



# Building Baby's Brain: The Basics

The University of Georgia/College of Family and Consumer Sciences

The early years are critical for later life. For years, scientists have known that what happens – or doesn't happen – during the first few years makes a big difference in a child's later life. Babies who do not get enough love and attention in infancy are less likely to be well-adjusted adults.

Scientists recently have learned even more about how important the early years can be. Thanks to new technologies, we now have a much clearer idea of how the brain functions at birth. And we've found out that the brain goes through some dramatic changes even after birth.

## Wiring the Brain

A baby is born with more than 100 billion brain cells. Some of these cells are already connected to other cells at birth. These connections regulate the heartbeat and breathing, control reflexes, and regulate other functions needed to survive.

But much of the brain's wiring does not happen until after birth. In the first months and years of life, brain cells form connections in many parts of the brain. These connections are the complex circuits that shape our thinking, feelings, and behaviors.

During these early years, the brain cells make many more connections than the baby will use. The developing brain is a little like a fertile garden. When we plant a

garden, we want the crops that we planted to grow and thrive. But when weeds start to grow, there is less room for the plants we want to grow. By weeding out the plants we don't want, we allow more room for the crops to grow.

The brain has a similar "weeding" process. By about age 3, the brain cells have made many more connections than the child will ever need. But the brain is also efficient at weeding out the connections. It keeps track of the connections that the baby uses most. In time, the brain gets rid of the connections that it does not use regularly. The least-used connections are weeded out so that the most-used ones have more room to grow.

## The Importance of Experience

From the moment a baby is born, every experience taken in by the five senses helps build the connections that guide development. No two brains are alike! Each child develops individual pathways to deal with his or her experiences. For example, a hearing child makes many connections related to oral language. The brain of a deaf child does not get the experience needed to make those connections. A child who learns to play baseball will make certain connections that a child who never plays ball will not make.

The kind of care a child receives plays a big role in how the brain chooses to wire itself. Parents who talk and read to their babies are helping them develop important

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language connections. And parents who respond sensitively to their baby's cries are building the emotional connections that lead to healthier relationships.

### What Can You Do?

Parents and other caregivers can help nurture positive brain development. Here are some of the most important ways you can help your baby's brain develop:

- **Remember that brain development begins before birth.** Nutrition makes a big difference in brain development even before the baby is born. Women who are pregnant should eat nutritious foods, avoid alcohol and other drugs, and have regular prenatal care to help ensure that their babies are born healthy.
- **Make sure your baby's world is safe and secure.** Remove any safety hazards from the environment. Respond lovingly and consistently to your baby's cries. Give him attention. A baby feels stress when the environment is dangerous or when caregivers do not respond to him. Stress can slow brain development.
- **Talk to your baby.** When she makes a sound, repeat it. Smile at her. Talk about the things you're doing together. Interacting face-to-face builds the brain connections needed for both language skills and a healthy emotional bond.
- **Start reading aloud early.** Hearing adults read helps the brain develop language connections. It also gives parents and babies a chance to spend time together. And reading aloud helps your baby build a lifelong love of books.
- **Choose high-quality child care.** To ensure healthy development, babies need sensitive, loving care and stimulating experiences. Choose a child-care provider who will interact warmly with your baby one-on-one. Look for a safe and clean environment, a low baby-to-adult ratio, a provider who understands how children grow and develop, and a rich variety of age-appropriate toys.

• **Get the information you need.** If you have questions about your baby's development, there are many places you can go for answers. Ask your doctor questions during check-ups. Have your librarian recommend good books on child development. Contact the Family and Consumer Sciences agent in your county Extension Service office for more information on parenting.

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