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How Social Media Controls Your Gut

The Internet, Health Misinformation, and the Human Gut Microbe

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You scroll on your favorite social media platform and come across a creator touting ostensibly credible health and wellness advice to their followers. Recently, it seems you cannot log onto social media without receiving swaths of content centered on gut health. The connection between overall wellness and gut health sounds almost miraculous. You learn that changes in diet and lifestyle can affect the composition of bacterial strains that can either promote or prevent inflammatory diseases. Turning again to the internet for resources, you began to look into improving your gut health. You may find a self-proclaimed holistic nutritionist who formulates a plan to identify certain inflammatory foods. Maybe you end up purchasing some expensive supplements intended to balance your gut microbiome. At any rate, now you are hooked. Except you never once stopped to wonder if the creator's claims are even legitimate or not. Is improving your gut health even worth the risk of potential health misinformation?

In short, gut health focuses on the well-being of one's digestive system and the whole host of organisms that inhabit it. Hundreds of trillions of microorganisms live in the digestive tract of humans. These microorganisms include viruses, bacteria, and

even fungi. Humans were first exposed to these microorganisms during and soon after birth. Babies are first exposed to these microbes in the lower uterus. Later, milk and the introduction of solid foods further establish the gut microbiota or the collection of microorganisms that colonize the gut. Many factors contribute to the development of gut microbiota, including how the baby was delivered, if they are fed breast milk or formula, and the time of weaning. Studies have shown that a healthy gut in infancy is important for developing the immune system and preventing the onset of autoimmune diseases and allergies. Conditions such as Inflammatory Bowel Disease (IBD), atopic dermatitis, Type 2 Diabetes, and obesity have also been linked to microbe composition in the gut. Specifically, patients with IBD were found to have less bacterial diversity in their guts, suggesting that microbial diversity may have an anti-inflammatory effect.

Microbes in the gut are often sorted into two categories: the good and the bad. Those with high amounts of "good" gut bacteria species, like *Bifidobacterium* and *Lactobacillus*, are typically found to have a lower risk of inflammatory diseases. *Bifidobacterium* is a bacterial species associated with a reduced risk for obesity.

Lactobacillus, another “good” species, has anti-inflammatory and anti-cancerous roles in the gut. On the other hand, “bad” gut bacteria species include Bacteroides and Bilophila. Bacteroides species have been shown to activate the immune system’s defenses, increasing inflammation and the risk of IBD. Bilophila is also pro-inflammatory and has been associated with various diseases, including colitis and gallbladder inflammation. Diet has been shown to alter the composition of “good” and “bad” bacterial species in the gut which can alter metabolism, immunity, and inflammation in the body which can either prevent or contribute to disease.

Researchers have attempted to discern the link between diet and disease for many years. Many proposed that diet may be a factor in disease prevention. Recent studies have shown that diets high in protein increase gut diversity. At the same time, diets high in plant-based protein increase anti-inflammatory gut bacteria and are linked to Cardiovascular disease and IBD are diets rich in animal protein. Diets high in unsaturated fats and certain sugars (fructose, glucose, and sucrose) and low in overall fats increase “good” bacteria while these sugars decrease “bad” Bacteroides. Artificial sweeteners, such as aspartame or sucralose, had the inverse effect on the gut composition. Diets that were high in non-digestible carbohydrates like fiber and prebiotics were also associated with increased microbial diversity in the gut. Finally, high consumption of foods high in probiotics, such as cultured dairy, increased microbial diversity in the gut and the composition of “good” gut bacteria.

While there is extensive research on gut health, the conclusions reached in these studies rarely become wide-

A common claim made by gut-health influencers is that certain inflammatory foods have a high likelihood of causing “leaky gut syndrome.” This condition has not been widely studied; however, it is thought to be caused by gut permeability. In other words, the gut absorbs more nutrients and water, some of which may be toxic and trigger an inflammatory response. This condition may be linked to inflammatory diseases such as Celiac Disease and IBD. For those who are suspected of having “leaky gut syndrome,” doctors suggest a balanced diet high in prebiotics, probiotics, and low in fat and sugar. While there is extensive research on gut health, the conclusions reached in these studies rarely become wide-spread on social media. The same can be said of other reputable scientific or medical research conclusions. Social media’s prevalence has made platforms like Instagram, YouTube, or TikTok breeding grounds for health misinformation. During the COVID-19 pandemic, wide-spread vaccine misinformation led to policies restricting content about the virus that contradicted public health officials’ claims. However, these policies cannot prevent other health and wellness misinformation from spreading. In the Spring of 2022, gut health seemed to have exploded in popularity on popular social media platforms. Some content was educational and was provided by medical or health professionals. For example, Dr. Meghan Rossi, known as @theguthealthdoctor on Instagram, posted content that rejected popular gut health “trends” in favor of science-backed facts and advice. She regularly avoided demonizing whole food groups and instead encouraged her followers to adopt a balanced and non-restrictive approach to eating for optimal health. However, other accounts began advising followers to

make drastic changes to their diets in the name of gut health.

One such creator is a concierge medical doctor named Dr. Kelly Ann Petrucci, whose business focuses on improving gut health

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and overall wellness in her patients. Her Instagram and Tik Tok feature easily accessible content promoting whole nutrient-dense foods, particularly bone broth, as the key to healing one’s gut. She has promoted a five-day “gut detox” regimen on her blog that intends “to cleanse and reset your kidneys, liver, lungs, and skin.” On a similar note, Gwenyth Paltrow’s health and wellness brand Goop sells a “Gut Microbiome Superpowder”. This supplement is marketed as a probiotic supplement that promotes a healthy gut and reduces bloating. However, these claims, and similar claims by other brands selling supplements, have not been verified by the Food and Drug Administration (FDA). “Cleanses” or “detoxes” like these can be extremely dangerous for one’s health. Products not approved by the FDA may be marketed under misleading claims and could contain potentially harmful ingredients. Many influencer programs also promote severe food restriction, which can result in nutrient deficiencies and electrolyte imbalances. Finally, these claims of a product or food “detoxing” your body are just plain wrong. Our liver, kidneys, lungs, and colon are capable of flushing out harmful toxins without spending a cent on supplements.

The primary issue with these brands and this content is how marketers can so easily skew science to serve their company’s best interest. One study found that articles focused on the gut microbiome tended to discuss the topic in a non-research-focused manner. Most information given about the microbiome was anecdotal or vast generalizations of research. Another study that looked specifically at gut health content on YouTube found that videos that received the highest engagement were often not from trusted sources such as medical professionals or educational institutions. Instead, successful content came from independent creators who tended to use misinterpreted or generalized research to back up their claims. With so much misinformation on gut health and nutrition in general on the internet, it is crucial to know how to decipher between trustworthy and untrustworthy sources. The Association for Nutrition provides tips for avoiding falling prey to nutrition misinformation. They recommend checking out the source’s credibility. This includes investigating if the source has been formally educated on the topic or has enough experience or research to make their claim. They also share that reputable healthcare providers will not sell products or supplements for quick fixes.

Gut health is a tricky and confusing topic. There is so much information available that it can feel easy to listen to whoever is talking the loudest. However, on matters that affect your long-term health, reputable healthcare providers are the most trusted source for how to best take care of yourself and the happy little residents of your gut!

