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Gene–Microbiome–Environment Interactions

Multi-Level Effects on Children's Self-Regulation, Parental Responsive Feeding, and Family Relationships around Mealtimes

Building upon the STRONG Kids research program, this project seeks to understand how genetics, the gut microbiome, and the environment interact in affecting children's self-regulation, parental feeding practices, and family relationships around the dinner table.

Picky eating behaviors are prevalent among toddlers and are associated with risk of both underweight and overweight, depression, social anxiety, and eating disorders. These behaviors can be a major source of concern and distress among parents who may use controlling feeding practices, such as restriction and pressure to eat, in an attempt to change their child's food intake instead of responsive feeding practices—methods that facilitate development of the child's recognition of their hunger and satiety cues, and promotes energy self-regulation. However, little is known about the benefits of responsive feeding on promoting the development of healthy eating behaviors in children as they transition to table foods, and the impact of responsive feeding on moderating children's picky eating behaviors has yet to be determined. Nor has the interaction between the child's genetics and parent feeding strategies been assessed.

RESEARCH TEAM

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Additionally, researchers have long recognized that the capacity to self-regulate attention, emotion, and behavior is crucial for healthy development. It is also understood that child temperament, attachment relationships, and family routines contribute to these processes across early childhood. As such, it is important to document the interplay between these emerging processes, the gut microbiome, and genetics so that we can more fully understand how influences at biological and interpersonal levels impact parental feeding and child eating behaviors.

This project aims to identify associations between genetic make-up and picky eating behaviors in children at 12, 18, and 24 months. It also seeks to determine the effects of the genetic composition and observed parental feeding responsiveness in the prediction of children's picky eating behaviors at 24 months with the long-term goal to define how nature (genetic composition) and nurture (feeding environment) interact to influence the eating behaviors in young children. Finally, researchers are examining the extent to which individual child (temperament, gut microbiome), relational (parent-child attachment relationships) and family level factors (mealtime interactions) predict children's emerging eating behaviors and self-regulatory behaviors across childhood. Ultimately, these data will help to build a more comprehensive understanding of pediatric obesity that will inform prevention and intervention programs with young children and families.

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