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In this issue: Can Nutrition Prevent Crime?; Early Life Programming and Stress Resilience; SNiPPets: FOXO3; How Acupuncture Safely Modulates Pain; PLMI Announcements

Did You Know?
PLMI has a FREE online education archive. More than 50 videos recorded at our annual Thought Leaders Consortium are now available to stream. User registration is required, but there is no fee to access and view this material. Find more details and a link at the end of this newsletter.

Here is today's featured quote from the archive:

“When a child is in a food desert, where their only access to food calories is through the federal supplementation program, they have increased disease by the time they are teenagers.”

Michael Stone, MD & Leslie Stone, MD
2017 Thought Leaders Consortium

How Much Crime Might Be Preventable with Nutrition, and Why Aren't We Finding Out?

Crime costs the US trillions of dollars annually—even more than US healthcare expenditures. Though it may be easy to conclude "lock them up and throw away the key," the breathtaking costs of incarceration encourage us to think
Recent research shows that higher brain function may be affected in those committing violent crime. There are few studies exploring the effects of improved nutrition on crime, but in children who show aggressive or violent behavior or are at risk, several suggest that providing these children with supplements as basic as omega-3s, minerals, and vitamins can cut down on such behaviors.

But kids can also learn that nutrition doesn’t just come in bottles—it starts with real food. The NutriBee interactive program, developed by Ingrid Kohlstadt, MD and described in this FMU interview with PLMI President Dr. Jeffrey Bland, helped disadvantaged adolescents choose better foods and improved their nutrition knowledge.

**Early Life Programming and Developing Stress Resilience**

We now know that food is epigenetic information that affects our living genetic expression, but as Dr. Jeff Bland discusses with McGill University researcher Moshe Szyf, MS, PhD, early family environment and experiences of mothering can also cause epigenetic repatterning of higher brain function that affects emotional tone throughout life. Dr. Szyf explains that maternal care can send signals to offspring that “life is good” and there is no need to feel excessively stressed or, alternatively, that “life is bad” and survival may require wariness and anxiety. This is reflected in a 2017 study he co-authored in which young female adults who had experienced adversity early in life showed altered gene patterning for receptors of oxytocin, a hormone that aids parent-child bonding and is increasingly linked to feelings of social togetherness and tenderness.

Epigenetic repatterning results from emotional perceptions as well as more objective measures of experience, and can modify immune function as well as the stress response and mood. Impacts of adversity are so long-lasting and profound that Dr. Bland and Dr. Szyf suggest that this growing avenue of research could potentially inform governmental policies for early life and post-traumatic interventions to help break multigenerational cycles of aggression and suffering.

In this video, Dr. Bland describes one of Dr. Szyf’s projects investigating how power outages in Quebec during extreme winter weather in 1998 affected children who were in utero during that stressful period of time. In these children, alterations in insulin signaling along with a shift towards a more pro-inflammatory immune response were found. Further analysis showed intriguing correlations among mothers’ feelings of stress during that winter, DNA repatterning in affected children, and increases in body mass index (BMI) and body fat among affected children.

You might well ask: what can children in utero, mothers, soldiers, and others who experience trauma do about it? Are there ways to work through it and build resilience? Nutrient and phytonutrient adequacy and balance are undoubtedly part of the answer, but inasmuch as trauma is a perceived experience, mind-body techniques that reprogram the long-term response to stress can also help.

In those with anxiety, mindfulness meditation has been shown to improve stress resilience as well as measures of immune balance and stress hormones. Surgical intensive care unit personnel with feelings of burnout fatigue and emotional exhaustion found that a program of yoga, meditation, and music helped minimize the effects of chronic workplace stress. Experienced meditators have even shown reduced evidence of aging at the epigenetic level.
SNiPPets

How significant to health are particular 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.

Tea May Dampen the Effects of This SNP on Longevity

Among “holy grail” targets for genetic research, finding those that authentically relate to human longevity must be close to top of the list. In this search, interactions among sets of genes with complementary functions in proximity to one another appear more promising than single targets, and analytical methods for testing functional significance of linked genes is evolving rapidly. Research on functionally linked gene “interactomes” has identified an area on chromosome 6 as potentially strategic. This area centers on the FOXO3 gene, which influences epigenetic modifications that affect cellular programs for life and death, and it interacted with dozens of its neighbors during cellular stress events. Other FOXO genes linked to successful aging have surfaced as well, as another recent study found that habitual consumption of tea may aid longevity by reducing negative impacts of a minor allele SNP in those with the FOXO1A-209 genotype, possibly by mimicking the actions of insulin in the body.

How Acupuncture Safely Modulates Pain

Concerns about overuse and abuse of painkillers lead to interest in alternatives—but which work without causing addiction or side effects? A detailed analysis of acupuncture research in almost 18,000 study subjects showed that it works well in alleviating chronic headache, back, neck, and osteoarthritic pain, and, in skilled hands, acupuncture has long been a safe, drug-free therapy.

Acupuncture may be a focused means of activating connective tissue signaling to induce a whole-body response. In this FMU interview, distinguished internist, professor, and acupuncturist Helene Langevin, MD, describes how expert technique causes tissue stretch that induces cellular remodeling, and she and Dr. Bland discuss how connective tissue may communicate with wider signaling networks to stimulate healing. Further research led by Dr. Langevin shows that changes in physical tension in the tissue outside of cells can contribute to pain and inflammation signaling. Perhaps it is not surprising that, as of January 2018, 988 clinical trials relating to acupuncture were registered on the National Institute for Health’s registry for conditions including chronic pain, cancer, neuropathology, and a host of other conditions.

Announcements - Seats are Filling Fast!

The Personalized Lifestyle Medicine Institute is hosting two events in 2018. In May, we’ll be in Florida for a symposium we call Mastering the Implementation of Personalized Lifestyle Medicine. This two-day meeting will feature presentations about stress-related disorders and how they are influenced by interactions among the nervous,
immune, and endocrine systems. In October, PLMI will be in Tucson, Arizona for our signature annual event, the Thought Leaders Consortium. This conference will feature speakers from Harvard Medical School, Stanford University, Mount Sinai, McGill University, the University of Southern California, and the Cleveland Clinic Center for Functional Medicine. In addition, we’re honored that our 2018 presenters will include Larry Smarr, PhD, Founding Director of Calit2, a UC San Diego/UC Irvine Partnership; Dale Bredesen, MD, who is affiliated with UCLA and the Buck Institute and is the author of the bestselling book The End of Alzheimer’s; and Michael Fenech, PhD, Senior Principal Researcher at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) based in Canberra, Australia. Use the links below to learn more about each of these events. Early registration is strongly encouraged.

Mastering the Implementation of Personalized Lifestyle Medicine
The Exposome Factor: New Approaches to Assessing and Treating Stress-Related Disorders

May 4 - 5, 2018
Gaylord Palms Resort & Convention Center
Kissimmee, Florida

Learn More Registration Details

The Sixth Annual Thought Leaders Consortium
The Science of Precision: What’s Next for Personalized Lifestyle Health Care
As a 501(c)(3) nonprofit organization, the Personalized Lifestyle Medicine Institute is committed to making quality educational information about science and health care available to both professional and consumer audiences.

Our online Education Portal features video presentations from past PLMI events that are free to view online. User registration is required. [Access the Education Portal]>

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