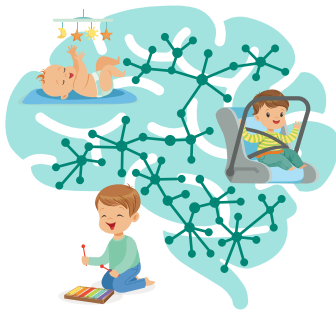


Brain Architecture

Early experiences affect the development of brain architecture, which provides the foundation for all future learning, behavior and health. Just as a weak foundation compromises the quality 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.

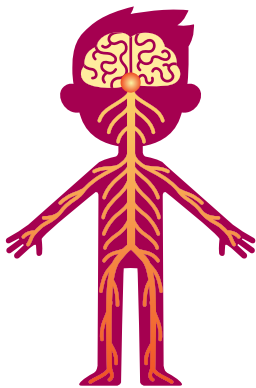
- In the absence of responsive caregiving, the brain's architecture lacks opportunities to form strong connections.



Toxic stress weakens the architecture of the developing brain.



- 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.



- **Genes and experiences work together**, shaping the structure of the brain then reinforcing it through repeated use, laying a strong foundation for future learning.

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.