



Trauma and The Brain, A Neurodevelopmental Movement Approach with Bette Lamont

Before we begin, please take the time to write an answer to this question on our whiteboard in one or many words:

“What is the deepest concern you have for our children today?”

And take time, before the lecture, to consider this quote and what it means to you:

We do not bring our children into the world to join the race, but to fulfill a personal destiny that we are privileged to witness and support.



Trauma and the Brain Workshop

Morning Session

This workshop is a dive into how the central nervous system is impacted by trauma and how the compromised brain continues to create trauma. It is a limited overview and does not give you the materials you need to create full neurodevelopmental programs for hurt children; however, it does offer you a few tools to ameliorate some challenges in some clients.

Expectations - Participants will understand:

- what normal neurological organization looks like
- what interference in that development, as the result of physical or emotional trauma or injury, looks like
- ways to test for gaps (note this is a limited test. The complete testing protocols are taught in the Certification Training)
- ways to tease out ND issues from behavioral challenges
- a new lens through which to view diagnosing behavioral problems and learning problems
- activities to promote a more integrated neurological response in children
- problem solving and Q&A integrated into the workshop

Review the Developmental Chart

- History of research
- Chart
- Client to whom this work applies - *Carson's Journey*: "She's like a different child! She was caged in, trapped by her anxieties and now she is set free to live the happy, joyful, carefree life a girl her age should be living!"

Full quote from Carson's parents:

At age 5, Carson started sharing thoughts with Johnna about her parents killing her and her siblings. She also had thoughts about odd things like woodpeckers getting into our house and pecking her mother to death. She would say things like "Mommy, I know I can pray and talk to God about my worries, but sometimes I don't think he will help me because I think I am Satan's girl." As Christians, these remarks were very troubling for Johnna and Terry. Carson also became very critical of other people; the way they looked, the way they dressed, and she felt bad for having these critical thoughts about people. She often got down on herself for being a bad person. As Johnna was relaying these memories back to us, she stopped and said, "Wow, we've come such a long way!"



Then, Carson started her NeuroDevelopmental Movement (NDM) plan with Bette Lamont in Minneapolis, Minnesota. “The combination of the nutrition plan and the NDM made a very noticeable difference by the fourth month of therapy,” Johnna told us. Although they had to travel 120 miles each way to have this therapy done, Carson’s parents were willing to do whatever it took to help their daughter. When doing NDM, Bette first assesses gaps in development and then prescribes developmental movements that help the brains of children like Carson’s get back into a healthy and functional state.

Q&A

After Break:

How the brain learns to become socially, emotionally, physically, academically, and psychologically whole and how these functions are altered by trauma was the topic of our morning discussion.

This afternoon we are focusing on two areas of the brain that support or interfere with those functions.

Part 1 Survival Trumps Learning

Exploring gaps in the birth to seven-month-old infant

Let’s look at the functions that can be impaired and what this implies.

1. Eye contact. Oxytocin. Stress hormones. Amygdala comes in at 2.5 months. Amygdala works in opposition to the hippocampus, which supports learning and memory.
2. What interferes: screens, smart phones, texting, all of the distraction devices. Distance from mom – baby’s sensory development and the holding of babies. While we are on the eyes – eye tracking, reading.
3. Sensory development in general – the baby has strong reactions, survival reactions to sensations. Mom moderates those sensations through touch and holding. Consequences of lack of contact – the roots of sensory processing disorder begin here. Anxiety in the presence of loud noises; anxiety in the heat; anxiety related to hunger or cold.
The over-responsiveness of the very young infant, the life saving cries can be left unresolved and appear in older children who did not have the direct contact with a mediating caregiver or parent.



4. Strong sensory– Heat (bath tub scalds)
 - cold – Minneapolis winter boy
 - pain – broken soccer leg boy, girls who cut, boys who take high risks, adult in bar fights
 - bullies, over-reactors, running into you headfirst
 - hunger – anorexia and simply not eating

Motor: Crawling is the “get away from” activity

Legs begin the process of establishing gravitational security or graviception. This sense of ‘groundedness’ is critical for mental health.

Astronauts experience disruption of the proprioceptive system and may lose track of where their body parts are.

Hand Function: the grasp reflex, if retained, is a form of regression and protection. It tells us that the amygdale is likely dominating.

Event: each group of eight, please find an open space to work between the tables.

Practice Tests:

- Horizontal tracking
- Pain threshold
- Crawling

A picture of the pons level impaired child (and note, this is generalized):

1. Emotionally anxious, clingy, overly risk taking, seeks strong sensory stimulation through physical contact, easily frightened
2. Socially, a bully or withdrawn, sometimes literally behind mom’s legs. Poor eye contact, uncomfortable with eye contact
3. Academically, inability to track words across the page, reading the first letter and guessing, uninterested in reading, needs a ruler or guide under the words to track them
4. Physically awkward; may walk ‘like a snowman’, hips don’t align properly, poor, unstable lordotic curves, poor lower body sensation, may be still wetting the bed in elementary school

When life energy is absorbed in survival, which is the job of the pons level brain, more energy goes to feeling safe in the world, getting the sensory input and/or lack of sensory input needed to maintain a consistent sense of self surpasses the natural drivers of learning, which are confidence and the beginnings of curiosity and experimentation.



