



Brain Messages and Strategies for Supporting Early Brain Development



INTRODUCTION

The first six months of life are extraordinary time for child development. After adjusting to life outside of the womb, babies become increasingly interactive as well as gaining physical skills. While it is easy to watch their physical development as they learn to roll over, smile, and sit, there are even more dramatic developments going on in their ability to perceive their environment and interact with their parents and other adults.

DULCE Family Specialists work with parents and other caregivers to help them understand their child's development, and how that affects parenting. *Strategies for Supporting Early Brain Development* is designed to link DULCE protocols to current knowledge about infant brain development.

The information in *Strategies for Supporting Early Brain Development* is based on three topics that are particularly effective when working with families:

1. Infant brain development – an overview of “serve and return”
2. Use of an evocative object
3. Discussing with parents how babies learn and grow by using “brain messages”

INFANT BRAIN DEVELOPMENT: *SERVE AND RETURN*

Infants undergo rapid brain development, beginning at the moment of birth. After birth, this brain growth results in a predictable series of new abilities and accomplishments, highlighted in *Brain Messages for Each DULCE Visit*.

Recent advances in neuroscience have demonstrated the importance of interaction to promote optimal brain growth and development. The Harvard Center on the Developing Child refers to this phenomenon as [*serve and return*](#). Responsive relationships – particularly with an infant's caregivers – form the basis of the infant's growing awareness of the outside world. Parents naturally know this: they hold, cuddle, and coo their babies. Parents then experience pride and delight when their infant begins to smile and coo in return. Videos, special music recordings, and a variety of toys have been promoted as encouraging brain development. However, there is no scientific evidence to support their utility. DULCE, which includes help with concrete supports and social connection, can help address common barriers to this loving responsive nurturing relationship.

Toxic stress interferes with normal brain development. In general, when stressed, animals *and people* increase the levels of circulating stress hormones. These, in turn, may interfere with normal brain growth and result in alterations of brain architecture. When infants are unable to elicit a reaction from their normal caregivers, they appear to develop stress – they may cry and struggle physically to call attention to themselves. Radesky has observed these behaviors when parental attention is distracted by texting or other smartphone apps. While infants tolerate intermittent lack of attention, consistent

failure of adults to engage in responsive relationships may be very damaging. This is a key component of [child neglect](#).

In many cases, understanding their infant's need for caregiver responsiveness may help parents better understand their child's behavior. The DULCE Family Specialist can model and promote these interactions. Home visits often provide a perfect opportunity to discuss the baby's needs and abilities for interaction with all caregivers e.g., father, grandparents, extended family.

The Harvard University's Center for the Developing Child has a series of [videos](#) and [training resources](#) on early brain development; these should form part of the self-learning for Family Specialists and other DULCE team members.

EVOCATIVE OBJECTS – A Useful Tool for Watching Babies Develop

Dr. Winnicott, a 19th century English pediatrician, engaged parents in a conversation about their child's development using a silver spoon: easily cleaned, easily recognized and available in all homes. He started each well child visit by asking parents what they *thought* their babies would do when they saw the spoon. Then, he would demonstrate what the babies *could* do with the spoon: focusing, tracking, reaching, grasping, bringing it to their mouth, dropping it, finding it hidden under a cloth, and so on.

DULCE uses a small rubber ducky – or “duckies” – as an evocative object. While duckies can be used to demonstrate the baby's motor skills, they can also evoke thinking, language and playful games. Additionally, duckies easily lend themselves to a discussion of attachment and the baby's emotional development.



BRAIN MESSAGES FOR EACH DULCE VISIT

Most parents are very interested in how their babies are learning and growing. *Brain messages*, timed to each well child visit in the first 6 months of life, provide pediatric clinicians consistent, concise, and practical take home messages about the research on brain development. Parents enjoy watching their babies' new abilities. The "brain messages" that follow highlight information on brain development including social-emotional abilities and cognitive skills.

These messages are planned to coincide with components of the regular well child exam, so they can complement activities that the clinician is already doing within the context of primary care or as part of anticipatory guidance for families. For example, while conducting a physical exam on a newborn, the pediatric clinician can discuss the function of the soft spot and reassure parents that they should not be worried about gently touching the baby's head. Similarly, when the baby smiles at a parent, the pediatric clinician or Family Specialist can note how the baby's social smile is fully developed and can point out the baby's emerging ability to match emotional responses – joy in seeing the parent – to reciprocal and shared emotions in the parent.

