers—bacteria on our skin, in our nasal passages, and mostly in our gut. In fact, each human body has about ten times more bacteria than its own cells. This means you are only 10% you! In fact, your percentage drops much further when you consider genetics. All your trillions of cells contain only one genome—yours. You have trillions of copies of your own DNA blueprint. On the other hand, you host hundreds of thousands of different species of microbes with literally millions of foreign genes, many of them active in digesting nutrients and producing proteins and enzymes. So the frenzied metabolic exchange of the inner tube is far more diverse and complex than most of us ever imagined.

Understanding those interactions beyond just nutrition—mastering the neurological, immunological, cardiovascular, hormonal and other effects—is the Age of the Inner Tube.

Many of you know about antibiotic-associated colitis, when antibiotics kill off healthy gut bacteria and allow pathogenic strains to take over. This can be disabling, deadly, and difficult to cure. One treatment, often a last resort, is fecal transplant. Stool from healthy people is inserted into the patient's colon to restore normal flora. Simple, safe and usually effective, it's most serious side effect seems to be "grossness".

This is a fine example of the health impact of gut microbes, but its real value here comes from an unexpected finding in some of these patients with advanced Parkinson's disease: They got better. Discoveries like this lead us to understand the tremendous, previously hidden role of gut flora in neurological diseases like Parkinson's, multiple sclerosis, Alzheimer's and others. Those familiar with Dr. William Davis's book, Wheat Belly, know about gluten increasing gut permeability, triggering frenzied trading in our intestinal stock exchange. New research in various fields are beginning to connect the inner tube with previously unrelated diseases of our immune, nervous, cardiovascular and endocrine systems.

Potentially we may treat or even cure diseases simply by altering our diet. We have a long way to go and much to learn. Even after the learning, old habits die hard. It will take some time before new ideas work their way into conventional medicine. But for those with serious disease and limited hope from orthodox treatment, why wait? The inner tube may offer benefits today.

To keep this newsletter personal (and maintain full disclosure), I want to credit Dr. Michelle L. Koster as the inspiration for this article. Since reading Wheat Belly two years ago, she continues to study these ideas, employ them for herself and others, and benefit from them. This embodies the evolution of medicine, now a joint venture, patient and doctor discovering together.

I am planning a presentation on the Inner Tube next spring. So stay tuned!