



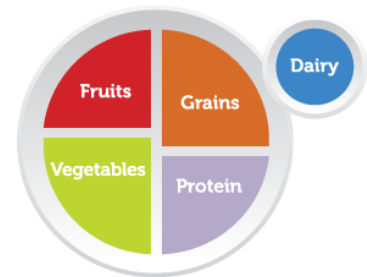
Differences in Eating Patterns between Children with and without Siblings

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 with and without siblings (only children), was conducted to determine if children with younger siblings had different health behaviors than only children. The children with siblings in this study must have one sibling between the ages on 2.0-4.9 years old, since youngest born children tend to have similar health habits to only children. In this study, we gathered information on growth and eating patterns from 43 children with siblings and 27 only children then compared the differences.

Measuring Growth and Eating Patterns

- 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.⁴
- 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. Mothers were given a quick tutorial on common sizes and a hand out with common food sizes (with real world comparisons).
- For completing growth measurements and the 3 day diet log, mothers and children received a beach ball and a small kids coloring book.



Comparing Diets to the Dietary Guidelines for Americans

Healthy Eating Index 2010 Individual components

- The **Dietary Guidelines for Americans** are **evidence-based recommendations** for quality eating patterns.
- Healthy Eating Index is a diet quality score based off of the key recommendations from the Dietary Guidelines for Americans, which has 12 components and one total score.⁵
- Healthy Eating Index 2010** is a calorie adjusted measure of meeting the 2010 Dietary Guidelines for Americans
- In the United States, children between the ages of 2-17 years old have total HEI score of 53.4 (standard deviation: 0.77).⁵

#	Max Score	Foods evaluated
1	5	All fruit items
2	5	Whole fruit
3	5	All vegetables
4	5	Beans, Green vegetables
5	10	Whole grains
6	10	Dairy
7	5	Meat, poultry, eggs
8	5	Seafood, nuts, seeds, soy
9	10	Fatty acids ratio
10	10	Sodium
11	10	Refined Grains
12	20	Added sugars, solid fats
	100	Total

Findings presented are from the **Siblings Influence on Subsiding Behaviors Related to Obesity (SISBRO)** study, which took place between April 2017 and December 2017.

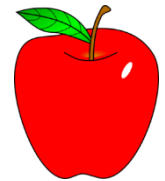
Growth Differences between Children with and without Siblings

- When comparing children with siblings and only children, more children with siblings (85%) were in a healthy growth range than only children (48%).
- In both groups, we noticed there is still a spectrum of growth at this age and all children benefit from healthy habits.

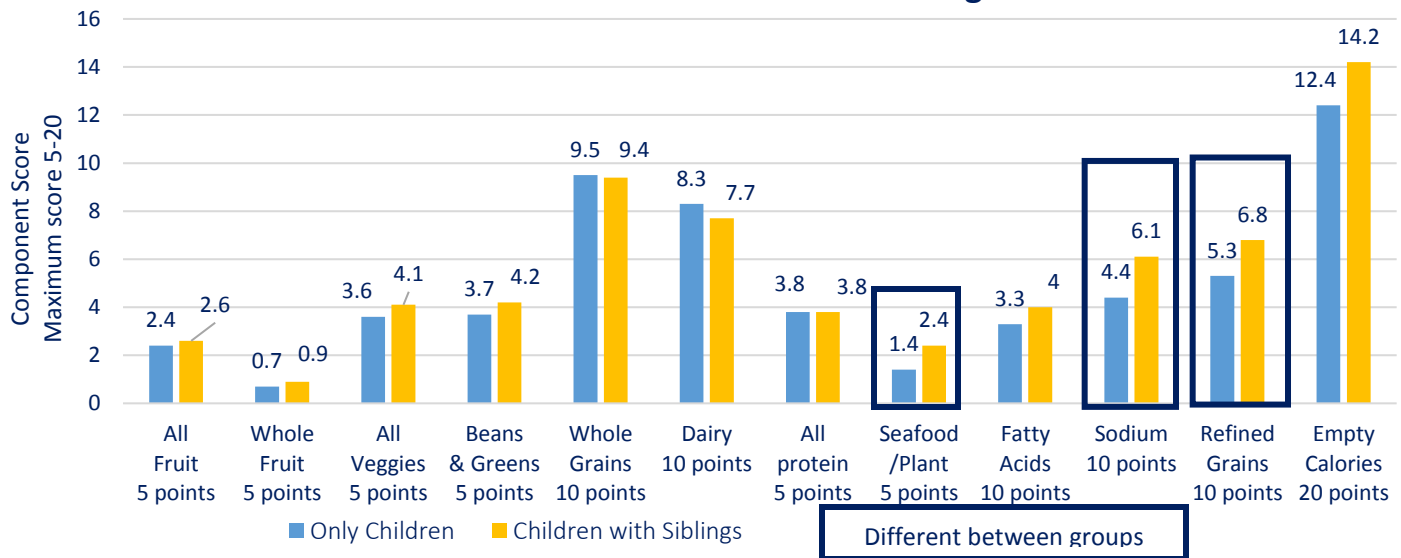


Eating Patterns between Children with and without Siblings

- In total, children with siblings had a higher total HEI score (66.8±9.1) and healthier eating patterns compared to only children (59.9±9.3).
- On weekdays, only children consumed more sodium than children with siblings did. On weekends, only children consumed less whole fruit and seafood/plant protein compared to children with siblings.
- The sole score only children scored higher (healthier) than children with siblings is in weekday dairy consumption, but this difference was small.
- Since both groups eat similar school lunches, we hypothesize that only children may differ in afterschool and dinner intake on the weekdays. This difference may be fast food consumption since fast food contributes to more sodium and dairy consumption.



Average HEI Component Scores for Children with and without siblings



Summary of Findings

Overall, children with siblings had a healthier growth trajectory than only children. Only children had poorer eating patterns compared to children with siblings, with less seafood/plant protein, but with more sodium and refined grains. All children can benefit from healthier eating patterns, which can help healthier growth patterns.

References

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4. Kuczmarski, R.J., et al., *CDC growth charts: United States*. *Adv Data*, 2000(314): p. 1-27.
5. Guenther, P.M., et al., *The Healthy Eating Index-2010 is a valid and reliable measure of diet quality according to the 2010 Dietary Guidelines for Americans*. *J Nutr*, 2014. **144**(3): p. 399-407.

This report was prepared by Chelsea Smith 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