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The Nutrition, Immunity, and Inflammation Conference: From Model Systems to Human Trials

Organizer Bio: Charles Stephensen, PhD

Research Leader, Immunity and Disease Prevention Research Unit, USDA Western Human Nutrition Research Center, Davis, CA USA

Charles Stephensen has a longstanding interest in the interaction of nutrition and infection. His lab examined the effect of vitamin A deficiency (VAD) on viral infections using influenza A infection of mice and was the first to show that VAD impairs the respiratory IgA response. This and other work suggested that use of high-dose VA supplements might improve recovery from respiratory infections. However, his group showed that such supplements transiently increased the severity of clinical signs of pneumonia in a clinical trial, highlighting potential negative effects of high-dose supplementation. Infectious diseases also contribute to development of VAD, but how this occurs was not always clear.

Stephensen and colleagues identified a novel mechanism when they found that infections can cause substantial VA loss in the urine by impairing kidney tubule function. Recently, his group has focused on the intestinal microbiome, finding that higher levels of intestinal bifidobacteria in early infancy, the time of receipt of many vaccines, is associated with better immune memory to these vaccines at 2 years of age. Current work is examining the effect of high-fiber, bifidogenic diets on the response to oral vaccines in adults.

Charles is also an Adjunct Professor of Nutrition at the University of California, Davis. He obtained an MS in human nutrition at Cornell University, a PhD in immunology and infectious diseases at the Johns Hopkins University School of Public Health and trained as a postdoc in virology at the Uniformed Services University of the Health Sciences. He was a faculty member in the School of Public Health at the University of Alabama at Birmingham before moving to the USDA.