TWO WEEK VISIT

REFLEXES

Background Information for Pediatric Clinicians/Family Specialist

By two weeks, an infant's activities are primarily governed by reflexes – the automatic responses that occur as the brain develops voluntary control over movements. Reflexes help identify a baby's normal brain and nerve activity. Children in the first month of life should display the *Babinski reflex*, which causes the toes to fan outward when a person strokes the sole of the baby's foot. A newborn should also reflexively grip an adult's finger (*grasp reflex*), and root for (*rooting reflex*) and suck from a breast or bottle (*suck reflex*). The *tonic neck response* – also known as the fencer pose – is what happens when babies look left and then their left arm and leg extends out (and conversely, their right arm and leg when looking right). The *moro reflex* is the extension and contraction of the arms and legs when a baby's center of gravity changes or is disturbed in some way. Some newborns lose these reflexes during the first month as a normal component of brain development, while other children may retain them for several months.

Take Home Messages for Parents

Babies are born with a set of reflexes that help them react to the world around them. For example, newborns are born with the ability to move their arms and legs in a swimming motion and lift their heads when placed on their stomachs. There are three main sets of reflexes present at birth that are important for a baby's survival:

- **Feeding:** the rooting (head turns toward cheek that is stroked), sucking and swallowing reflexes allow infants to take in nourishment.

- **Breathing:** the breathing reflex, hiccups, sneezes, and moving the arms and legs when something is covering the face helps to protect the infant's ability to get oxygen.
- **Body temperature:** infants can maintain their body temperatures by shivering, crying, and tucking their legs into their bodies to stay warm. To cool off, they will automatically push off blankets and decrease their movement.

PROTECT THE NECK

Background Information for Pediatric Clinicians/Family Specialist

The weight of the baby's head can be a challenge to the newly developing muscles in the neck. For infants, learning to hold their heads up is an important skill and is facilitated by both allowing babies some tummy time to practice lifting their heads and by protecting their necks from too much pressure to hold up their heads without support. This can be demonstrated by using a pull-to-sit maneuver.

Take Home Messages for Parents

The brain, which is very soft and spongy, is protected from being hurt by the baby's hard skull/head. Supporting a baby's head until the neck is strong enough to hold up the weight of the head is very important. The baby's head should never flop around without support.

Never shake a baby either in fun or in anger:

- Shaking a baby moves the brain around and bangs the brain into the hard skull which causes it to get bruised
- Many parents and caregivers like to hold the baby up over their heads and jiggle the baby around; this could hurt the baby's brain
- Sometimes parents and caregivers get angry at a baby who does not stop fussing or crying and they shake the baby to stop the fussing or crying

"If you find yourself getting angry and losing your patience with your baby, ask your partner to help or leave your baby in the crib and take a break for a few minutes. Call a friend to come over."

PROVIDE COMFORT & LOVE BY HOLDING & ROCKING: "YOU CANNOT SPOIL A BABY"

Background Information for Pediatric Clinicians/Family Specialist

The comfort and love parents provide begin the process of interaction – serve and return – that infants require for optimal development. Parents can make eye contact with their infants from the moment of birth; skin-to-skin contact encourages the development of strong bonds between infants and their parents. Babies who received warm, responsive, consistent care produce less of the stress hormone *cortisol*, and when they do become upset, they turn off their stress reaction more quickly and

efficiently. As babies hear their caregiver's voices and feel their touch synaptic connections are strengthened. Chemical and anatomical changes that occur as a result of babies being exposed to comfort and love over and over again help babies to build more synaptic connections in their brains.

Take Home Messages for Parents

1. Babies learn to handle stress by being comforted, held, rocked, sung to and talked to in soothing ways. These actions release substances in the brain that help babies handle stress. The more often babies are comforted and talked to, the better they are able to handle stress when they are older. Babies are not spoiled by holding and comforting; these actions are in fact meeting the baby's needs. A secure relationship and many early interactions of love and comfort – like rocking, singing and talking – “directly affect the way the brain is wired.” (Shore, 1997)
2. The practice of skin-to-skin contact, beginning as close to birth as possible, has become more widespread and also appears to encourage bonding, reduce crying, and may help promote newborn brain development¹. While skin-skin contact with mothers is most prevalent, skin-to-skin contact with fathers or mother's partner also appears beneficial. Importantly, infants should not co-sleep with an adult, as this is associated with suffocation deaths² – even in the maternity ward.

