

**Western Human Nutrition
Research Center**



**Institute for the Advancement
of Food and Nutrition Sciences**



**Agricultural
Research
Service**

Webinar Program

**October 11 & 24
2023**

USDA Webinar Series – Western Human Nutrition Research Center

October 11, 1:00 – 2:30 PM ET

Research at the USDA Western Human Nutrition Research Center: Gut Microbiome, Nutrition, and Health

Description:

Our gut bacteria play a significant role in metabolism of dietary components and can influence human health. However, our understanding of the details of this interaction is still in its infancy. This webinar will cover the highlights of what we currently understand about diet-gut microbe interactions and how to study this complicated relationship, leveraging research underway at the USDA-ARS Western Human Nutrition Research Center.

Dr. Charles B. Stephensen

Research Leader

Introduction and overview of the Western Human Nutrition Research Center

Dr. Mary Kable

Research Molecular Biologist

The Fermentations Inside Us

Dr. Danielle G. Lemay

Research Scientist / Associate Adjunct Professor

Eating for Trillions: Diet, Gut Microbiome, and GI Health

USDA Webinar Series – Western Human Nutrition Research Center

October 24, 1:00 – 2:30 PM ET

Research at the USDA Western Human Nutrition Research Center: The Interaction of Diet, Stress, and Immune Function

Description:

In this webinar, researchers at the USDA-ARS Western Human Nutrition Research Center will present work focused on how diet and stress impact immune function and contribute to overall health. Researchers will differentiate acute from chronic biological stress, explain instruments used to measure biological stress, and describe its impact on health and well-being. How stress affects eating behavior and how diet influences one's physiological responses to stress will be discussed. Scientists will also discuss how the biological stress response shapes the immune system and discuss how chronic stress can increase disease susceptibility. Results from various clinical research studies examining the impact of diet and nutrition on stress and immunity will be presented.

Session Title: *Stress & Immunity: Rationale for Exploring Diet*

Dr. Kevin Laugero

Research Nutritionist / Associate Adjunct Professor

Dr. Ryan Snodgrass

Research Scientist / Associate Adjunct Professor



Western Human Nutrition Research Center



Speaker Biographies



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Dr. Charles B. Stephensen

Charles B. Stephensen is a Research Leader at the USDA Western Human Nutrition Research Center (WHNRC) in Davis, CA and an Adjunct Professor of Nutrition at U.C. Davis. He has a longstanding interest in research on the effect of nutrition on immune function, with a particular focus on the effects of vitamin A, as well as vitamin D, on immune function. Ongoing work at the WHNRC is examining the associations of typical diet with the intestinal microbiota and the potential impact of the microbiota on systemic immune activation and inflammation. Many of Dr. Stephensen's studies have involved international collaborations, particularly in Peru and Bangladesh. Recent studies have also focused on the association of the gut microbiota community composition of healthy infants with response to early childhood immunization. Dr. Stephensen obtained a B.S. degree in Biochemistry at the University of California, Davis, M.S. degree in Human Nutrition at Cornell University and a Ph.D. in Immunology and Infectious Diseases at the Johns Hopkins University School of Hygiene and Public Health in Baltimore, Maryland. He trained as a postdoctoral fellow in Virology at the Uniformed Services University of the Health Sciences in Bethesda, Maryland. Dr. Stephensen was a faculty member in the Department of International Health, School of Public Health at the University of Alabama at Birmingham for 10 years and also served as acting Director of the Sparkman Center for International Public Health Education. In 1998 he moved to the WHNRC.

Dr. Mary Kable

Dr. Mary Kable earned her Ph.D. in Biochemistry and Molecular Biology at University of California, Davis. She performed her postdoctoral work in the laboratory of Dr. Maria Marco where she examined the impacts of a diet rich in arabinoxylan and resistant starch type 2 on the gut microbial communities of Danish adults with metabolic syndrome. The Kable Lab is currently using samples from human cohort and dietary intervention studies, performed in collaboration with investigators at the USDA-ARS, Western Human Nutrition Research Center, to continue investigating how foods rich in complex carbohydrates and polyphenols can influence the structure of the adult gut microbial community and colonization resistance to pathogenic microbes.

Dr. Kevin Laugero

Dr. Laugero's lab, the Clinical Stress and Health Innovation Research Lab at the United States Department of Agriculture and the University of California, Davis, focuses on interrelationships between nutrition, stress, and health. In this work, human intervention trials, health technologies, and neurophysiological phenotyping are applied to address the key research areas of the lab, which include nutritional regulation of the stress response, stress eating, and relationships between stress, executive function, and behavior in children and adults.

Dr. Danielle G. Lemay

Danielle G. Lemay is a Research Scientist at the USDA ARS Western Human Nutrition Research Center in Davis, California. She is also an Associate Adjunct Professor in the Department of Nutrition at the University of California, Davis and the Nutrition Cluster Lead at the USDA/NSF AI Institute for Next-Generation Food Systems. Her lab uses bioinformatics to study how dietary components, especially fermentable carbohydrates, affect the gut microbiome and host response. Her lab also applies omics technologies and machine learning/AI to understand the effects of diet on human health. She has a PhD and MS in Nutritional Biology from UC Davis, and a BS in Electrical Engineering & Computer Science from MIT.

Dr. Ryan Snodgrass

Ryan G. Snodgrass is an Assistant Adjunct Professor in the Department of Nutrition at the University of California, Davis. He is also a Research Scientist at the USDA ARS Western Human Nutrition Research Center in Davis, California. Ryan holds a Ph.D. in Nutritional Biology with a designated emphasis in Immunology from the University of California, Davis. Dr. Snodgrass's Nutrition and Innate Immunity Lab at the United States Department of Agriculture and UC Davis is focused on understanding how diet and nutritional and metabolic status shape innate immune function. By utilizing human intervention trials along with cellular and molecular biology techniques, his lab is investigating how metabolic status influences immune cell frequencies and phenotypes, the impact of diet and stress on cardiovascular risk factors and immune cell phenotypes, as well as how gut microbiota-derived metabolites, which can be influenced by our diet, impact immunity and intestinal homeostasis.