Sample of pons directed child:

Jeremy is difficult. He is also a child of trauma. His adoptive parents, aware of his immature social skills have held him back a year in school, so that he did not enter Kindergarten until the age of 6. He has a mature vocabulary, but gets angry every time his mother suggests reading. It has gotten to the point that he does not want to be read to.

Jeremy was asked to leave one preschool because of his aggressive behavior towards younger children. A few months later, when his parents introduced him to a new preschool, he kept saying he was afraid and would bite and scream when they tried to take him into the new facility. Jeremy cannot sleep alone in his own bedroom and has to be almost on top of his mother's body to sleep. If she gets up in the night he screams piercingly until she returns.

Jeremy was born to a teen mother who tried to hide the pregnancy from her parents, and stayed in denial that having a baby would change her life once the pregnancy was discovered. His biological mother tried to keep him for six weeks, but started to leave him to go out partying. Her housemates turned her in to Social Services and Jeremy was taken into foster care. He was in three foster homes. The third foster family, where he was placed at the age of two, decided to adopt him. When Jeremy was three, the biological mother relinquished custody and he was adopted by his foster parents.

Q&A



Part 2 **Boundaries and Bridges**

What gaps in development of the 7-12 month old look like and what outcomes they create.

Our six month old is a whole new person – social, curious, ambitious.

We can think of this developmental stage as the bridge between survival and cognition. Dozens to hundreds of functions that allow us to live easily in the world, interpret what is happening and create an appropriate response, begin to appear during this phase of development.

Two general midbrain functions:

- Social Cueing
- Directing sensory input to create appropriate responses, through the thalamus

Specific midbrain functions:

Vision - at this level the visual system is creating a bridge to its sensory world by filtering out what is not needed and interpreting what the brain perceives to be priority information. So this brain is responsible for:

- seeing detail, being curious about detail
- stranger anxiety
- recognition of patterns
- close examination of the environment
- seeing stable images on the page
- vertical tracking
- convergence
- reading facial expression – as noted previously
- interpreting an individual item against a visually busy background, such as finding a pen on a cluttered desk
- organizational patterns
- filtering out unnecessary information



Consequences of midbrain visual dysfunction:

- letters that move on the page
- letters that change from black to grey
- letters that change colors (and some synesthesia)
- letters that move OFF the page
- covering one eye when reading or writing
- poor spelling (organization of letters may be inconsistent from one reading to the next)
- blurry vision and visual exhaustion, red teary eyes
- poor ability to read facial expressions
- unable to see organizational patterns – relates to cleaning and organizing physical space, seeing patterns, and highlights in text

Auditory - at this level, the auditory system is creating a bridge to it's sensory world by filtering out what is not needed and interpreting what the brain perceives to be priority information, so this brain is responsible for:

- hearing tone of voice, inflexion, innuendo, sarcasm
- filtering out excess noise

Consequences of poor auditory midbrain function:

- not understanding directions (can't hear 'bullet points')
- misinterpreting social cues
- often the butt of jokes and teasing
- doesn't know when to enter into conversations
- can't tolerate background noise
- can't hear one person talking against a background of other people talking or environmental noise

Tactile functions:

- the ability to supinate and pronate the arm, a part of fine motor skills acquisition
- prehensile grasp, using the whole hand to pick up items



Consequences of poor midbrain fine motor function:

[and a window into our hypothalamic-pituitary-adrenal (HPA) axis]

- poor supination/pronation limits the development of fine motor skills
- it is also part of our observation of how fine motor skills have integrated at this level, that we are able to witness the degree to which the HPA axis is working. HPA functioning allows us to cope with stress, to multi-task and ‘rise to the occasion’, to deal with things well under pressure.

Event: each group of eight, please find an open space to work between the tables.

Practice Tests

- Point Discrimination
- Cortical Opposition
- Supination/Pronation
- Creeping

Assessing Relevant Data:

- tests (of which we have done a few, but not comprehensive)
- history
- presenting symptoms
- correlating data to client symptoms
- creating an individualized neurodevelopmental program
- creating a generic Neurodevelopmental program for your classroom setting
- application of the work in the particular fields of child therapy, school teaching, adoption support services, brain injury rehabilitation, and discussions of application to specific disorders, including autism, ADHD, Oppositional disorders, cerebral palsy, Reactive Attachment Disorders and other neurodevelopmental syndromes.
- creating a simple, healthy developmental environment
- crawling, a tummy down mobility activity
- creeping, a hands and knees mobility activity
- vestibular activity, moving rapidly through space through many planes of movement
- Tonic Neck Pattern – illustrated in one of the handouts



Warning: stop the work if a child has a reaction, as they have no way to intervene therapeutically.

Environments that encourage healthy neurological development:

- floors, smooth and carpeted
- outdoor spaces with trees and plants and hidey holes to explore
- open space for big body movement
- encourage more games than toys– chase, catch the ball, go through obstacle courses; going outside to explore and free play in nature; animal games, vestibular activities, off-center reaching and stretching, rolling and twisting, pressure, level change
if toys, use those that involve exploring space, weight and texture – tunnels, balls, wall climbing, scarves, bubbles, trees, puddles, tree limbs, mud, and large boxes are some of the best children’s toys

These kinds of environments are actually preventive for the toddler, and therapeutic for the young child.