Early Childhood Brain Development

Training Objectives:

- caregiver will be able to recognize the importance of repetition of desirable behaviors with an infant.
- caregiver can describe the dynamics of what is happening in the infants brain as this relates to being talked to by an adult.
- caregiver can list benefits of close attachment to an infants.
- caregiver can state the benefits of routine for an infant.

Why should caregivers know about brain development?

The brain is the part of the body that allows us to feel joy or despair, to respond to others in a loving or angry way, to use reason, or to simply react. These capacities don't just magically appear, they result from the interplay between a child's heredity and the experiences they have during childhood.

At birth, the brain is unfinished. The parts of the brain that handle thinking and remembering, as well as emotional and social behavior, are underdeveloped. The fact that the brain matures in the world, rather than the womb, means young children are deeply affected by their early experiences. Their relationships with parents and other important caregivers don't just influence their moods, but actually affect the way children's brains become "wired." Researchers now confirm that the way infants are interacted with and the experiences provide for them have a major impact on the child's emotional development, learning skills and how they function later in life.

How does the brain form "connections"?

At birth, the brain contains about 100 billion cells that are yet to be connected into functioning networks. By the time a child is three, the brain has formed about one thousand trillion connections between these brain cells. Some of these connections become permanent, while others disappear as the child grows. How does the brain know which connections to keep? Connections that are used repeatedly during the child's early years become the foundation for the brain's organization and function throughout life. In contrast, a connection that is not used results in a lack of development or even the disappearance of these

connections. For example, a child who is rarely spoken to or read to in the early years my have difficulty mastering language skills later on. By the same token, a child who is rarely played with may have difficulty with social adjustment as he or she grows.

Brain cells are designed for making connections. Each cell sends signals out to other brain cells and receives input from other cells. The signals, in the form of electrical impulses, travel down the length of the nerve cell. With the help of chemicals (such as serotonin) they travel from cell to cell, creating connections. Repeated activation of networks of neurons strengthens these connections.

What should be done to encourage appropriate brain development?

When a caregiver rocks, touches, talks to, sings to and smiles at an infant, this promotes brain development. Babies experience relationships through their senses - vision, hearing, touch, smell and taste. They read the way you look into their eyes, they see the expressions on your face, they hear you cooing, singing, talking and reading, and they feel you holding or rocking them. Touch is especially important, as holding and stroking stimulates the brain to release important hormones necessary for growth.

1. **Be warm, loving and responsive.**

   Children who receive warm and responsive caregiving and are securely attached to their caregivers cope with difficult times more easily when they are older. They are more curious, get along better with others children, and perform better in school than children who are less securely attached.

   Infants communicate their needs, preferences, and moods to the adults who care for them by the sounds they make, the way they move, their expressions and the way they make (or avoid) eye contact. Children become securely attached when caregivers try to read these signals and respond with sensitivity. They bring to trust that when they smile, some will smile back, that when they are upset, someone will comfort them, and that when they are hungry, someone will feed them.

   Your might think that a newborn might get spoiled with all this attention, but studies show that newborns who are more quickly and warmly responded to when crying typically learn to cry much less and sleep more at night. A baby expresses his distress by crying. When the caregiver responds with food, warmth, or comfort, the baby tends to be calmed. The stress-response system in the brain are turned off and the infant's brain begins to create networks of brain cells that help the baby soothe himself.

2. **Talk, read and sign to the child.**

   Infants learn from "conversations" even when they cannot understand what you are saying. When babies hear the same words over and over, the parts of the brain that handles speech and language develop. The time used to change a diaper or feed an infant can be an opportunity to spend some individual time with that child, talking, singing and expanding on their own coos and gurgles.

   Read picture books and stories to infants. By 6 months, infants show excitement by widening their eyes and moving their arms and legs when looking at a book with pictures of babies or other familiar objects.

3. **Establish routines.**

   Daily routines associated with pleasurable feelings are reassuring for children. Repeated positive experiences provide for a sense of security. It helps a child learn what to expect from his environment and how to understand the world around him.

4. **Encourage safe exploration and play.**

   Play is an important learning experience. Look around the environment you are providing for infants. Make sure there are enough interesting things for them to look at - not too many, but that there are things for the infant to focus on one at a time. Put the infants on the floor in safe areas that encourage them to move about. Keep things in containers that in infant can dump and fill. Adults should encourage exploration, and then also be receptive when the child needs to return to them form security.

Helpful

- The attendance and support of a kind and interested adult
- Child care that is continuous and predictable
- A caregiver whom the child likes and trusts
- A safe and clean place to play
- Physical activity, interesting toys and fresh air
- Nutritious meals and snacks

Harmful

- Hearing harsh voices or "no" all day, not being picked up when crying or listening to when upset
- Frequent caregiver turnover and a non-predictable schedule
- A caregiver who is too tired or overwhelmed by caregiving responsibilities or does not want to care for children
- Lack of toys, over-use of television

By providing consistent and responsible caregiving, you can ensure that a child will have the best opportunity for healthy emotional and social development. Every important caregiver has the potential to help shape a young child's future.

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Test Questions:

1. What is most important in what affects the way children's brains become "wired"?

- ***a.*** ☐ The correct amount of rest and play time.
- ***b.*** ☐ The medical history of the infant.
- ***c.*** ☐ The babies relationships with parents and other caregivers.
- ***d.*** ☐ The diet of the infant.

2. How does the brain know which "connections" to keep?

- ***a.*** ☐ Those that are used repeatedly.
- ***b.*** ☐ Those that are encouraged by the caregiver.
- ***c.*** ☐ Those that happen in the first three months.
- ***d.*** ☐ This is impossible to determine.

3. A part of how babies experience relationships is through the sense of taste.

☐ True ☐ False

4. Reading to an infant is an important part of secure attachment to a caregiver by an infant.

☐ True ☐ False

1-c, 2-a, 3-T, 4-T