



Health and Safety Notes California Childcare Health Program

Building Baby's Intelligence: Why Infant Stimulation Is So Important

Recent advances in brain research have proven that an infant's environment has a dramatic affect on brain-building and healthy development. It is this early stage of brain development that results in how, and how well, one thinks and learns—both as children and as adults.

In the first years of a baby's life, the brain is busy building its wiring system. Activity in the brain creates tiny electrical connections called synapses. The amount of stimulation an infant receives directly affects how many synapses are formed. Repetitive and consistent stimulation strengthens these connections and makes them permanent. Those connections that don't get used may be dropped away.

The early years are the "prime time" for a young developing brain. This intense period of brain growth and network building capacity happens only once in a lifetime. As caregivers and parents, we have this brief but unique opportunity to help encourage the formation of brain circuitry in our infants.

Here are some fascinating facts that researchers have discovered:

- Infants have a biological need and desire to learn.
- The foundational networking of the brain's synapses is nearly complete after the rapid brain development of the first three years.
- The more age-appropriate and interesting experiences, both physical and social-emotional, that an infant participates in, the more circuitry is built for enhanced learning in the future.
- Infants have a definite preference for the human face, voice, touch and smell over everything else. Therefore, the infant's best toy is you, as you speak, move, touch and talk with them.
- Interesting stimulation can enhance curiosity, attentiveness, concentration and love of learning in the growing infant and toddler.
- Language stimulation is fundamental to all areas of cognitive development. Infants and children who

are conversed with, read to, and otherwise engaged in lots of verbal interaction show more advanced linguistic skills than children who are not as verbally engaged by their caregivers.

It is not necessary to buy special products or follow planned curriculums to optimize a young child's intellectual growth. Remember that you are stimulating an infant's brain every time you do any of these things:

- **Love.** Love and affection are very real needs. A young infant is incapable of trying to manipulate or control you. She simply has a biological need for your love, including your tender and responsive attention and affection. This unconditional love allows for the creation of strong self-esteem and increased development of brain circuitry.
- **Talk and sing to the infant,** especially with a kind voice, a wide range of vocabulary, and a lot of expression. For example, give a running commentary on what you are doing as you make a meal, fold laundry, or write out a shopping list. Your conversations, stories and songs are building his vocabulary, demonstrating emotions, modeling ways to act, and even teaching problem-solving skills.
- **Respond** to the infant's requests without hesitation. You will not spoil her. You will not only be responding to her immediate needs, but teaching her that she can communicate with others and her needs can be met, giving her a strong sense of trust and emotional stability, as well as teaching her that she is important and worthy of your attention.
- **Touch the infant.** Gently hold, cuddle and rock an infant, watching for what he likes best. Keep in mind that bathing, diapering and feeding are opportunities for nurturing touches and eye contact. Avoid leaving an infant for long periods of time in a swing or infant seat.
- **Encourage imitation.** The infant is constantly analyzing you and figuring out ways to mimic your voice and facial expressions as a means of learning

about the world around her. Respond to her when she imitates others by showing your delight with her squeals, giggles, chortles and gurgles.

- *Let the infant experience* different surroundings by taking him on field trips: to the grocery store, the mall or the park. Put him in a body carrier and visit area museums, aquariums, zoos and farmer’s markets. By doing so you are providing an exciting adventure for him as he is experiencing new sights, smells, sounds and sensations. Every outing is enriching!
- *Let the infant explore* different textures and temperatures (not too extreme). Provide a safe environment for exploration, as she needs time to discover things for herself.
- *Read books:* expose the infant early to the world of literacy. Even though he cannot follow the story, he will love the pictures and the sound of your voice — plus it’s a great way to connect with each other and strengthen emotional attachment.
- *Play music,* as it heightens and delights the infant’s senses. Try singing or playing lullabies and songs that repeat patterns and rhythms. Try dancing to music.

Touch is critical to development! Of all the sensory experiences, touch is how infants first know they are loved. It is the source of comfort. Being held is reassuring in the face of strangeness.

Touch sends signals to the brain telling it to grow (make connections). Without nurturing touch at an early age, infants cannot thrive. Before they are born, babies are “massaged” as a result of the mother’s physical mobility and movements. Infants need this continued experience to grow. Touch is a vital nutrient for both the brain and the body.

How important is holding and touching infants?

Infants actively touch and explore objects as a result of being touched themselves. This is one way in which they learn about the world around them. It is also through touch that infants begin to be aware of the boundaries of their body. The infant touches her own cheek, and it feels different than when she touches her caregiver’s cheek. Being held in a caregiver’s arms tells the infant that she is safe, secure, and loved. It helps build a sense of trust, as it can be soothing and reassuring. Consistent

and responsive touch helps an infant and caregiver feel attached to one another.

Can holding, cuddling, and eye contact help infants grow and develop?

Infants need gentle touching, holding and eye contact just as they need food to grow and develop. Research has demonstrated that nurturing touch actually helps infants gain weight and develop healthy relationships with caregivers, as holding and stroking an infant stimulates the brain to release important hormones necessary for growth.

What you can do

- Hold the infant when the infant needs to be held. Simple cues include crying, fussing, reaching for you, or gazing toward you.
- You can hold an infant while you tend to the verbal needs of another child.
- Provide other “touch” experiences for the infant, even at a very early age. Put the infant on various surfaces using fabrics and materials, such as towels, soft blankets, straw mats, etc.
- Allow the infant to touch a variety of surfaces: sticky, smooth, wet, bumpy and cold.
- Watch for signs of what kinds of touch the infant likes and dislikes. Does he smile and seem to enjoy the experience or does he fuss and pull away? Stop any touch experiences the infant seems to dislike.
- Infants sense things (touch) through many parts of their body, so rub noses, and touch elbows and knees.

Resources

BrainWonders. ©2002 ZERO TO THREE, Erikson Institute, and Boston University School of Medicine. Adapted from www.zerotothree.org with permission of ZERO TO THREE.

Starting Smart: How Early Experiences Affect Brain Development. T. Hawley, An Ounce of Prevention Fund and ZERO TO THREE Paper (1998).

From Neurons to Neighborhoods: The Science of Early Childhood Development. J. Shonkoff & D. Phillips (Eds.), National Research Council-Institute of Medicine, National Academy Press (2000).

Rethinking the Brain: New Insights into Early Brain Development. Rima Shore, Families & Work Institute (1997).

2002