

Building Baby's Brain

Prime Times for Learning

Our bodies are designed to have different needs at different times. There's nothing like a cold glass of water when you are really thirsty or getting a full night of sleep when you are exhausted.

We also know that people learn some skills more easily at certain ages. School-aged children can be experts at skateboarding after only a few minutes of practice, but grandfathers usually take a little longer. And some adults may never learn how to use a laptop or tablet computer as easily as their children do.



► Brain-Building "Exercise"

Different areas of the brain control different parts of our lives—the ability to throw a ball, to remain calm under stress, to figure out an algebra problem, or to play the piano. The different parts of the brain, like muscles, become stronger when we use them regularly. We can help (or hinder) the development of children's brains by giving them different kinds of experiences to "exercise" the brain. Children need many types of brain activity, just like they need many types of exercise. If they only run, their leg muscles will grow stronger than their arm muscles. If they only watch TV or play video games and never talk, their brain might prune connections in the part of the brain responsible for speaking.

► Prime Times for Brain Development

Research in brain development shows there are certain windows of opportunity, known as sensitive periods, when certain parts of the brain develop most quickly. These windows are prime times for learning certain skills because the brain is ready to build networks of connections in response to what the five senses absorb. Here are some of those prime times and what to expect:

- **Visual development: Birth to 12 months.** Most visual development occurs during the first 8 to 12 months of life. The neurons in the visual cortex experience a growth spurt when a baby is between 2 and 4 months old. During that period, neurons are connecting very rapidly. By the time an infant is between 10 and 12 months of age, the visual areas of the brain are well-developed. During this prime time, babies need to see shapes, colors, objects at varying distances, and movement. All of these images help the brain to recognize and organize visual information. Anything that interferes with clear vision, such as cataracts or near-sightedness, should be corrected early so the brain has the best opportunity to build connections for sight.
- **Language development: birth to 12 years.** Babies are born with the ability to learn any language. By the time they are 12 months old, babies understand and babble in the language they hear most. Being exposed to language helps strengthen connections in the brain. Listening to adults talk, sing, and read increases the baby's vocabulary and teaches him syntax, which is the way that sentences are constructed to make sense. Because the prime time for language learning is during childhood, children can learn more than one language much more easily than teens or adults can.
- **Emotional attachment: birth to 18 months.** Infants learn to expect adults to behave in certain ways based on their daily experiences. These expectations shape the way a baby responds to the adult's behavior. Over time, a baby builds a deep



