The Gut Microbiome & Omegas:

Together in Health

AQUA™
BIOME

There are now a trillion more reasons to trust your gut.

Revolutionary science has revealed profound insights about the human microbiome—the more than 100 trillion microbial cells that live in symbiosis inside or on our bodies. Recent studies suggest that the microbiome is a key to our total body wellness. The gut microbiome impacts our metabolism, our immune health, and our entire physiology. From how we metabolize food to how we feel, and how we look—our microbiome influences everything.

If the gut microbiome is the foundation of wellness, then omegas are the bricks. Antibiotics, poor diet, and other health conditions can disrupt and negatively impact our gut microbiome. Probiotics were long thought to be the lone go-to solution, but they are only part of a complex equation. Restoring the gut requires more than supplementing with good bacteria. One of the keys to keeping our microbiome healthy and balanced is found in long-chain omega-3 fatty acids: specifically, DHA, EPA and DPA.*

What is the gut microbiome?

The gut microbiome refers specifically to the genetic material within the microbes that we harbor in our gastrointestinal system. Our wellbeing is not just influenced by our DNA, but by the DNA of the trillions of microbial cells living in our gastrointestinal system. A healthy, balanced gut microbiome keeps us well by positively affecting our entire physiology.

In 2007, the National Institutes of Health (NIH) launched the Human Microbiome Project. So far, this project has taught us:

- The human microbiome plays a key role in not just the health of the gastrointestinal system but affects virtually every system in the body.
- Antibiotics significantly impact the microbiome.
- The efficacy of probiotics is inconsistent and, even when effective, cannot restore microbiome balance.
- The health benefits of a Mediterranean Diet are related to the positive influence of increased omega consumption on the microbiome.

Omegas & The Gut

One of the key factors associated with a healthy intestinal microbiome is diversity. One of the greatest influencers of microbial diversity is the long-chain omega-3 fatty acid DHA.*

Higher levels of DHA are associated with boosting the Lachnospiraceae family of bacteria in the gut.* These bacteria are quite important for gut health as they transform dietary fiber into short-chain fatty acids (SCFAs). These compounds, especially butyrate, have been shown to exert multiple beneficial effects and are the main energy source for the cells that line the colon.*

Furthermore, higher butyrate production has been linked to benefits in weight loss, colon health, and brain function.*

One of the most beneficial organisms in a healthy microbiome and another superstar microbe boosted by DHA and EPA is Akkermansia muciniphila.* This bacteria plays a critical role in the health of the mucin layer that protects and maintains proper structure of the intestinal lining.* Higher levels of Akkermansia muciniphila are associated with improved barrier function and reduced intestinal permeability.*

Protect the Gut

The microbiome is the primary barrier to protect the lining of the intestinal tract. Because this lining is so thin—only a single cell in thickness—it is prone to tearing. DHA helps by promoting the formation of compounds that reduce oxidative stress in the gut, helping to preserve the integrity of the intestinal lining under stress and prevent intestinal permeability.*

Digestion

Just because two people eat the same salad doesn't mean they absorb the same nutrients. The gut microbiome functions in many critical aspects of digestion, including aiding absorption of nutrients through the intestinal tract. With a balanced microbiome, we can get more out of the food we eat.

Immune Health

The most well-established link between our gut bacteria and its influence on our health is the impact the microbiome has on our immune system. One of the critical determinants of a microbiome that promotes improved immunity is one that is diverse. The microbiome plays a key role in making the intestinal environment inhospitable to overgrowth of certain microorganisms and therefore maintains the strength and normal function of our immune system.

