CONVERGENCE

News, Links, and Insights
by JEFFREY BLAND, PHD

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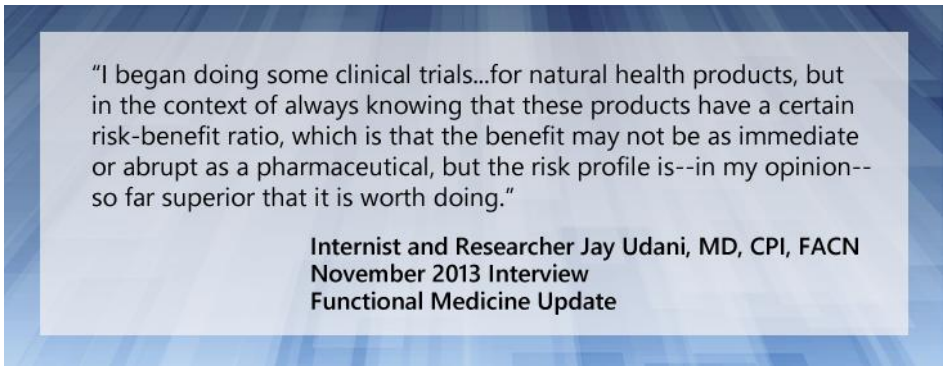
Thank you for subscribing to Dr. Jeffrey Bland's newsletter. Enjoy and share this information, which is for educational purposes only and is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Always consult with a qualified healthcare professional when you are in need of advice regarding a medical condition.

In this issue: Foods that Signal Satisfaction to the Brain; A Powerful New Alliance to Advance Precision Public Health (video blog); The Brain is Happy to Switch Energy Gears--If Asked; SNiPpets: Gluten-Related SNPs and Dietary Fat Intake; Can Botanicals Pass Trials Designed for Drugs?

But first, a quote from the FMU Knowledgebase!



Find a link to the November 2013 issue of Functional Medicine Update at the end of this newsletter, and learn more about how to explore Dr. Bland's extraordinary audio archive.

Foods that Signal Satisfaction to the Brain

It is interesting to consider that oral glucose increases insulin levels more than does glucose delivered directly to the bloodstream—and it's because of two intestinal peptide hormones that strongly stimulate insulin release. GIP (glucose-dependent insulinotropic polypeptide) is

secreted by mucosal cells in the duodenum and jejunum while GLP-1 (glucagon-like peptide-1) is made throughout the intestines. Besides being released after ingestion of saccharides, these peptides are also produced in response to fats and, to a lesser extent, proteins. Though GIP contributes more to the immediate insulin response, GLP-1 additionally appears to slow gastric emptying, reducing postprandial glucose excursions. At higher levels, GLP-1 signals receptors in the hypothalamus to stop eating, reducing appetite and food intake and thereby aiding weight loss. GIP, on the other hand, shows such peripheral effects as encouraging bone formation, fat storage, and weight gain.

Foods shown to increase intestinal and circulating levels of GLP-1 include oligofructose, resistant starch, olive oil, alpha-linolenic acid, high-fiber cereal, pistachios, and barley bread. Fatty acid metabolites of these foods cooperate with G protein-coupled receptors (GPCRs), including GPR41 and GPR43, to stimulate intestinal release of GLP-1; in fact, these GPCR interactions are thought to be an important way olive oil helps deliver the improved glucose and insulin dynamics seen with the Mediterranean diet.

Dr. Bland's Latest Video Blog

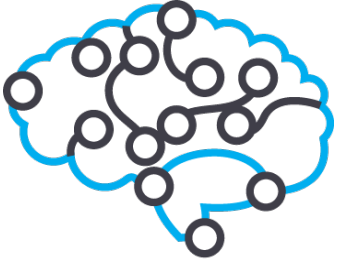
A Powerful New Alliance to Advance Precision Public Health

The health of the planet begins with the health of the individual. This is a concept that is important to Dr. Jeff Bland and underlies his advocacy for healthcare transformation. An announcement made this week about the start of a new collaboration between two powerful global health organizations—the World Health Organization and the Institute for Health Metrics and Evaluation—has Dr. Bland very excited about the future. Watch his latest video blog to learn more.

