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The Functional Microbiome—A New Series Begins!

The gut microbiome—a term used to describe the collective microbial community within the gastrointestinal system—has become a widely popular topic, both within the medical community and among the lay public. This interest has been fueled by efforts like the Human Microbiome Project, as well as an increasing awareness of the many ways in which the microbiome appears to influence systemic health. This issue begins a four-part series that will explore the topic through the eyes of various clinicians and researchers. Within the functional medicine community, the significance of the gut—and the organisms that reside there—has long been a core principle in evaluating the root causes of many chronic conditions. In this series, Dr. Bland will speak to both pioneers and new voices in this very important field of study.

Clinician/Researcher of the Month

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Dr. Gerard Mullin is a successful gastroenterologist and a longtime functional medicine practitioner. In June he released his latest book, *The Gut Balance Revolution*, in which Dr. Mullin explores the current research about how the gut microbiota influence metabolism, appetite, energy, hormones, inflammation, and insulin resistance.

Dr. Bland and Dr. Mullin begin their discussion with a focus on some of the early research on the GI tract and the gut bacteria, some of which was targeted on pancreatic insufficiency. This research began in the 1970s—the era when both Dr. Bland and Dr. Mullin began their careers—and laid the foundation for identifying some of the functional biomarkers that are used in clinical practice today.

One early misconception in the field of gastroenterology was the belief that all proteins are completely digested. Today it is more clearly understood that incompletely digested proteins may play a role in immune reactivity to various foods. Dr. Mullin explains this is a key understanding, and—as he and Dr. Bland discuss—has led to greater acceptance of the leaky gut concept within the medical profession. There is now widespread active research into many conditions that may be a result of compromised barrier integrity, including endotoxemia.

Just as leaky gut took many years to gain attention and credence, the microbiome, which was once given only limited consideration, has now exploded as a popular topic of research, debate, and discussion. Dr. Bland and Dr. Mullin discuss the groundbreaking role of Dr. Michael Gershon's work in the 1990s, which really led to a new field called neurogastroenterology following the publication of his book *The Second Brain.*

Dr. Bland and Dr. Mullin turn their attention to current research on the microbiome. In addition to its connection to neurology, the microbiome has also been found to play a role in many chronic conditions, including obesity, non-alcoholic steatohepatitis (NASH), type 2 diabetes, myocellular lipotoxicity, and muscle-related problems associated with metabolic sarcopenia. The amount of biodiversity within the microbiome is now a central area of focus and study. It is a balance that is directly affected by diet, and Dr. Mullin discusses how biodiversity testing may become a standard dataset in clinical practice within a few years. He also describes the clinical approaches he uses with his own patients and the recommendations he makes for the general public in his new book. REF #1-9

Issue Summary

Dr. Bland closes the issue by summarizing and synthesizing the timeline of research that has moved the field of gastroenterology forward over the last several decades. He pays special tribute to Dr. Candace Pert and her book *Molecules of Emotion*, which he feels made a tremendous contribution in furthering the understanding of the gut-brain connection. He reviews the development and application of his own gastrointestinal restoration program, the 4R approach: Remove, Replace, Reinoculate, and Repair. Finally, Dr. Bland suggests how he believes the field of gastroenterology will continue to evolve in in this era of genomic analysis and personalized medicine. REF #10

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