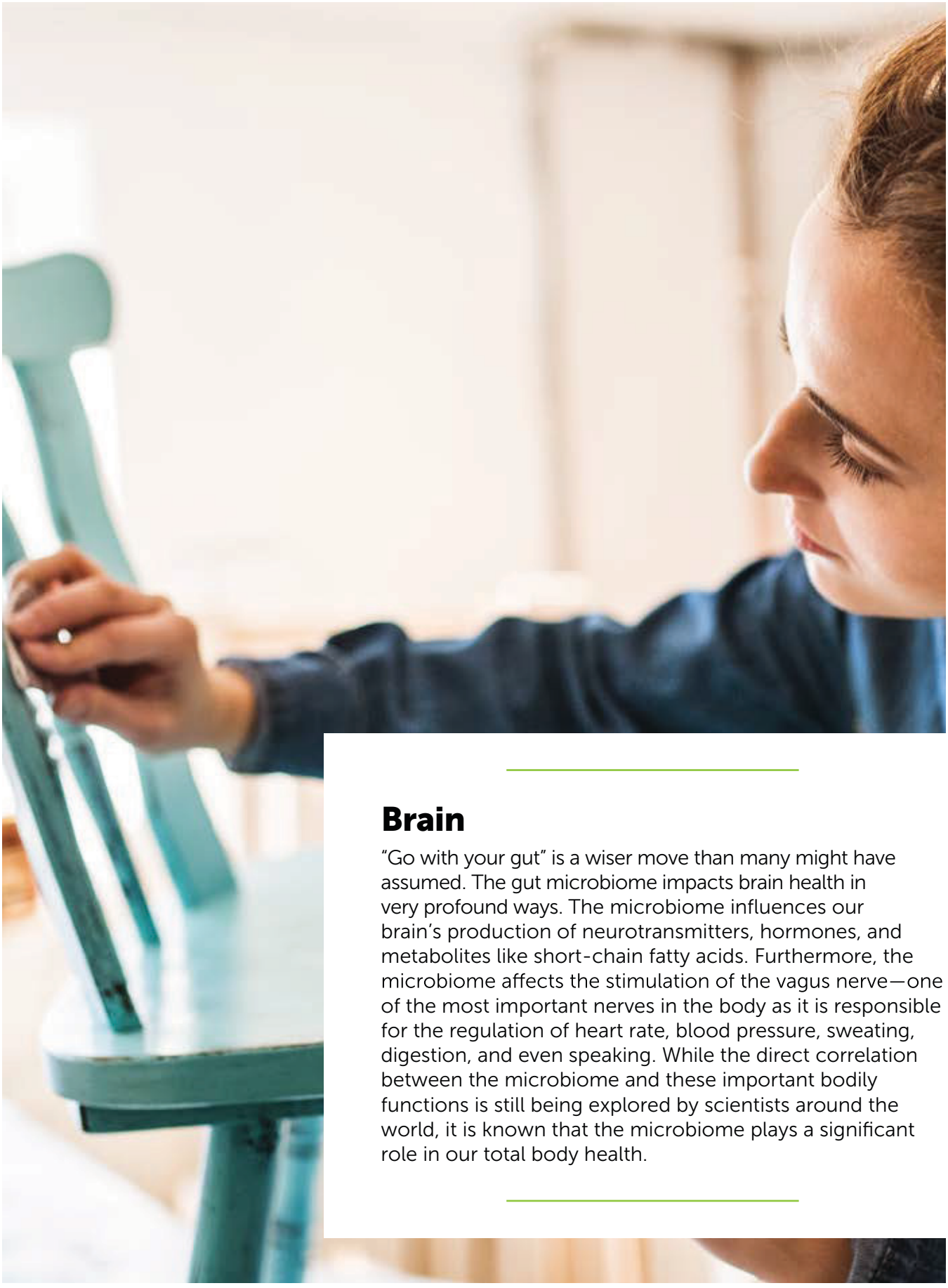
Energy

Feeling sluggish? In a recent study published in the journal Microbiome, researchers at Cornell University discovered individuals with low energy levels and fatigue have limited diversity in their microbiome. Like with immune health, a more complex microbiome may be associated with increased energy production and digestive efficiency.

Mood

Does bad news make your stomach turn? There's a reason. Our neurological functions are not siloed to the skull. The brain affects the body just as much as the body affects the brain.

