

The Stages of Early Brain Development



LITTLE SUNSHINE'S
PLAYHOUSE
& PRESCHOOL®
A Reggio Emilia School



Table of Contents

INTRODUCTION	4
BRAIN DEVELOPMENT	
DURING PREGNANCY	4
BIRTH TO AGE 3	5
AGES 3 TO 5	6
REFERENCES	6

Introduction

While brain development is actually a lifelong process that begins in the womb and continues throughout adulthood, early childhood is an especially crucial time. In fact, 90% of brain development takes place by the child's 5th birthday (First Things First, 2018).

“90% of brain development takes place by the child's fifth birthday”

Brain Development

During Pregnancy

At birth, your child's brain already has almost all of the neurons it will ever have (Urban Child Institute, 2018).

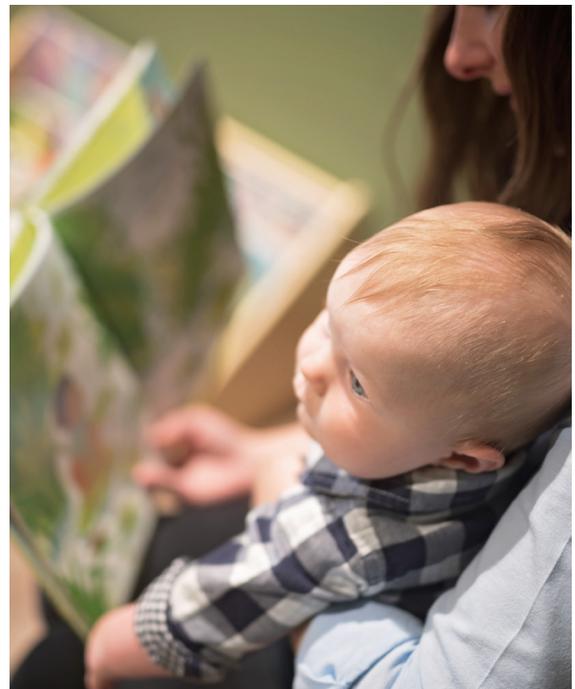
- The fetal brain can be stimulated by sounds from outside the mother, and can also be affected by negative influences such as maternal stress (Hunter, 2017).
- Brain development begins during the first trimester. Most structural features of the brain appear during the first eight weeks of pregnancy. Just two weeks after conception, the embryo develops a neural plate, which folds into a neural tube by the fourth week – this will eventually become the child's brain and spinal cord. The first neurons and synapses develop by the seventh week, and the fetus is now able to move (Urban Child Institute, 2018).
- The cerebral cortex grows in thickness and complexity during the second trimester. Myelin appears on neuronal axons, allowing for faster information processing (Urban Child Institute, 2018).
- Early learning actually starts during the third trimester of pregnancy, as the cerebral cortex assumes more duties. The child begins to respond to outside sounds and may even learn to recognize familiar sounds, such as the mother's voice (Urban Child Institute, 2018).

Brain Development

Birth to Age 3

The young brain forms 700 new neural connections every second for the first three years of life.

- Every experience the child has, both good and bad, influences development, which means parents and others close to the child have a major role to play.
- Language learning begins at birth, and talking to your baby, reading books together and even overheard conversations all contribute to this process (Hunter, 2017).
- Newborns recognize human faces, recognize their mother's voice, and may even recognize sounds from stories the mother read aloud during the latter stages of pregnancy (Urban Child Institute, 2018).
- The cerebellum triples in size during baby's first year, which promotes motor skills development. Binocular vision develops, and recognition ability improves. Language circuits consolidate in the frontal and temporal lobes. By one the child's brain is already wired for his or her native language (Urban Child Institute, 2018).
- During the child's second year, more synapses in language areas of the brain mean the child's vocabulary quadruples between the first and second birthdays. Increased myelination promotes development of self-awareness, awareness of emotions, and the child's ability to recognize his or her name and reflection in a mirror (Urban Child Institute, 2018).
- The brain reaches its peak synaptic density at age 3. The child begins to understand concepts like cause and effect, and past, present and future (Urban Child Institute, 2018).



Brain Development

Ages 3 to 5

The 5-year-old brain uses twice as much glucose as the adult brain. In fact, the brain uses so much energy for its own development that it causes physical growth to slow during the preschool years between ages three and five. Nutrition and proper mental stimulation are absolutely essential during this life stage, and the more you interact with your child, the more you help to increase their usable vocabulary (Hunter, 2017).

In addition to our knowledge of early brain development, we also know that children learn best in a loving, warm and positive environment. This understanding influences teaching methods at Little Sunshine's Playhouse®, as our program relies heavily on the Reggio Emilia approach that learning should be relationship driven and by building strong, positive relationships with students at an early age, as they're preparing to become successful lifelong learners.

“Children learn best in a warm and loving environment”

References

- First Things First. (2018). Brain Development. Accessed from <https://www.first-thingsfirst.org/early-childhood-matters/brain-development/>.
- Hunter, Elaine. (2017). How a child's brain develops from the womb to age 5. Their World. Accessed from <https://theirworld.org/news/how-childs-brain-develops-from-womb-to-age-five>.
- Urban Child Institute. (2018). Baby's brain begins now: Conception to age 3. Accessed from <http://www.urbanchildinstitute.org/why-0-3/baby-and-brain>.



