

Integrative Medicine Expert Reveals Links Between Gut Health, Immunity and Wellness

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January 12, 2025

STORY AT-A-GLANCE

- › Your microbiome plays an important role in training your immune system, with gut dysfunction and increased permeability often leading to autoimmune diseases and inflammation
- › A healthy colon requires an oxygen-free environment for beneficial bacteria, but environmental toxins and compromised mitochondrial function disrupt this delicate balance
- › Modern environmental toxins, including microplastics and EMFs, act as mitochondrial poisons, increasing oxygen in the colon and promoting growth of harmful bacteria
- › Health coaching is a key component of sustainable wellness, providing necessary support and accountability while helping patients implement lasting lifestyle changes
- › The collaboration between medical professionals, researchers and health coaches will be key in fostering a health care system that prioritizes holistic, patient-centered care

Understanding the intricate connections between your immune system, gut health and overall well-being is a key part of reaching optimal health. Recently, I had the privilege of interviewing Dr. Heather Moday, founder of The Moday Center based in Virginia, who has seamlessly integrated functional and integrative medicine into her practice.

Our conversation focused on significant shifts in medical practice, the critical role of the microbiome and the indispensable value of health coaching in achieving lasting health

outcomes.

A Journey from Conventional to Integrative Medicine

Dr. Moday's medical journey is a testament to the profound impact that integrative and functional medicine have on patient care. Beginning her career with a solid foundation in internal medicine, she pursued a fellowship in allergy and immunology, spending a decade in private practice addressing allergies, chronic asthma and immune deficiencies.

"I felt that I wasn't using really all that I had learned, and there was a lot more to learn. It was not holistic enough for me," Moday shared.¹ This sentiment drove her to search for a more comprehensive understanding of health via an integrative medicine fellowship with Dr. Andrew Weil in Arizona and subsequent certification in functional medicine in 2014.

This pivotal transition allowed Moday to expand her focus beyond conventional immunology, embracing a holistic framework that considers nutrition, behavior and environmental factors as components of health. By bridging these disciplines, she now addresses chronic medical issues with a more nuanced and effective approach.

Your Microbiome Is the Heartbeat of Your Immune System

The microbiome — the vast ecosystem of microbes residing primarily in your colon — was a primary focus of our discussion. Moday explained how these trillions of microorganisms are not merely passive inhabitants but active participants in training your immune system and maintaining overall health. "[The microbiome] literally trains our immune system, but it also informs and acts as a go-between," she said.²

These microbes foster a balanced immune response, preventing conditions like chronic inflammation, autoimmune disorders and metabolic diseases such as diabetes and obesity. We also discussed leaky gut, a condition where the epithelial lining of your digestive tract becomes permeable.

This increased permeability allows unwanted substances like endotoxins (lipopolysaccharides, or LPS) and food antigens to enter your bloodstream, triggering immune responses that lead to **autoimmune diseases**. In fact, in most cases you cannot have an autoimmune disease unless you have some type of gut dysfunction.

Maintaining the integrity of your gut barrier is paramount, but factors such as stress, poor nutrition, environmental toxins and certain medications often compromise this barrier, leading to systemic inflammation and immune dysregulation.

Your Gut's Hidden Heroes Will Help You Reclaim Your Vitality

Your colon maintains a controlled oxygen gradient that is crucial for the growth of oxygen-intolerant bacteria. It's like having different climate zones within your gut, each supporting specific types of bacterial life. This gradient isn't static; it requires a constant supply of cellular energy to maintain.

If that energy supply falters, oxygen can seep in, killing off your beneficial bacteria. As beneficial bacteria dwindle in numbers, more harmful, oxygen-tolerant species gain ground. This imbalance then sets the stage for a range of other health issues.

Maintaining this oxygen gradient is one of the most important, yet often overlooked, aspects of gut health. It's not just about what you eat, but about creating the right environment for your beneficial bacteria to thrive. This is where the importance of cellular energy production comes into play. Without it, the entire system can collapse.

And what do we have to thank for maintaining this system? Some of the hardest-working cells in your body: colonocytes and goblet cells. Colonocytes line your colon walls, performing many vital functions. They're like the bouncers at an exclusive club, deciding what gets in and what stays out. They also play a crucial role in maintaining that all-important oxygen gradient.

