# Behavioral Nutrition \& Physical Activity Laboratory UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER <br> <br> Sibling factors that influence a Child's Physical Activity, <br> <br> Sibling factors that influence a Child's Physical Activity, Eating Patterns, and Growth 

 Eating Patterns, and Growth}

Siblings serve a unique influence on the health habits of young children, since they serve both as a family and as a peer influence. ${ }^{1}$ Siblings are influential to the development of health behavior, ${ }^{2}$ including nutrition and physical activity, which are related to healthy growth. Preliminary studies have indicated starting at around 8 years old children without siblings (only children) start to have higher rates of excess weight gain compared to children with siblings. ${ }^{3}$

A study involving mothers and their 5.0-7.9 year old children, both involving children with and without siblings. For the children with siblings, they must have had a siblings ages $2.0-4.9$ years old as youngest born children have similar health habits to only children. Within the children with sibling group, we evaluated sibling factors (demographics, time, and relationship) on the older child's physical activity, eating patterns, and growth. In this study, we gathered information on physical activity, eating patterns, and growth from 35 children with siblings.

## Sibling Factors

- Parents completed a demographic questionnaire related to the younger sibling and their family composition, including number of children in the household, and age and sex of other siblings.
- Parents kept a log of time the older child (5.0-7.9 year old) spent with their younger sibling (2.0-4.9 years old) for seven days, including time eating, and playing.
- Parents completed a questionnaire related to the relationship between the older and younger child, including part of the relationship such as how compassionate the older child is to the younger child and the degree of sibling rivalry between the
 two children.


## Measuring Physical Activity, Eating Patterns, and Growth

- Children were asked to wear an activity monitor, similar to a fit bit, on their ankle for 7 days of at least 10 hours. Mothers were asked to keep a daily log of the child's general activities throughout the day, including times the activity monitor was not worn. Moderate to vigorous physical activity (MVPA) and counts per minute (CPM), which is associated with healthier growth outcomes, ${ }^{4}$ was calculated.
- Mothers were asked to keep a 3-day diet log of their child's beverage and food consumption, preferably two weekdays and one weekend day. The diet log was then compared to the Dietary Guidelines for Americans, which are evidence based recommendations, using Healthy Eating Index. ${ }^{5}$
- Children were weighed on a digital scale and height was measured using a portable height meter. Children were measured around the waist (at the belly button). The child's age and sex was reported by the mother, and the child's growth was compared to national standards. ${ }^{6}$
Findings presented are from the Siblings Influence on Subsiding Behaviors Related to Obesity (SISBRO) study, which took place between April 2017 and December 2017.


## Sibling Age and Sex on Child Behavior and Growth

- Children with younger brothers (age 2.0-4.9 years old), and had a smaller age difference were more active compared to those with younger sisters and a large age difference.
- Brother-brother sibling compositions had the most physical activity compared to other sibling compositions, suggesting a synergistic relationship.



## Time with Sibling on Child Behavior and Growth

- Time spent playing, and combined eating and play time was associated with healthier growth in the older siblings.
- Since time spent playing and combined eating and play time was not associated with child physical activity, this may suggest that this time may be contributing to lower intensity exercise or
 contributing to a preference for healthy behaviors.


## Sibling Relationship on Child Behavior and Growth

- Siblings who had a compassionate and nurturing relationship had more MVPA minutes per day compared to those with a less compassionate relationship.
- A compassionate relationship may be exemplified by the older child getting ideas for things they can do together and having fun at home. Siblings who enjoy spending time together may be more likely to participate in MVPA level activities. ${ }^{7}$



## Summary of Findings

Overall, children with younger brothers and had close in age siblings were more active compared to their counter parts. Siblings who had a compassionate relationship had more beneficial activity compared to those who had a less compassionate relationship. Time spent playing or eating with sibling was associated with healthier growth patterns. Many sibling factors contribute to positive behaviors and healthier growth outcomes of young children.

## References

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This report was prepared by Dr. Chelsea Kracht on behalf of the Behavioral Nutrition and Physical Activity Laboratory directed by Dr. Susan Sisson. Data were collected as part of the Sibling Influence on Subsiding Behaviors Related to Obesity (SISBRO). If you have questions or comments, please contact us at nutritionandactivitylab@ouhsc.edu or 405.271.8001x41173