Video is one of Dr. Bland's favorite communication tools. Subscribe to his YouTube channel to never miss an update, and also find many additional videos on the Personalized Lifestyle Medicine Institute Vimeo page.

The Brain is Happy to Switch Energy Gears -- If Asked

Much recent research on exercise and intermittent fasting is aimed at cognitive function, and for good reason: the brain consumes a disproportionately large share of oxygen and energy and yet its specialized structure devotes less space to protective functions than other body tissues. These



metabolic limitations have a great deal to do with cognitive aging and the brain plasticity-restoring possibilities of energy restriction and physical activity.

The body on the whole, as well as each cell, tissue, and organ, must remain alert for all indications regarding current energy conditions, immediate and near-future energy needs, and long-term energy reserves, and systems relating to energy storage remain in close communication with those for usage and transformation. When more than enough food energy is received, mechanisms for building tissues predominate to the exclusion of those for offloading energy and cleaning up afterwards. When stored energy is brought out for use, crucial protective and housekeeping systems are activated to sweep out damaged cells and cell components, repair nuclear and mitochondrial DNA damage, and upregulate the function of defensive enzymes. In past human history, this energy currency switching occurred normally as a consequence of regular breaks in the food supply, but in modern times, it usually requires a more conscious change in behavior.

Intermittent fasting is one way of providing a metabolic pause to activate tissue cleansing systems. While extended energy restriction calls forth a wider variety of cellular programs and deeper tissue rejuvenation, periods of less than a day can also trigger them, especially if performed at least semi-regularly. In the central nervous system, results of these actions include creation of new neurons, improving mitochondrial efficiency, downsizing proinflammatory signaling, producing growth factors that aid survival of neurons, manufacture of housekeeping proteins that prevent potentially toxic misfolding of peptides, and elaboration of enzymes and regulatory proteins that limit oxidative, nitrosative, and excitotoxic stress.

Vigorous exercise can also complement energy restriction in strengthening neuronal and mitochondrial protection from stress, aging, toxins, and injury; both switch bodily metabolism from glucose or glycogen sources to ketones released from fat stores, and this changeover may be the key event in reducing toxic stress in the central nervous system and engaging brain cell repair. For these reasons, inducing ketosis may provide therapeutic benefit in Alzheimer's and Parkinson's diseases.

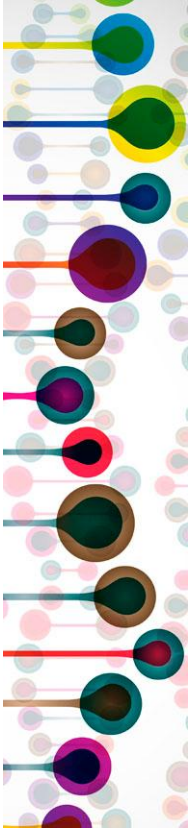
In this FMU interview with Dr. Bland, Terry Wahls, MD, MBA, FACP describes her journey from receiving a life-changing diagnosis to creating a lifestyle program for resuscitating mitochondrial and neurological function in those with autoimmune conditions.

SNiPpets

How significant to health are certain single nucleotide polymorphisms, also known as SNPs? SNiPpets is an ongoing exploration of this topic. This column is produced by Jeffrey Bland, PhD and the Personalized Lifestyle Medicine Institute.

With these Gluten-Related SNPs, Take a Hard Look at Fat

Genetic markers for gluten intolerance are found in around 30 percent of the general population—even those without celiac disease. The results of a recent genome-wide association survey provide a partial answer for how this is possible, identifying a total of 42 gene variant SNPs for an immune-related gene (Ccr2 receptor) that may influence the appearance of gluten sensitivity symptoms like 'brain fog' and abdominal pain. For reference, this gene is located on human chromosome 3 at the 3p21.31 locus.