Goblet cells, on the other hand, are the maintenance crew. They secrete a mucus that acts as a protective coating, shielding your gut lining from harmful substances and pathogens. Colonocytes and goblet cells form a strong defense for your gut.

The health of these cells is directly linked to your overall gut health and, by extension, your general well-being. When they work well, they help build a strong gut barrier, absorb nutrients, and balance the microbiome. But when compromised, it can lead to many digestive and systemic health issues.



This illustration depicts the delicate balance of gut microbiota and its impact on health. On the left, “Eubiosis” shows a healthy gut environment with beneficial bacteria, strong barrier integrity, and positive metabolic outcomes. On the right, “Dysbiosis” demonstrates how factors like antibiotics and an inappropriate diet can disrupt this balance, leading to inflammation and compromised gut health.

Probiotic consumption and diet can cause dramatic shifts in microbial abundance, influencing everything from mucus-layer thickness to insulin tolerance and metabolic profile.

Mitochondrial Function and Its Role in Gut Health

Mitochondria, often referred to as the powerhouses of the cell, are integral to energy production. In your colon, colonocytes – the epithelial cells lining your colon – rely heavily on mitochondrial energy to perform fatty acid oxidation.

Interestingly, mitochondria themselves are believed to have originated from primordial bacteria through an evolutionary process known as endosymbiosis. While mitochondria are present in colonocytes, bacteria within your gut microbiome do not possess

mitochondria and instead survive on glycolysis. This symbiotic relationship underscores the intricate connections between your cellular biology and microbial inhabitants.

However, despite your colon's naturally low-oxygen environment, modern-day exposure to environmental toxins threatens to disrupt this balance. We're all exposed to a soup of environmental toxins, including microplastics, vegetable oils rich in [linoleic acid](#) and electromagnetic fields (EMFs). These toxins act as mitochondrial poisons, impairing the energy production necessary for maintaining your colon's oxygen-free state.

When mitochondria are compromised, colonocytes cannot effectively consume the limited oxygen, leading to an increase in oxygen within your colon. This shift creates an environment conducive to the growth of facultative anaerobes — oxygen-tolerant bacteria that are often pathogenic.

When your mitochondria don't have enough energy, the colonocytes tend to not thrive, and the oxygen in your colon progressively increases. This leads to a decrease in beneficial bacteria and their replacement by pathogenic bacteria.

Endotoxins, specifically LPS, are another factor in this equation, and there's a significant difference between endotoxins produced by obligate anaerobes and those from facultative anaerobes. The endotoxin from obligate anaerobes is much less pernicious and doesn't kill you prematurely, but the facultative ones do.

Pathogenic facultative anaerobes produce more harmful LPS, which triggers chronic inflammation and contributes to various health disorders, including autoimmune diseases and metabolic syndrome.

Challenges in Recolonizing Your Gut with Beneficial Bacteria

Replenishing your gut with beneficial bacteria like Akkermansia presents significant challenges, as there is virtually no company that produces an Akkermansia product that reaches the colon effectively.

The primary obstacle lies in the fragility of these bacteria; they are highly sensitive to oxygen and require specialized protective capsules to survive the journey through the digestive tract. Currently available supplements often fail to deliver live bacteria to the colon, rendering them ineffective for recolonization purposes.

I'm actively funding research to identify and cultivate new species of obligate anaerobes that produce beneficial metabolites in the microbiome. We've identified dozens of species that are most likely, based on genomic analysis, to produce beneficial metabolites in the microbiome. This ongoing research holds promise for expanding the repertoire of effective probiotics that support a healthy gut environment.

Insulin Resistance, Oxidative Stress and Metabolic Health

Insulin resistance is a widespread issue, often serving as a precursor to more severe metabolic conditions. During our discussion, I introduced the Homeostatic Model Assessment of Insulin Resistance (HOMA-IR), a simple yet highly effective tool for assessing insulin sensitivity.

