

# Young Children and Infants Read to By Parents Have Stronger Vocabulary Skills

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**Summary:** *Reading to infants and young children is associated with stronger vocabulary skills at age three. The findings reveal parents who read to children with genetic predispositions to learning and attention disorders help improve their language acquisition skills.*

**Source:** Rutgers

**Shared reading between parents and very young children, including infants, is associated with stronger vocabulary skills for nearly all children by age 3, say physicians at Rutgers Robert Wood Johnson Medical School. According to research published in *The Journal of Pediatrics*, this is true also for children who genetically may be vulnerable to barriers in learning, attention and behavior development.**

“In a supportive environment, children who may be genetically at-risk, do just as well as their peers,” said Manuel Jimenez, a developmental pediatrician and assistant professor of pediatrics and family medicine and community health at the medical school, who is lead author of the study.

The children in the study were tested as part of the Fragile Families and Child Wellbeing Study which examined the development of children born to unmarried families who were at greater risk of living in poverty

Jimenez explained that the study looked at how children respond differently to shared reading based on genetic characteristics. Using data from the Fragile Families and Child Wellbeing Study, which has followed the development of nearly 5,000 children in large U.S. cities born between 1998 and 2000, the team assessed the difference in vocabulary skill development based on genetic differences in two neurotransmitter systems that have implications in learning development, memory and impulse control.

The study found that shared reading with children at 1 year old was associated with higher vocabulary scores on a standardized assessment at age 3, in line with previous published studies. Children with genetic variations that put them at-risk fared just as well as their peers on the assessment when shared reading was conducted at age 1. However, at-risk children who were not exposed to shared reading did poorly on the same vocabulary assessment.

“We found that reading with very young children can be quite powerful and really makes a difference in a child’s development, particularly with children who may be vulnerable to developmental delays,” said Jimenez.

According to Jimenez, scientists are just starting to understand how genes influence complex behaviors and how science can be applied to improving lives through patient care. The research underscores the importance of a positive environment with close parental contact and its direct correlation to favorable child development, even when a child may be at-risk for learning and behavioral challenges.



[\(https://i0.wp.com/neuroscience.rutgers.edu/files/2019/11/21/reading-vocabulary-children-children-who-are-read-to-by-their-parents-have-stronger-vocabulary-skills-by-age-3/\)](https://i0.wp.com/neuroscience.rutgers.edu/files/2019/11/21/reading-vocabulary-children-children-who-are-read-to-by-their-parents-have-stronger-vocabulary-skills-by-age-3/)  
*Children who are read to by their parents have stronger vocabulary skills by age 3. The image is credited to Rutgers.*

Daniel Notterman, a pediatrician, professor of molecular biology and co-investigator of the Fragile Families study at Princeton University, clinical professor of pediatrics at Robert Wood Johnson Medical School, and co-author of the study, concurs. “Biological measures give us another way to identify children for which interventions, in this case reading, may have the greatest benefit,” he said. “Although there is already evidence of the positive effects of shared reading, this study provides additional verification and a more quantitative picture of the link between a child’s environment, biological makeup, and development.”

Both researchers emphasized that parents need to spend time reading with their children every day, as findings from the study provide support for literacy promotion at an early age.

“The bottom line is that children respond positively to shared reading at an early age and doing so is one way to improve language skills for all children,” said Jimenez.

#### ABOUT THIS NEUROSCIENCE RESEARCH ARTICLE

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“Shared Reading at Age 1 Year and Later Vocabulary: A Gene–Environment Study”. (<https://doi.org/10.1016/j.jpeds.2019.07.008>) Manuel E. Jimenez, Nancy E. Reichman, Colter Mitchell, Lisa Schneper, Sara McLanahan, Daniel A. Notterman.

*The Journal of Pediatrics* doi:10.1016/j.jpeds.2019.07.008 (<https://doi.org/10.1016/j.jpeds.2019.07.008>).

## Abstract

### Shared Reading at Age 1 Year and Later Vocabulary: A Gene-Environment Study

#### Objective

To assess the extent to which associations between shared reading at age 1 years and child vocabulary at age 3 years differ based on the presence of sensitizing alleles in the dopaminergic and serotonergic neurotransmitter systems.

#### Study design

We conducted a secondary analysis of data from a national urban birth cohort using mother reports in conjunction with child assessments and salivary genetic data. Child vocabulary was assessed using the Peabody Picture Vocabulary Test. The primary exposure was mother-reported shared reading. We used data on gene variants that may affect the function of the dopaminergic and serotonergic systems. We examined associations between shared reading and Peabody Picture Vocabulary Test score using multiple linear regression. We then included interaction terms between shared reading and the presence of sensitizing alleles for each polymorphism to assess potential moderator effects adjusting for multiple comparisons.

#### Results

Of the 1772 children included (56% black, 52% male), 31% of their mothers reported reading with their child daily. Daily shared reading was strongly associated with child Peabody Picture Vocabulary Test scores in unadjusted ( $B = 7.9$ ; 95% CI, 4.3-11.4) and adjusted models ( $B = 5.3$ ; 95% CI, 2.0-8.6). The association differed based on the presence of sensitizing alleles in the dopamine receptor 2 and serotonin transporter genes.

#### Conclusions

Among urban children, shared reading at age 1 years was associated with greater vocabulary at age 3 years. Although children with sensitizing alleles on the dopamine receptor 2 and serotonin transporter genes were at greater risk when not read to, they fared as well as children without these alleles when shared reading occurred.

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