

# A mother's warmth, sensitivity can mitigate obesity risk factors in infants: study

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The deleterious effects that obesity has on an individual's health and the difficulty of reversing it in adults are well-known, ranging from diabetes and heart disease to cancer. For these reasons, obesity prevention in

babies and children in populations at high risk is increasingly seen as a critical way to address the obesity epidemic.

However, most studies on factors that contribute to [obesity](#) in very young children haven't focused on the populations most at risk.

An ongoing longitudinal University at Buffalo study being presented today (Nov. 5) in Las Vegas at ObesityWeek is among the first to explore how mother-infant behaviors during feeding and active play (non-feeding situations) affect infants and children in families with low socioeconomic status. Nearly all of the mothers in the study had used cigarettes, alcohol, marijuana or cocaine.

The UB study, which will also be published in the journal *Obesity*, was one of five award-winning papers highlighted at ObesityWeek, the world's largest obesity conference, a partnership of The Obesity Society and the American Society for Metabolic and Bariatric Surgery.

The research was led by Kai Ling Kong, Ph.D., assistant professor of pediatrics in the Division of Behavioral Health in the Jacobs School of Medicine and Biomedical Sciences at UB.

Kong's team found that a mother's warmth and sensitivity during active play, non-feeding interactions, was associated with reduced obesity risk from infancy to second grade.

"The prenatal period is a sensitive period of health and disease development," said Kong. "Insults that happen in the womb have lifelong consequences. But despite perturbations in fetal development, our study shows that it is possible to mitigate the effect of these exposures during [early childhood](#) by warmth, responsive and sensitive parenting in one's home environment, especially in active play."

While the early interactions were between mothers and infants, some of the later interactions involved infants and a primary caregiver; the study refers to all of the caregivers as mothers.

## **Prenatal and early childhood stress**

The researchers focused on infants whose mothers had engaged in [substance use](#) (cigarettes, alcohol, marijuana or cocaine) during pregnancy and who had low socioeconomic status.

Prenatal exposure to any of these substances can subject a fetus to significant adverse effects, including poor nutrition and inadequate blood or oxygen flow, which can result in permanent neuroendocrine changes and metabolic dysfunction.

After birth, the infants experienced additional stresses stemming from the socioeconomic challenges the mothers faced. More than 80% of mothers in the study were receiving Temporary Assistance for Needy Families benefits, and 85% were single.

More than 95% had engaged in substance use during pregnancy. Seventy-five percent were African American. More than 36% of the children at 7 years old in the study were assessed as having obesity, which is nearly double the national childhood obesity rate of 18.5%.

Study co-author Rina Das Eiden, Ph.D., of Penn State University and formerly of UB, recruited mothers from two hospitals in Western New York, as part of an ongoing longitudinal study that was originally designed to examine developmental outcomes among children of mothers who used cocaine in the context of exposure to multiple substances.

"We wanted to examine if early home environments that promote

comfort and pleasurable behaviors that are an alternative to eating can mitigate young children's food-seeking behavior and thus alter the trajectory of weight gain," said Kong.

"To date, most of the research on parental influences on children's weight has focused on the food domain of the home environment," she said. "There is a lack of understanding as to how, or if, positive parenting during [active play](#) (non-food domain of [home environment](#)) can play a role in promoting healthful lifestyles of the children."

By the end of the study, 172 families had participated. Mother-infant interactions in the UB laboratory during feeding and non-feeding situations were studied when the infants were 1 month old and 7 months old.

## **Maternal warmth and body mass index**

Infants of mothers exhibiting less warmth during free-play interactions when infants were 7 months old were associated with steeper body mass index trajectories, while the [infants](#) of [mothers](#) exhibiting more warmth during these interactions were not. This finding provides initial evidence that early mother-child interactions during free-play had an enduring positive effect on the health outcomes of the children, especially obesity risk trajectories.

"The findings indicate that mother-infant free-play interactions are more important than mother-infant interactions during feeding for child health outcomes, especially the development of obesity," Kong said.

She added that the findings demonstrate that such interactions provide a critical target for intervention. For example, an early intervention program in which parents are instructed how to identify and respond sensitively to infant hunger and satiety cues, with a goal to promote self-

regulation, has demonstrated success in minimizing early rapid weight gain.

"Results from our current study extend this prior work, indicating that such interventions beginning in early infancy and focusing on play interactions may have long lasting impact on obesity risk among high-risk children," she said.

Provided by University at Buffalo

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