NEWS | POSTED JULY 14, 2020

Mismatched Caregiver-Infant Interactions During Feeding Could Boost Babies' Risk of Later Obesity

PRESS RELEASE / CHILD DEVELOPMENT PERSPECTIVES: Embargoed for Release on July 14, 2020

PRESS RELEASE

Published

Tuesday, July 14, 2020 12:01am

Feeding During Infancy: Interpersonal Behavior, Physiology, and Risk of Obesity

Read the Child Development Perspectives article:

WILEY ONLINE LIBRARY

Contact:

Caitlin Kizielewicz

Infancy is a sensitive developmental period that presents opportunities and challenges for caregivers to feed their infants in ways that support healthy growth and development. A new integrative review examined evidence related to infants' self-regulation of behavior and emotion, and how that relates to interactions when they are fed by their caregivers, including how those interactions may derail infants' ability to regulate their intake of food. The review found that infants who are fed in the absence of hunger or beyond fullness may develop skewed perceptions of hunger and fullness, which could increase their risk of obesity and related health problems later in life.

The review, conducted by researchers at the University of North Carolina at Chapel Hill and the University of North Carolina at Wilmington, appears in *Child Development Perspectives*, a journal of the Society for Research in Child Development.

"We know that beginning in infancy, interactions with caregivers shape behavioral and physiological foundations of self-regulation, but we don't know as much about how these interactions influence self-regulation of feeding, eating, and energy intake," explains Eric A. Hodges, associate professor of nursing at the University of North Carolina at Chapel Hill's School of Nursing, the article's lead author. "In our work, we examined how the relationship between caregivers and their infants during feeding may affect infants' development, which has implications for the probability of subsequent preventable disease."

The first two years of life are a critical time during which eventual independent eating behavior and self-regulation of energy intake are shaped. Healthy babies appear to have the ability to adjust their energy intake—that is, how much food they ingest—with their body's physiologic need for growth and development.

In this review of about 50 studies on nutrition, physiology, and psychology, researchers sought to determine how caregivers' feeding of infants affects the role of infants' nervous system in energy intake self-regulation, specifically, the role of the vagus nerve, which runs from the brain through the face and thorax and to the

abdomen. The researchers also sought to understand how caregiver-infant interactions may disrupt infants' development of self-regulation of energy intake.

Based on their review, the researchers modified an existing model, linking feeding responsiveness to obesity. According to their model, in addition to caregivers' responsiveness to cues, infants are responsible for the clarity of cues (i.e., cues intended to communicate hunger and fullness). Factors that may affect infants' cues and caregivers' perceptions of them include infants' temperament and inherited traits related to appetite, such as perceived enjoyment of eating, responsiveness to fullness, and pace of eating.

The researchers concluded that feeding in the absence of hunger or feeding beyond fullness may undermine infants' self-regulation of energy intake not only through the learning about eating that happens in feeding interactions, but also in the function of the vagus nerve in communicating hunger and fullness to the brain. This, in turn, could boost infants' risk for subsequent obesity as they develop from complete dependence to increasing independence in eating.

"Our review adds a deeper understanding of the interplay of behavior and underlying autonomic physiology that supports communication of hunger and fullness to the brain," according to Cathi B. Propper, advanced research scientist at the Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill, who coauthored the article. "While much of the research on responsive feeding has focused on the caregiver's effects on the infant, our model, which encompasses both caregiver and infant, suggests that the infant is evoking behavioral and physiologic responses in the caregiver and is responding to the caregiver's behavior and physiology, too."

The researchers acknowledge that their conclusions have limitations, including the sparse empirical evidence supporting the links between the influence of the quality of the caregiver-child interaction on the vagus nerve. Moreover, they note that other factors could influence infants' digestive behavior, including changes caused by modifications of gene expression.

Work on the article was supported by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

###

Summarized from Child Development Perspectives, *Feeding During Infancy: Interpersonal Behavior, Physiology, and Risk of Obesity* by Hodges, EA (University of North Carolina at Chapel Hill), Propper, CB (University of North Carolina at Chapel Hill), Estrem, H (University of North Carolina at Wilmington), and Schultz, MB (University of North Carolina at Chapel Hill). Copyright 2020 The Society for Research in Child Development, Inc. All rights reserved.