TRACKING

Background Information for Pediatric Clinicians/Family Specialist

At this stage, the eye muscles are working hard to focus. Parents often report that their child will gaze and follow their faces. Using a high contrast object or image can help infants give their eye muscles a “work-out.” While contrasting images are helpful, using a toy, such as a rubber ducky, can help parents observe the shifting of eyes as they follow the object. At this age, babies do not have the full capacity to see in color, this develops later on. However, babies can distinguish between objects that have high contrast; for example, black and white images. This is why many parents report that their child will focus mostly on the upper part of their face, where the eyes are located, partly because there is a high contrast in the eyes – between the pupil and the sclera.

Take Home Messages for Parents

A baby's eyesight develops slowly. By playing tracking games with objects and images that have either a high contrast, or are black and white, parents help their baby to strengthen eye muscles in addition to spending time interacting and playing with their

¹ Moore ER, Anderson GC, Bergman N. Early skin-to-skin contact for mothers and their healthy newborn infants (Review) Cochrane Library 2009, volume 1.

² BT Thach. Deaths and near deaths of healthy newborn infants while bed sharing on maternity wards. *Journal of Perinatology* (2014) 34, 275–279

newborn. This creates a wonderful opportunity for the parent-child relationship to bud and continue to grow.

SAFE SLEEP

Background Information for Pediatric Clinicians/Family Specialist

Babies take their first breaths within moments of birth. The infant respiratory system is still new at this job: newborns often have irregular breathing patterns that parents can easily observe. Sadly, this gradual development of breathing patterns also makes it possible for infants to stop breathing under certain conditions. Sudden infant death syndrome is a problem that occurs during the first few months of life, in which babies die in their sleep. We now know that one way this happens is when the baby breathes into a trapped pocket of air, for example, under a blanket, where carbon dioxide can accumulate from the baby's breath, gradually suppressing the baby's normal respiratory effort.

Take Home Messages for Parents

The American Academy of Pediatrics recommends a safe sleep environment³ that has been shown to dramatically decrease the likelihood of sudden infant death syndrome:

1. Back to sleep for every sleep – babies should not be allowed to sleep on their tummies.
2. Keep soft bedding and loose items out of the crib; use a firm mattress.
3. Share rooms, not beds – adults sometimes roll over onto their babies and suffocate them, while sleeping.

NOTE: Many maternity hospitals teach new parents about safe sleep. Consider asking them for copies of any written materials or videos to help reinforce the key elements of safe sleep practices.

ONE MONTH VISIT

OPENING FISTED HANDS

Background Information for Pediatric Clinicians/Family Specialist

Motor development begins at the torso and progresses outward to the fingers. As the grasp reflex fades and controlled movements take over, infants are increasingly able to unclench their fists.

Take Home Messages for Parents

A newborn's hands remain tightly clenched during the first month. Infants will slowly begin to learn that their hands are a part of their body. Around 6 weeks, infants will begin to grasp one hand with the other hand and try to pry their hand open. Around 8

³ www.healthychildcare.org/pdf/sidsparentsafesleep.pdf accessed February 7, 2016

weeks, an infant's hands are beginning to slowly unfold. Babies enjoy batting at mobiles and other dangling toys. Babies love to shake rattles – the noise that is created helps them to realize that their hands are attached to their bodies.

TURNING TOWARDS FAMILIAR VOICES

Background Information

Even before birth, the developing fetus begins to hear sounds. As a result, infants prefer their parents' familiar voices to others. They will reward parents with wide eyes and excitement when they hear them talking!

Take Home Messages for Parents

A good way to tell parents about this is to actually show them. During the exam, have someone hold the baby on the exam table; this works best with the baby's back is on the table. Suggest that one of the parents call the baby's name from one side of the child while the clinician/Family Specialist calls the baby's name from the other side. Almost all babies will turn to the familiar voice of the parent – "Look how your baby turns to see you because you are so important!"

TALKING

Background Information

Brain growth occurs based on how infants interact with their environment. Experience is necessary for the brain to get organized. By three months, the baby's brain can distinguish several hundred different spoken words; including those words spoken in different languages. The brain then organizes itself around the words that it has heard repeatedly and begins to make connections between these frequently heard words. The brain recognizes that those sounds are a part of daily language: the baby's name, "mama," "dada," "night-night," and even the sound of a "kiss" when given from above. The brain is creating an auditory map to process language efficiently. The part of the brain that organizes the flow of language into meaningful parts happens while infants are active participants in these "conversations" – long before they can actually talk. Repetition of words and songs or poems forms connections in the auditory cortex.

