Brain Development in Young Children

What the Research Tells Us

The early years between 0-5 play an important role in the development of a child's brain structure. Children's brains are not fully developed at birth. The unique variety of a child's day-to-day experiences directly shapes the actual structure of the developing brain.

Experiences stimulate activity in a child's brain and cause neural pathways, or synaptic connections, to grow in that region. From birth to age three, there is rapid development in the number of neural pathways in the brain, as the number of synaptic connections doubles. Then, beginning around age 3, a natural process of “pruning” takes place. Synaptic connections that have been actively used are preserved and strengthened. Inactive connections are lost. This process of pruning ultimately helps the brain to be well-adapted to the unique challenges of the individual's environment. Studies suggest that exposure to an enriched environment causes the brain to develop greater synaptic density, and that “providing...young children with specific enriching experiences can boost their cognitive and behavioral functioning” (Halfon, Shulman, & Hochstein, 2001, p. 6).

Brain research has also shown there are critical periods, or “windows of opportunity” for many aspects of development. During a “critical period,” the brain is especially sensitive to certain types of experiences, creating an optimal time for a particular type of development or learning. For example, healthy social-emotional development and language competence are highly dependent on early experiences in these areas.

Parents and caregivers can play an important role in the brain development of a young child. At the Family Development Center, our program is designed to provide the quality, nurturing and stimulating learning environment that supports optimal brain development.


Our curriculum involves hands-on learning, providing a strong experiential base for brain development. New learning is facilitated when children have familiarity with a wide range of concepts. New ideas are related to familiar ones.

A high level of verbal interaction immerses the child in a language-rich environment. Through conversation, teachers help to expand children’s vocabulary and language structures.

Literacy: As children listen to stories, they begin to discover the patterns that underlie story structure. What might happen next in the story?

Early Math: Skills are developed as children create patterns, solve problems, and match numerals to quantities.

Science: Activities prompt children to ask “what if” questions, make predictions, and draw conclusions based on their observations.

Creative Art: Children utilize the right hemisphere of the brain as they explore various art media.

Music: Music and creative movement activities take place every day.

Socialization: Children work and play together, learning how to take turns, collaborate, solve problems and resolve differences. Creativity and imagination blossom as preschoolers engage in dramatic role play and cooperative games.

Physical Development: A myriad of activities support fine and gross motor development in children.