September 2018 - Mid-Month Bonus

Thank you for subscribing to Dr. Jeffrey Bland's newsletter. Enjoy and share this information, which is for educational purposes only. Always consult with a qualified healthcare professional when you are in need of medical advice, diagnosis, or treatment.

In this issue: The Vantage Point, New Video: Methylation, Research to Watch, Classic FMU

The Vantage Point: What's Been Happening in Dr. Bland's World?

Dr. Bland's passport has been getting a workout! To track his activities in real time and see all the photos from his travels consider following his Instagram page.

Hello Taipei!

How many Jeff Blands can you spot in these photos? Look closely! In late August, Dr. Bland was honored to return to Taiwan (a favorite destination!) to speak in front of a distinguished audience of medical professionals at a Metagenics-sponsored event. Many thanks to Claudia Wu and her team for planning and hosting a wonderful meeting. The mini Jeff Bland cut-outs added even more fun and energy.

Where in the world will Jeff Bland be next? Look for him at the 2018 Thought Leaders Consortium in Tucson, Arizona in October. He's the host and excitement is building!

Learn more: www.plminstitute.org

New Conference Preview Video: Methylation

Video is one of Dr. Bland's favorite communication tools. Be sure to subscribe to Dr. Bland's YouTube channel and the Personalized Lifestyle Medicine Institute's Vimeo page to never miss an update.

Video Link:
https://vimeo.com/289780023

More Information about the Sixth Annual Thought Leaders Consortium:
https://bit.ly/2NA0NFM

Methylation: Expert Perspectives

It's a topic that prompts questions, conversation, and even controversy. Watch this video to learn more about the methylation discussion that will take place at PLMI's Thought Leaders Consortium next month. Attendees at this conference will have the benefit of hearing from multiple leading experts about the current research and the impact this work has on clinical care.

Leading-edge science + world-renowned speakers + a beautiful and relaxing venue? Yes, please! Attendees from 13 countries have already registered. Act soon if you would like to join them in Tucson, Arizona October 12-13, 2018.

Research to Watch

Two Gut Bacteria Translate the Ketogenic Diet for Seizures

It's long been known that a high-fat, ketogenic diet reduces epileptic seizure frequency, though not why. Research led by Dr. Elaine Hsiao at the University of California found that, in an animal model, specific gut bacteria strongly linked to the ketogenic diet influence hippocampal balance between glutamate (usually excitatory) and γ-aminobutyric acid (GABA; generally calming). The two species (*Akkermansia muciniphila* and *Parabacteroides*) inhibit glutamate-related enzyme activity, effectively increasing the GABA/glutamate ratio, pushing it away from seizure threshold and reducing occurrence of seizures. Both of the species showed this protective effect regardless of whether the animals received them through inoculation, microbiome transplantation, or diet-induced changes in microbiome composition. *A. muciniphila* has previously been associated with lower body weight, greater insulin sensitivity and success in weight loss, consumption of fish oil, and gut endocannabinoid levels, while some *Parabacteroides* species may relate to attenuation of intestinal inflammation. It seems that the gut has much to say about brain stimulation—though diet may set the parameters of this conversation.
https://www.cell.com/cell/fulltext/S0092-8674(18)30520-8

Can You Tell Your Own Body Clock Time?

Is greater body mass due solely to increased caloric intake and sedentariness? Is calorie king or does it sometimes take off its crown? In this Food for Thought video, Dr. Jeffrey Bland explains that, like the moon and the tides, humans are cyclical, and our innate rhythms significantly affect our individual energy metabolism. He shares new evidence from the American Journal of Clinical Nutrition showing how evening eating can clash with one's genetically-determined sleep/wake cycles (according to salivary melatonin level) to increase body fat deposition and weight—an effect

completely independent of physical activity and quantity or quality of food eaten during one's evening cycle. Humans throughout history have gone through times of famine and of feast, and the experience of fasting—whether voluntary or not—provides the body the opportunity to perform vital cellular housekeeping functions. This well-designed study emphasizes that being aware of our unique, individual chronobiology and synchronizing our lifestyle inputs with it is an important means of optimizing body composition and long-term metabolic health.
Video: https://vimeo.com/271719370
Article: https://bit.ly/2OyWL08

From the Functional Medicine Update Audio Archive

Cellular Oxygen Brokers: Mitochondria

An interview with:
Mark Tarnopolsky, MD, PhD

January 2011

Which single behavioral change best improves mitochondrial function? Are there ways to encourage "clean" energy production at a cellular level? What are the cardinal signs of mitochondrial aging and dysfunction, and what can blood, urine, and muscle biopsy show? In this classic FMU discussion with mitochondria expert Mark Tarnopolsky, MD, PhD, we learn that early in our cellular evolution (probably around 1.5 billion years ago, at a proto-eukaryotic stage), we made the single greatest deal in human history, "merging" with what was probably a photosynthetic bacterium, which allowed much more efficient conversion of oxygen into energy in an environment of increasing oxygen concentration—a modification that later on enabled mental as well as muscular feats not otherwise possible. Though mitochondrial DNA is quite distinct from human DNA, genes coding for around 1500 mitochondrial proteins now reside in human DNA, so mutations in human as well as mitochondrial DNA can impact their function. Through appreciating the primary and backup metabolic pathways through which these adopted organelles produce energy as well as pro-oxidants, we gain knowledge of how to formulate individualized nutrient "cocktails" to optimize the dynamic balance between them.

Classic FMU Top Ten Clinical Pearls
Mark Tarnopolsky, MD, PhD, McMaster University

1. #1 mitochondrial tonic: regular gentle strength and aerobic endurance challenge, which exercises creation of clean cellular energy and boosts antioxidant enzyme capacity to counter oxidative stress.
2. Mitochondria establish cellular energy and redox potential and influence insulin sensitivity; mitochondrial redox status relies on Nrf2, a master regulator of antioxidant enzyme expression.
3. Some reactive species are hormetic signaling molecules for physiological adaptation but can harm if production exceeds antioxidant capacity.
4. Hard-working tissues are most vulnerable to mitochondrial aging/dysfunction: neurons, heart and skeletal muscle, and lungs; signs can include forgetfulness, cognitive decline, depression, less muscle mass/strength, lower peak aerobic capacity, muscle pain, and fibromyalgia.
5. Mitochondrial DNA is circular and, unlike human DNA, contains few regulatory regions, making it more susceptible to damage; mitochondrial poisons include excitotoxins, endotoxins, ionizing radiation, mutagens, some drugs (especially antibiotics), and pesticides.
6. Nutrients that improve mitochondrial energy/pro-oxidant production balance include lipoic acid, N-acetylcysteine, coQ10, vitamin E, creatine, acetylcarnitine, resveratrol, succinate, and omega-3 fatty acids.
7. Food "reducing equivalents" (a measure of redox potential) drive energy production through complexes I through V, but how antioxidants interact in the body is

more relevant than ORAC scores.
8. Up to 10 percent of autistic kids may have mitochondrial disorders—but among kids with mitochondrial disorders, many will have autistic features.
9. Muscular activity exerts systemic effects through its influence on PGC1α (PPARγ coactivator 1α)—the focal point in generating new mitochondria.
10. Health conditions recognized as having mitochondrial origins will increase; lactate is #1 indicator, others include increased alanine, creatine kinase, and urinary 3-methylglutaconic acid levels.

Interview Link:
http://jeffreybland.com/knowledgebase/january-2011-issue-mark-tarnopolsky-md-phd-mcmaster-university/

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