Take Home Messages for Parents

Many parents feel silly talking to a tiny baby. After all, babies do not understand what is being said and they cannot answer questions. On the other hand hearing language teaches the infant about the music of language – the sounds, cadence, and tone of speech. This understanding begins the process that will result, a year later, of the baby's first words. When they hear and interact, and hear people talk, babies are developing the brain capacities associated with optimal early language skills:

- While pushing their babies in a shopping cart, parents can talk to their baby about what they are buying. This helps to grow the part of the brain that is responsible for language.

- Babies learn to handle stress by being talked to in a soothing way. While holding, comforting, rocking, singing and talking to babies, substances in the brain are released – this helps babies handle stress. The more often babies are comforted and talked to, the better they are able to handle stress when they get older.

“Chat with your baby about things that you see and hear and do together.”

TWO MONTH VISIT

HEAD CIRCUMFERENCE

Background Information for Pediatric Clinicians/Family Specialist

In babies, head circumference (the distance around the largest part of the head) can provide information about brain development. If a baby's head is bigger or smaller than most other children at this age or if the head circumference stops increasing or increases quickly, it may indicate a problem. For example, an unusually large head may be a sign of hydrocephalus, a buildup of fluid inside the brain. A head that's smaller than average may be a sign that the brain is not developing properly or has stopped growing.

Take Home Messages for Parents

The growth of a child's head occurs in response to the development of the brain. It is somewhat independent of body growth and nutrition. Genetic factors often play a role in the size of a child's head. For example, a father with a larger than average head size might have a child whose head is larger than average. The most rapid head growth occurs in the first two years of life.

ATTRACTION TO NOVELTY

Background Information for Pediatric Clinicians/Family Specialist

Babies at this age are beginning to be interested in the world around them. Tummy time is an excellent activity to foster muscle strength and it also encourages cognitive development. When babies experience a change in perspective in the world around them, it facilitates attention to novel stimuli and also promotes head turning as they attempt to locate and visually explore the stimuli.

Take Home Messages for Parents

Encourage parents to continue having tummy time with their baby, and also to change the baby's position from lying down to supported sitting while the baby is awake and alert. This helps babies to see and absorb different views; while engaging them visually, this is also stimulating their brain development. Often parents are concerned that a baby's head may be a bit flatter on the back or one side. This is a common problem for infants who sleep on their backs and spend time in car seats or other child restraints. It may help to allow an infant who is awake some tummy time, or time on a blanket, in a baby sling, or simply being held.

BORED / DISTRACTION

Background Information for Pediatric Clinicians/Family Specialist

Often parents are not aware that a baby can be bored. It is important to discuss with parents the value of providing novel stimuli for their baby and engaging them in

conversation and play. Playing games, singing or talking with a baby is important as it encourages both socio-emotional growth and language development. Taking the two-month old infant outdoors may help. The outdoor environment is filled with novel sights, sounds, smells and sensations, easily providing needed novelty. Encouraging parents to sing and read to their child at this stage is important – not only does it engage the child, but it also promotes emotion regulation and supports the attachment between parent and child.

Take Home Messages for Parents

By this age, babies are beginning to interact socially and respond to both facial and oral parental expression. When parents talk to babies, they turn towards the parent, pay attention, and attempt to engage the parent in an interaction. But when babies are left in the same spot for an extended period of time they become bored and disengaged. Games like “peek-a-boo” and “pat-a-cake” are excellent ways to engage babies and provide opportunities for social learning. When placed in a stroller, the infant will begin to experience novel sensations, encouraging further brain development.

FOUR MONTH VISIT

ROUTINES / REPETITION / PRACTICE

Background Information for Pediatric Clinicians/Family Specialist

Consistency and repetition are crucial for development during this stage. Babies are observing their world more closely now and are beginning to experiment with their environment. At this point, they become distracted by most sounds, sights and smells that are new to them. Some also begin to experiment with rudimentary cause and effect and repeat actions several times, such as shaking a rattle to see the results. Allowing babies the freedom to explore during at this age is critical for their intellectual development.