HOMA-IR involves measuring fasting blood glucose and insulin levels to provide a reliable indicator of insulin resistance. This method is both cost-effective and accessible, making it a valuable tool for early detection and intervention. Moday concurred, acknowledging its utility in her practice and emphasizing that most individuals exhibit some degree of insulin resistance.

Oxidative stress, driven by an imbalance between free radicals and antioxidants, is another factor in cellular damage and disease progression. Our conversation highlighted the nuanced relationship between oxidative and reductive stress, particularly in the context of mitochondrial health.

Free radicals, such as superoxide and hydroxyl radicals, are highly reactive molecules that damage cellular components. Antioxidants neutralize these free radicals, preventing oxidative stress. However, I emphasized that in many cases, free radicals are

generated from **reductive stress**, where an excess of electrons leads to the formation of harmful reactive oxygen species (ROS).

Addressing environmental toxin exposure is a multifaceted endeavor. Moday recommended simple, actionable steps such as avoiding plastic containers, opting for stainless steel or glass alternatives, and minimizing the use of processed foods laden with additives and preservatives.

"You can start with something as simple as not drinking your coffee out of a traditional plastic Styrofoam cup ... you can buy a very cheap stainless steel coffee mug and water bottle, and you can drink out of those," she advised.³ These small changes, when implemented consistently, significantly reduce your body's toxin burden and support overall health.

Health Coaching Provides an Essential Support System for Lasting Change

We also discussed the role of health coaching in facilitating sustainable health improvements. Moday shared her experiences and underscored the importance of personalized support in achieving behavioral and lifestyle changes.

While proper health care and nutritional guidance are vital, without addressing sleep, stress, and overall lifestyle, patients often struggle to achieve meaningful results. Health coaches provide the necessary support, accountability and personalized strategies to help individuals navigate these changes effectively.

Moday believes health coaching should be integrated into a comprehensive health care approach. By collaborating with health coaches, patients receive a holistic support system that addresses both physical and emotional aspects of health. This collaborative model enhances patient outcomes and fosters long-term well-being.

We're developing an innovative solution to address this very challenge – the Mercola Health Coach app. Like Dr. Moday, we recognize the critical need for practical support in

implementing life-changing health practices.

This revolutionary tool will provide the guidance and support needed to help people successfully adopt important biological optimization strategies that often feel overwhelming or complex. Our goal is to make these vital health transformations more accessible and achievable for everyone. If you're interested and being put on the wait list for this app you can [click this link](#).

The Epidemic of Allergies – Lessons from Peanut Allergy Trends

Our interview also touched on the alarming rise in food allergies, particularly peanut allergies, and the factors contributing to this trend. The hygiene hypothesis suggests that reduced exposure to microbes in early childhood leads to an underdeveloped immune system, increasing susceptibility to allergies and autoimmune diseases.

Moday expanded on this by introducing the "Good Friends Hypothesis," which emphasizes the importance of maintaining a diverse and beneficial microbiome through appropriate microbial exposure. "In the '90s, someone came up with the idea that children should not be introduced to peanut antigens until they were 3 or 4 years old. But that was problematic," she said.⁴

By not exposing children to these allergens during critical developmental periods, we inadvertently heightened their immune sensitivity. Current research supports early introduction as a strategy to promote immune tolerance and reduce the risk of allergies.

A Holistic Path to Health

My interview with Moday reaffirmed the profound interconnectedness of our immune system, gut health and overall well-being. By embracing integrative and functional medicine, addressing environmental toxins and incorporating health coaching, we can overcome modern health challenges with greater efficacy and compassion.

The journey to optimal health is multifaceted and requires a commitment to continuous learning and adaptation. As we advance, the collaboration between medical professionals, researchers and health coaches will be key in fostering a health care system that prioritizes holistic, patient-centered care.

Together, by implementing these insights and strategies, we'll unlock the full potential of our bodies, enhance our resilience against chronic diseases and achieve a higher state of well-being. To learn more about Moday and her integrative approach to medicine, follow her on Instagram at [@doctormoday](#).

Sources and References

- ¹ Youtube, Dr. Mercola, Revealing Links Between Gut Health, Immunity and Wellness – Interview with Dr. Heather Moday, 1:03
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