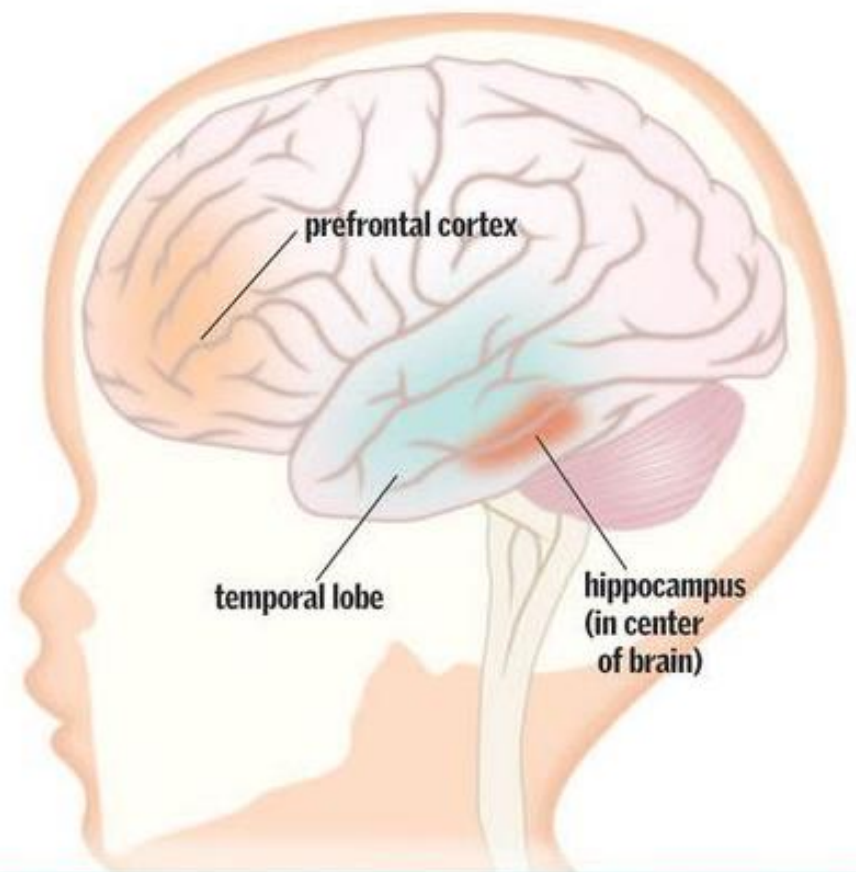


# HOW OUTSIDE FACTORS CAN IMPACT CHILD DEVELOPMENT

## How outside factors can impact child development

Language, stress and nutrition are outside factors that can affect the development of the brain during infancy. These factors can cause changes to growth patterns, behavior and the child's health. Stress and nutrition can actually change the way the brain develops and impact a child's cognitive abilities later in life. Language is the foundation for learning, and children with poor language skills face a tougher road toward academic achievement. Parents who do their best to surround their children with language, limit their stress level and fill them with nutritious meals from birth set up their infants and toddlers for success.



### FOUNDATIONS OF DEVELOPMENT

Positive early experiences lay a foundation for healthy development. These experiences include:

## RELATIONSHIPS

Includes family and nonfamily members, as well as interaction and language.

- Language, controlled by the **temporal lobe**, is the one stimulus that has been proved to make a difference in enhancing a baby's brain development.
- New research shows that a strong connection between mothers and children after birth can almost completely erase the impact of prenatal stress.
- The more parents talk to their children, the faster children's vocabularies grow and the higher children's IQ tests at age 3 and later.
- Vocabulary growth at age 3 strongly correlates with standardized test scores in the 3rd grade.

## ENVIRONMENT

Includes home life as well as stress.

- Elevated levels of stress in pregnant women can affect a child's cognitive development, memory and their ability to pay attention and solve problems, abilities found in the **prefrontal cortex**.
- Children of professional parents hear about 2,150 words an hour, but children of poor parents hear an average of 620 words an hour.
- Toxic or chronic stress from growing up poor and constant exposure to family conflict, violence in the home or neighborhood, and frequent mobility can have a direct impact on the **hippocampus** and **prefrontal cortex**, affecting a child's working-memory.

## NUTRITION

Relates to the availability and affordability of healthy food and age-appropriate food.

- Nutrition has the most impact on a child's brain development between mid-gestation and age 2.
- Poor nutrition during pregnancy can lead to very pre-term infants which research indicates have more problems with paying attention, memory and motor skills
- Malnourished children have smaller brains, cognitive deficits, slower language development and lower IQs.
- Iron is critical to brain growth after 6 months of age. Iron is critical for maintaining an adequate number of oxygen-carrying red blood cells, which in turn are necessary to fuel brain growth.

### HOW A PROBLEM CAN AFFECT THIS FOUNDATION

The foundation interacts with the child's genetic predisposition to cause either a positive or negative reaction.

**Adaptations**  
(results  
in healthy  
outcomes)

These adaptations or disruptions affect the development of the child either through cumulative effects over time, or through experiences during sensitive periods, such as periods of family stress. These experiences can include abuse, neglect or exposure to violence.

**Disruptions**  
(results  
in negative  
outcomes)

### DISRUPTIONS CAN AFFECT THE CHILD'S ADULT HEALTH AND WELL-BEING

These outcomes can include shortened lifespan and mental illness and increase the possibility the individual will drop out of school.

Sources: Cornell University, University of Rochester, University of Kansas, ZERO TO THREE, University of Allahabad, National Institute of Mental Health and Neurosciences, Griffith University, Queensland University of Technology and Mater Children's Hospital, Harvard University Center on the Developing Child

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