Take Home Messages for Parents

The following analogy may help parents understand why it is so important to repeat, repeat, and repeat:

“Envision the first day of school, the grass outside the school is completely fresh and covering every spot. Come October, students have made their own paths and these paths continue to become visible from the repeated use of the same path, the grass is no longer noticeable. Likewise, babies’ brains are continually making pathways of the things they are learning. The more you repeat an activity and keep it the same those path-connections that are being made in your baby’s brain will become that much stronger.”

SOCIAL SMILE

Background Information for Pediatric Clinicians/Family Specialist

The social smile is a developmental milestone that most infants reach when they are between two and three months old. Not displaying a social smile by six months of age is commonly considered to be an early sign of a developmental issue (e.g., vision problems, possible developmental disorder).

Take Home Messages for Parents

A social smile is reciprocal, meaning that babies smile in response to someone else's smile. It is a sign that several different parts of the brain are maturing. Babies are now able to see short distances, make sense of the object seen (e.g., a smiling face), and produce a smile in return – demonstrating imitation and reciprocity. A social smile also boosts secure attachment, since it is one of the first forms of social and emotional communication between parent and child.

At the early visits, Family Specialists emphasized how caregivers could respond to a baby’s signals and help regulate the infant’s environment. Now, with the development of the social smile, it becomes easier for parents to participate to enjoy their interactions

with the infant, while literally experiencing the infant's newfound ability to initiate interactions.

WHAT BABIES LIKE TO DO

Background Information for Pediatric Clinicians/Family Specialist

Emotions guide babies to seek the experiences that their brains need to grow. When the brain is getting what it needs, babies experience curiosity, interest and delight. For example, a baby's face registers joy and excitement, especially in response to a parent's face. When the brain needs new or more stimulation, the baby gets bored and fussy. Correspondingly, when the brain is overloaded, the baby experiences tension and unhappiness.

Take Home Messages for Parents

The "brain exercises" that babies need to develop and organize their brains are the ones they get during normal, everyday experiences such as bathing, feeding, and diaper changing. Parents can:

- Play finger games, sing made-up songs, and play "peek-a-boo" during daily caregiving activities
- Label body parts during bathing
- Narrate daily events that the baby is experiencing during outings like shopping
- Develop routines for daily activities so babies come to anticipate what will happen next. For example, bring the baby's coat when it is time to go out, sing the same song when it is time to take a bath, and so on.

Babies are getting the right "brain food" when they appear to be having fun. When parents follow their baby's lead – observing what their baby is enjoying and then doing it with them – parents can be confident that their baby is not only having fun but developing a healthy brain. Babies who are given opportunities to "feed their brains" with interesting things to look at and explore are simultaneously developing brains that want to explore even more – developing brains that *love to learn*.

Babies like to play games that have a familiar ritual like: "pat-a-cake" (or similar hand-clapping games), "we all fall down," "where's...mama, dada, the dog," and "peek-a-boo." The repetition, while hard for many grown-ups, is a thrill for babies. The repetition teaches babies to expect certain actions and to anticipate what happens next. This repetition cements synapses (connections) in the baby's developing brain.

SIX MONTH VISIT

EARLY LITERACY

Background Information for Pediatric Clinicians/Family Specialist

Reach Out and Read is an evidence-based nonprofit organization that promotes early literacy and school readiness in pediatric exam rooms nationwide by giving new developmentally and culturally appropriate books to children and advice to parents about the importance of sharing books and reading aloud. *Reach Out and Read* builds on the unique relationship between parents and pediatric clinicians to develop critical, early pre-reading skills in children, beginning at 6 months of age.

Take Home Messages for Parents (the following is adapted from the *Reach Out and Read* website, www.reachoutandread.org)

It is important to read to children from an early age because:

- Children who live in print-rich environments and who are read to during the first years of life are much more likely to learn to read at the appropriate age.
- Babies as young as six months enjoy being read to and handling board books. They like to look at bright colorful pictures of familiar items like other babies, animals, and trucks. They like to mouth the books, sit in a grown-up's lap and listen (even very briefly) to a simple storybook.
- Reading aloud to young children is not only one of the best activities to stimulate language and cognitive skills; it also builds motivation, curiosity, and memory.
- Early language skills, which are the foundation for reading and school readiness, are based primarily on language exposure, the result of parents and other adults talking to young children about the actions, events and people in their everyday lives.
- Research shows that the more words parents use when speaking to an 8-month-old infant, the greater the size of their child's vocabulary at age three. The landmark Hart-Risley (1995) study on language development documented that children from low-income families hear as many as 30 million fewer words than their more affluent peers before the age of four.
- Books contain many words that children are unlikely to encounter frequently in spoken language. Children's books actually contain 50% more rare words than primetime television or even college students' conversations.
- The nurturing and one-on-one attention from parents during reading aloud encourages children to form a positive association with books and reading later in life; in other words, a love of learning.
- Reading aloud and sharing stories can help children cope during times of stress or tragedy. Books like *Goodnight Moon* help very young children ease into sleep.