The million-dollar "chicken or the egg" question remains: Does gut microbiota directly influence changes in the brain, or do changes in the brain influence the type of bacteria that reside in the gut? Also, how do various lifestyle, dietary, and environmental factors influence brain-gut-microbiota interactions in humans? The simple answer is we don't know yet. What we do know is that mental health wellbeing correlates with the diversity of the microbiome.



Brain

"Go with your gut" is a wiser move than many might have assumed. The gut microbiome impacts brain health in very profound ways. The microbiome influences our brain's production of neurotransmitters, hormones, and metabolites like short-chain fatty acids. Furthermore, the microbiome affects the stimulation of the vagus nerve—one of the most important nerves in the body as it is responsible for the regulation of heart rate, blood pressure, sweating, digestion, and even speaking. While the direct correlation between the microbiome and these important bodily functions is still being explored by scientists around the world, it is known that the microbiome plays a significant role in our total body health.

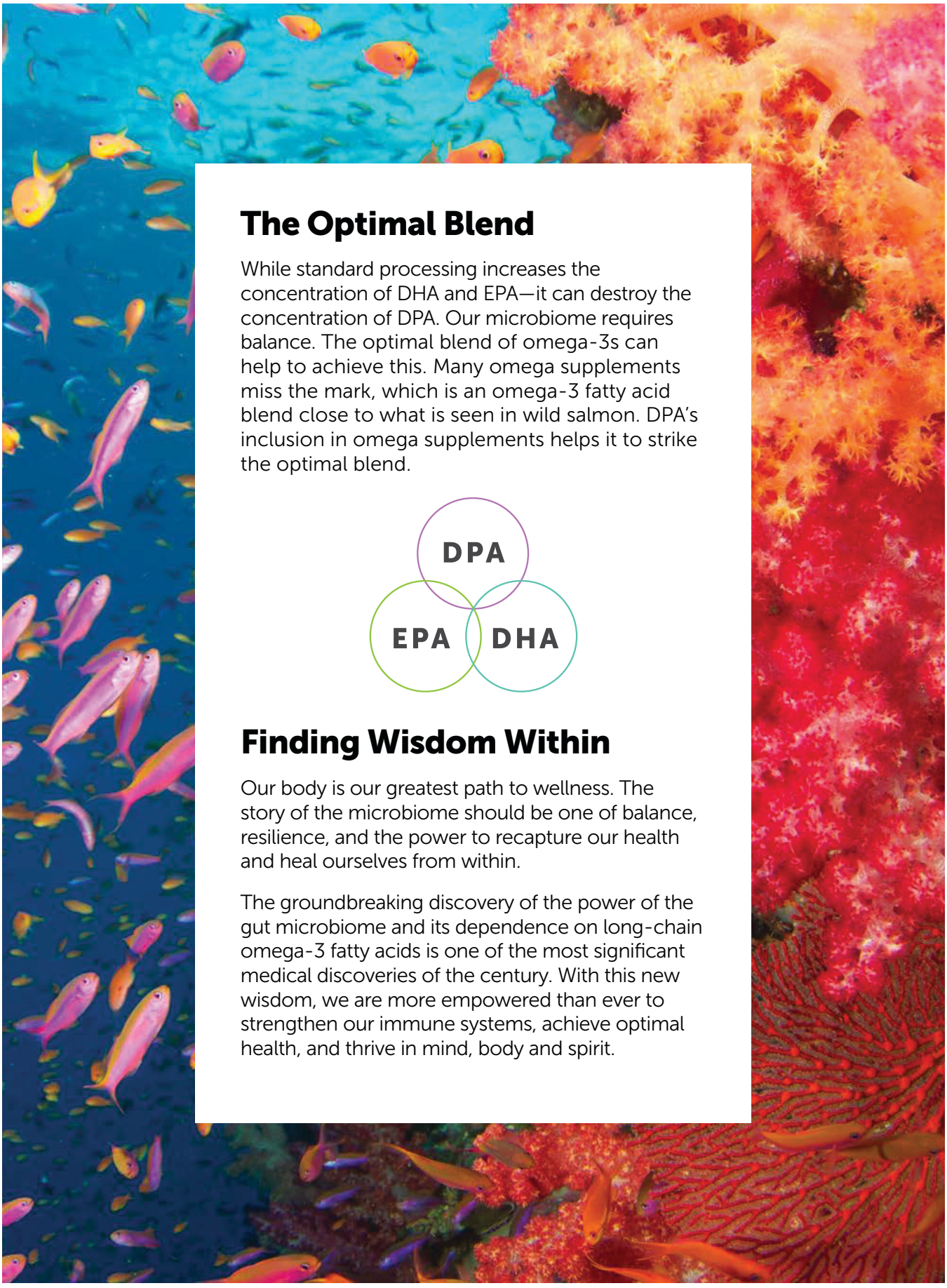
All Omegas Are Not Equal

The iceberg lettuce on a fast food hamburger and a bowl of organic micro-greens both constitute eating vegetables, but nobody would accept that they are equally nutritious. The same goes for omega supplements. Omegas are now added to all sorts of things from a carton of milk to a dozen eggs. Most omega supplements are derived from marine lipids, also known as fish oil. While fish oil supplementation isn't new, how we make supplements has evolved considerably. The popularity of omega-3 supplementation has driven the market to accept quick and cheap processing methods which can destroy much of what we need in a supplement. The efficacy of an omega is inexorably linked to its quality.

DPA – The Missing Omega

Every body is different. Our metabolism, our diets, our genetics—are all perfectly unique. Some people need more of the omega-3 EPA while others run low on DHA. The magic of DPA is that it can convert to either, ensuring our individual needs are met and our bodies get exactly what they need.

