

Building Baby's Brain: Ten Myths

The University of Georgia/College of Family and Consumer Sciences

As scientists learn more about how the human brain develops, many of our old ideas about the brain are being challenged. We now know that a baby's brain is not completely wired at birth. The basic brain cells exist at birth, but most of the connections among cells are made during infancy and childhood.

Here are some common myths about brain development:

1. *What happens before birth does not affect learning.*

Poor nutrition and exposure to drugs and alcohol can lead to serious problems in brain development even before birth. A developing fetus needs adequate nutrition to develop properly. If the fetus does not receive enough folic acid early in development, certain neural birth defects can happen. A fetus exposed to alcohol or other drugs before birth may not develop normally. If the mother drinks alcohol during pregnancy, the baby is at risk for developing Fetal Alcohol Syndrome (FAS). Babies with FAS tend to have heart problems and be hyperactive. And most FAS babies have below-normal intelligence.

2. *The brain is completely developed at birth.* Most of the brain's cells are formed before birth. But the cells

actually make most of their connections with other cells during the first 3 years of life. And even after age 3, the brain's structure continues to change as connections are refined based on experience.

3. *Brain development is completely genetic.* Early experience is very important in brain development. The baby's day-to-day experiences help decide how her brain cells will connect to each other. And if the baby does not have certain kinds of experiences, some areas of the brain will not make the necessary connections. Babies born with

severe cataracts may never see clearly – especially if the cataracts remain for many months – because they could not see clearly as infants.

4. *A bigger head is better.*

Some parents mistakenly think that children with bigger heads have bigger brains and are therefore smarter. But a bigger head doesn't necessarily mean a bigger brain. And just having a bigger brain doesn't make you smarter. Dolphins

actually have larger brains than humans. And rat brains have more cells per cubic inch. Humans are more intelligent because our brains have been fine-tuned to be more efficient.

5. *Brains get more active as they mature.* A 3-year-old's brain is twice as active as an adult's. Why? The adult

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brain is more efficient. It has gotten rid of connections that it doesn't need. By about age 3, the brain's cells have made most of their connections to other cells. Over the next several years, connections are refined based on experience. The connections that are used most will become stronger. Those that are used least will eventually wither.

6. *The brain grows steadily across childhood.* The human brain actually develops in spurts. There are "prime times" when the brain is best equipped to learn certain skills. Babies and young children learn languages more easily than adults because their brains are still developing language connections.

7. *We can't learn certain skills after childhood.* There are certain prime times in development when learning is easier. The brain is especially efficient at learning during those prime times. But brain development and learning continue throughout the lifetime. Learning may be more difficult once the prime times are over, but it can still happen. Adults are able to learn foreign languages, even if their learning is not as quick or easy as a young child's.

8. *Learning begins when a child enters school.* Pre-kindergarten or kindergarten is the start of most American children's formal education. But the foundations for learning develop well before a child starts school. The brain connections needed for learning begin developing even before birth.

Early care also makes a difference in children's ability to learn. Warm, sensitive, consistent care helps babies develop a secure attachment with their caregivers. Children with this secure bond are more ready to learn. Early traumas such as abuse can slow brain development. This makes learning more difficult.

9. *Enrichment is only for gifted and talented children.* All babies and children need experience to develop a rich network of brain connections. Remember that children learn by doing. Give your baby a chance to explore the world. Expose her to a variety of challenging experiences. Support her when she tries new things. Encourage her to be creative.

10. *Children need special help and expensive toys to develop their brain power.* What children need most are loving care and new experiences. But these experiences don't need to be expensive. Talk and sing to your baby. Go on a daily walk and point out some of the things you see. Visit the library and pick out a book on a new topic. Sharing time with your child and exposing him to new things goes a long way toward helping his brain develop.

But beware of overstimulating your child. Some parents are so concerned with brain development that they buy expensive educational toys, videos, and flash cards. But there's no evidence that these toys, by themselves, will make your child smarter. Too many new experiences all at once won't help his brain development. He needs time to process what he's learned before he's ready for something new.

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