OBJECT PERMANENCE / PERSON PERMANENCE

Background Information for Pediatric Clinicians/Family Specialist

Experience teaches babies that when things disappear, these things can often be found some place else – like under a blanket or behind another toy. Babies learn to hold the image of an object in their mind and to actively search for it. Called object permanence, this skill develops slowly as the baby’s brain matures. Person permanence is a similar cognitive process, allowing babies to know that a person continues to exist even if that person cannot be seen.

Take Home Messages for Parents

Before, “out of sight was out of mind.” Babies now remember that when someone is out of sight that person still exists. Parents can call out to their infants so they know they are still around and available. Now, when it is time to sleep, babies can hold an image in their mind even though they cannot see their parents. They know that their parents are around, perhaps just outside the door. This may be why babies now cry when put down to sleep; they know that their caregiver is still around!

Unlike before, babies may *now cry* when they are left at grandma’s house, with the babysitter, or at childcare. It is hard for parents to leave when their baby is protesting their leaving. Babies can now understand what it means when someone puts on a coat or says “goodbye.” Babies have learned – through many repetitions – what to expect when they see the coat or hear goodbye – Mom or Dad is about to walk out the door!

SEPARATION & STRANGER ANXIETY

Background Information for Pediatric Clinicians/Family Specialist

Experiences of successfully negotiating the transition from negative to positive states of emotion build resiliency in young children. The child learns on a physiological level that when things feel bad they can be set right.

The frontal cortex of the brain, the area associated with the ability to regulate and express emotion, think, and plan is now showing an increase in activity. The baby is better able to self-regulate and has a strong attachment to caregivers; therefore, babies now become stressed in response to strangers.

Take Home Messages for Parents

Why does your baby cry when you leave the room? The memory centers in the brain have matured and babies can now hold images of their parents in their heads ... they know when someone important is “not there.”

Does your baby want to follow you everywhere ... even into the bathroom? Does it feel like you have no privacy? You have a “Velcro baby” attached to your leg! Although this can be hard, it signals that the baby’s brain can now remember images that are not in view; babies are becoming securely attached to their caregivers – they want to be with them.

The maturing of memory centers in the brain allows babies to remember the experience of “missing you.” The link in the brain from “knowing” to “feeling” has also been established. Babies now know that when someone leaves, not only will that person not be there – they feel sad about it.

Acknowledge the feelings and label the emotions: *“You feel sad (or mad; whatever the emotion) when I have to go to work. I will miss you. I will see you after your nap (or snack; whatever the time-marker for your baby) and then we will go home and play.”* What babies are learning is to manage separations, especially those that end with a joyful reunion at the end of the day.

Responding to a baby’s verbalizations, movements and behavioral cues teaches the child that there is a give and take in relationships. Babies learn that when they express what they are feeling the significant adults around them will respond with a similar level of emotion, mirroring joys or concerns:

- *“You are so happy today.”*
- *“Why are you upset?”*

SUMMARY

One of the most essential experiences in shaping the architecture of the developing brain is the “serve and return” interaction between infants and the significant adults in their lives. Babies naturally reach out for interaction through babbling, facial expressions, and gestures. Adults respond with the same kind of vocalizing and gesturing back. This back-and-forth process is fundamental to the wiring of the brain, especially in the earliest years.

For more information, view the three-part video series “Three Core Concepts in Early Development” from Harvard University’s Center on the Developing Child and the National Scientific Council on the Developing Child which depicts how advances in neuroscience, molecular biology, and genomics now give us a much better understanding of how early experiences are built into our bodies and brains, for better or for worse:

1. Experiences Build Brain Architecture
2. Serve and Return Interaction Shapes Brain Circuitry
3. Toxic Stress Derails Healthy Development

Go to:

developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/

Strategies for Supporting Early Brain Development was originally developed and compiled Boston Medical Center DULCE Team. For this edition, Dr. Al Race of Harvard University’s Center on the Developing Child assisted by adding references to current science and valuable resources.