

John Colombo, Ph.D.
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Abstract

Advances in maternal and infant nutrition over the last two decades have involved nutrients that have the potential to affect brain structure and function, and in turn, to influence cognitive development in infants and children. In this presentation, Dr. Colombo will describe how he was drawn in this area of research, and subsequent work with an interdisciplinary team to examine the long-term effects of long-chain polyunsaturated fatty acids (LCPUFA), zinc, and iron on attention and executive function in infancy and early childhood. In addition, he will describe recent work on the prevention of high-risk early preterm birth with prenatal supplementation with docosahexaenoic acid (DHA). The lecture will include examples of how early cognition is measured in infants and children, and the translational and economic impacts of this research on US health care.

Biographical Information

John Colombo is widely recognized for his work on the development of attention in childhood. He has been an active scientist at the University of Kansas for over 30 years, and over the course of his career, his research has moved from purely behavioral to biobehavioral and from basic science to translational science.

His work on the nature of cognition early in life led to the development of biobehavioral assessments of neurodevelopment, and these assessments have been incorporated into the translational arms of his research program, including the use of autonomic measures in the search for biomarkers of intellectual and developmental disabilities (in particular, autism spectrum disorders), and the assessment of the efficacy of prenatal and postnatal nutritional supplements on early cognitive function in infancy and early childhood. He was one of the first scientists to closely analyze components of visual habituation in infancy from the standpoint of individual differences and establish the psychometric and predictive properties of those measures. His work includes the use of pupillometry as a marker for early identification of autism. He has recently also been engaged in the conduct of NIH- and industry-funded clinical trials examining the effects of early (prenatal and postnatal) nutritional supplementation on maternal and infant outcomes. This work has shown positive effects of zinc on infant attention in Peru, improved attention and childhood cognition as a result of postnatal supplementation with omega-3 and omega-6 fatty acids, as well as the reduction of high-risk prematurity with prenatal omega-3 supplementation.

His research papers have been cited over 5000 times, and has been a keynote speaker at the Society for Research in Child Development as well as the NICHD-supported Gatlinburg Conference on Intellectual and Developmental Disabilities and in June of 2016 he presented at a congressional briefing on work being done to improve pregnancy outcomes. Within the University of Kansas, he has served as IRB Chair (1993-2012), a Graduate Director of two departments (Human Development, 1994-2001; Psychology, 2005-2007), chair of the Department of Psychology (2005-2006), Associate Dean for Graduate Studies (2000-2004) and Director of the Life Span Institute (2007-present). In addition to his research and administrative service, Colombo has garnered four awards for career mentoring and advising on the University of Kansas - Lawrence campus: *J. Michael Young Outstanding Academic Advisor Award* from the College of Liberal Arts and Sciences, *Outstanding Graduate and Professional Mentor* from the Graduate and Professional Student Association, the *Chancellor's Award for Graduate and Professional Mentoring* from the Graduate and Professional Student Association, and the *Recognition for Excellence in Graduate Teaching* from the Center for Teaching Excellence. He participates in four graduate training programs (Psychology, Child Language, Clinical Child Psychology, and Neuroscience), and served as co-PI on an NICHD-

funded postdoctoral training grant on translational research in intellectual and developmental disabilities.

He has served on grant review panels for the National Institutes of Health, the National Science Foundation, the Institute of Education Sciences at the US Department of Education, and the March of Dimes Birth Defects Foundation. As part of his consulting work with industry, Colombo has been responsible for evaluating numerous sites for the conduct of clinical trials on early nutritional manipulations and developmental outcomes. This includes work done in the US, Asia (China, Singapore, Malaysia, Vietnam), and Europe (Netherlands, Ireland).