DPA is the dynamic reserve of the omegas. It fills in when and where our body needs it to keep our microbiome operating at peak efficiency.



The Optimal Blend

While standard processing increases the concentration of DHA and EPA—it can destroy the concentration of DPA. Our microbiome requires balance. The optimal blend of omega-3s can help to achieve this. Many omega supplements miss the mark, which is an omega-3 fatty acid blend close to what is seen in wild salmon. DPA's inclusion in omega supplements helps it to strike the optimal blend.

Finding Wisdom Within

Our body is our greatest path to wellness. The story of the microbiome should be one of balance, resilience, and the power to recapture our health and heal ourselves from within.

The groundbreaking discovery of the power of the gut microbiome and its dependence on long-chain omega-3 fatty acids is one of the most significant medical discoveries of the century. With this new wisdom, we are more empowered than ever to strengthen our immune systems, achieve optimal health, and thrive in mind, body and spirit.

References:

- Menni C, Zierer J, Pallister T, et al.. Sci Rep. 2017 Sep 11;7(1):11079.
- Costantini L, Molinari R, Farinon B, Merendino N. Int J Mol Sci. 2017 Dec 7;18(12).
- Tabbaa M, Golubic M, Roizen MF, Bernstein AM. 2013 Aug 19;5(8):3299-310.
- Caesar R, Tremaroli V, Kovatcheva-Datchary P, Cani PD, Bäckhed F. Cell Metab. 2015 Oct 6;22(4):658-68.
- Noriega,B, Sanchez-Gonzalez, M, Salyakina D, Coffman, J. Case Rep Med. 2016 Mar 14.

Additional References:

- Breit, Sigrid; Kupferberg, Aleksandra; Gerhard, Rogler; and Hasler, Gregor. Front Psychiatry. 2018; 9: 44. 2018 Mar 13.
- Shreiner, Andrew B.; Kao, John Y.; Young, Vincent B. Curr Opin Gastroenterol. 2015 January; 31(1): 69–75.
- Brody, Jane E. Unlocking the Secrets of the Microbiome. The New York Times. 2017, Nov 6;

AQUA™
BIOME

* These statements have not been evaluated by the Food and Drug Administration.
This product is not intended to diagnose, treat, cure or prevent any disease.

THE ENZYMEDICA® GROUP

Manufactured for Enzymedica®, Inc.
enzymedica.com