Expression of this gene is affected by dietary fat intake, and gluten-free diets are not infrequently accompanied by higher fat and lower nutrient intakes, which can further complicate this issue. However, a lactobacillus strain (*Lactobacillus gasseri* SBT2055) has been found to reduce expression of this gene as well as other mediators of inflammation in animals given a high-fat diet. These findings suggest that in those with these SNPs, careful assessment of fat and other nutrient intakes and considering probiotics could potentially make a difference in whether or not one manifests sensitivity for gluten. Please keep in mind that those who may have celiac disease should consult with a health care practitioner.

Can Botanicals Pass Trials Designed for Drugs?

Double-blind, randomized, placebo-controlled trials are designed to test singular hypotheses involving substances that are pure and stable enough to unambiguously distinguish their mechanisms of action. Botanical supplements and medicines are derived from extremely complex natural combinations of hundreds of individual constituents that are biologically dynamic and show wide-ranging effects. So why is it that when a botanical ingredient doesn't "pass" a trial designed for substances having a simpler makeup, some think that proves a lack of efficacy?

In this video, Dr. Bland shares a different point of view: that natural medicines give individualized results that won't always surface in trials. He explains that demonstrating efficacy in drug trials requires high dosage levels of natural products, whereas the singularity of drug molecules enables them to show results at lower dosages—giving drugs the edge in "proving" efficacy in such investigations. At present, then, the most reliable "trial" for natural medicines is the N=1 experiment carried out by each person using them to help treat acute and chronic health conditions.

Clinical trials of natural medicines not infrequently find that they cause fewer side effects than legend drug treatments. Another advantage of natural medicines is that the variety of their constituents can simultaneously influence biochemical pathways of absorption, metabolism, and excretion, for greater treatment benefit. Yet clinical trials designed to investigate merely single hypotheses cannot unveil such results. As one example, passionflower is popularly used for easing anxiety, facilitating sleep, calming children, and soothing digestive discomfort. It contains a wide variety of flavonoids, alkaloids, amino acids, sterols, vitamins, and other phytonutrients, and extracts have been shown to modulate nervous system function related to gamma-aminobutyric acid (GABA) metabolism and benzodiazepine receptor activity. In animals, a flavonoid-rich extract has demonstrated sparing of central nervous and muscular functions in models of Parkinson's and Alzheimer's diseases. Passionflower has shown moderate efficacy in reducing anxiety in clinical trials, including one relating to opiate withdrawal, though a

rigorous 2007 Cochrane review called for more proof. Though evidence for passionflower is not as clear-cut as that for anxiolytic drugs and its effective milligram dosage is higher, it has displayed a very good safety profile in both children and adults.

Where in the World is Dr. Bland?

Every year, Dr. Jeff Bland speaks in front of audiences around the world.

Will this be the year your paths cross?

View Appearances Calendar

Check out what's happening at the Personalized Lifestyle Medicine Institute

With Dr. Bland at the helm, PLMI is growing and expanding its educational outreach. Visit the PLMI website to learn more about:

- The 2018 Thought Leaders Consortium in Tucson, AZ October 12-13, 2018
- Past video presentations that are free to watch in PLMI's online Education Portal
- Other leadership activities and initiatives

FMU KNOWLEDGEBASE

For more than three decades, Dr. Jeff Bland recorded and self-published a monthly audio journal called Functional Medicine Update (FMU). Although he is no longer recording new issues, an archive of content spanning 1997-2016 is free to explore on Dr. Bland's

website, and this extraordinary collection is now known as the FMU Knowledgebase. This newsletter began with a quote by Dr. Jay Udani, who was interviewed in November 2013. To access that issue, click here. To explore the full archive, visit the FMU Knowledgebase.

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