



# Prenatal-to-Age-Three is Critical for Healthy Brain Development

Early experiences and relationships affect the development of all biological systems in the body, including brain architecture. Healthy brain and body development provide the foundation for all future learning, behavior and health. Just as a weak foundation compromises the durability and strength of a house, adverse experiences early in life can impair brain architecture, with negative effects lasting into adulthood.

## Brains are built over time, from the bottom up.



- In the **first three years of life**, the brain is most impressionable, forming more than **1 million new neural connections every second**.
- The **billions of connections** that form between neurons in the early, most active years provide either a strong or weak foundation for connections that form later.

## The interactions of genes and experiences shape the developing brain.

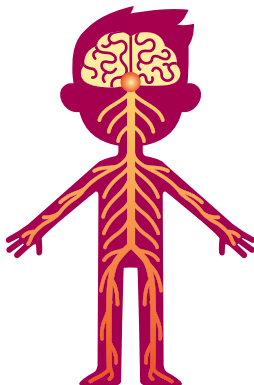


- The **“serve and return”** relationship that occurs when parents and caregivers respond to children shapes learning and behavior.
- In the absence of responsive caregiving, the brain's architecture lacks opportunities to form strong connections.
- **Genes and experiences work together**, shaping the structure of the brain then reinforcing it through repeated use, laying a strong foundation for future learning, behavior, and health.

## Toxic stress weakens the architecture of the developing brain and impacts the developing body.



- Toxic stress, the excessive activation of stress response systems without supportive adults, can lead to **lifelong problems** in learning, behavior, and physical and mental health.
- Experiencing stress, an important part of healthy development, produces a wide range of physiological reactions that prepare the body to deal with threat.
- When stress responses are activated at high levels for significant periods of time, neural connections developing in the areas of the brain dedicated to higher-order skills are weaker and fewer in number.
- This damaging level of continual stress can be prevented or reversed by supportive and responsive relationships with caring adults in the earliest years of life.



## Cognitive, emotional and social capacities are inextricably intertwined throughout life.

- **Emotional well-being and social competence** provide a strong foundation for emerging cognitive abilities, and together they are the bricks and mortar of brain architecture.
- The **socio-emotional, physical and cognitive capacities** that are built in the early years are all important for later success in school, the workplace and the larger community.



## Efforts to support healthy development and learning need to begin in the early years from prenatal to age three.

- Policymakers, government leaders, program developers, and practitioners can help parents build the foundation for lifelong health and learning by ensuring that families and communities have the resources they need to provide responsive, supportive relationships for their young children. Efforts to support healthy development and learning need to begin in the early years from prenatal to age three.
- Programs that support infants and toddlers by promoting responsive relationships, reducing sources of stress, and strengthening core life skills build strong foundations for future success and support parents, families, and caregivers.



Learn more about the scientific case for investing in the first three years of life at [www.thencit.org](http://www.thencit.org).

SOURCE: Center on the Developing Child at Harvard University. <https://developingchild.harvard.edu/resources/>