

Why the 1,001 critical days are critical: the science of early development

Scientific research is helping us understand why the period that includes pregnancy and the first two years of a baby's life is so important to their development.

1 The 1,001 critical days is when the foundations of the brain's architecture are built

Construction of the basic architecture of the brain begins before birth. More than a million new neural connections are formed every second in the first year of a baby's life. Sensory pathways for basic functions like vision and hearing develop first, followed by early language skills and higher cognitive functions. This is the peak period of brain development.

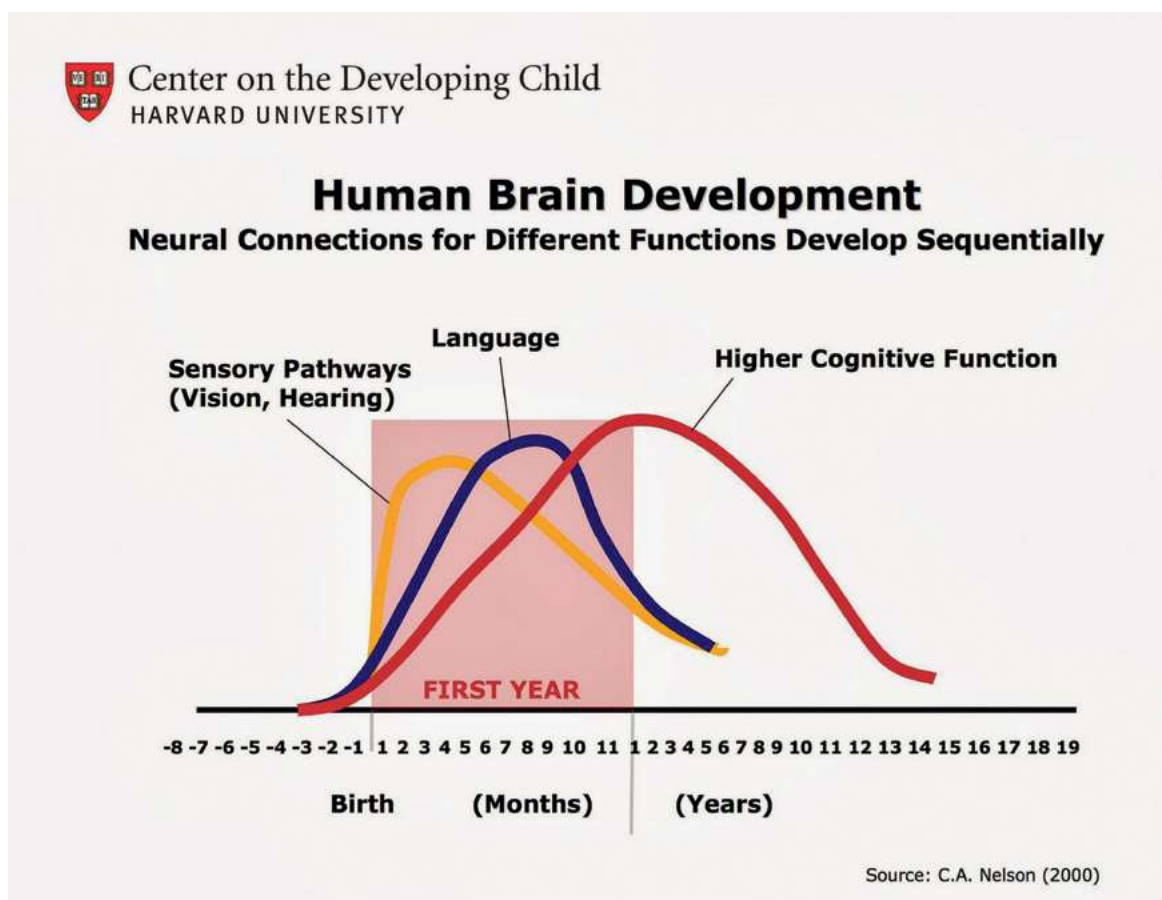


Figure 1 – Human Brain Development from the Center on the Developing Child at Harvard University, available at <http://developingchild.harvard.edu>

2 Experience (nurture) shapes how genes (nature) are expressed

Although genes provide the basic blueprint, experiences influence how and when genes are expressed.

Some of the most important experiences that will shape the architecture of a baby's brain come from their interactions with significant adults in their lives. Babies naturally reach out for interaction through babbling, facial expressions and movements. The adults caring for them respond in kind with sounds and gestures. This back-and-forth process, known as 'serve and return', plays a vital role in developing the wiring of the brain.

The brain has the greatest ability to reorganise and adapt in the early years of life. When the brain is most flexible or 'plastic', it can accommodate a range of experiences and interactions. For example, by its first year, the parts of the brain that differentiate sounds are becoming specialised to the language the baby is exposed to.



3 The foundations of cognitive, emotional and social capabilities are formed in this period

The emotional health and physical wellbeing, social skills, cognitive and linguistic capacities that develop in the 1,001 critical days form the foundations for an individual's success in school and in later life. These best develop when a baby has at least one stable and committed relationship with an adult. Where a baby forms a secure attachment with their primary caregivers, they feel safe and secure. It's these relationships that build the emotional scaffolding to support early development.

4 Stress and adverse experiences in the 1,001 critical days can have lifelong impacts

We now know that chronic stress in early childhood – whether it is caused by repeated abuse, severe maternal depression or extreme poverty – has a negative impact on a baby's development. Some exposure to stress is an important and necessary part of development but only when it is short-lived physiological responses to moderately uncomfortable experiences. Regular exposure to high levels of stress causes unrelieved activation of the baby's stress management system. Without the protection of adult support, toxic stress becomes built into the body by the processes that shape the architecture of the developing brain. This has long-term consequences for learning and a baby's future physical and mental health.

Adapted from Harvard University's Center on the Developing Child (2007). The Science of Early Childhood Development (InBrief). Retrieved from www.developingchild.harvard.edu.