



## **Attachment, Mothers, and Early Neurological Development**

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Attachment, one of the most important components of a healthy child's experience, is also a topic of great interest in parenting and therapeutic circles. The rising tide of violent behavior amongst our children, including bullying, physical harming of other children, high risk taking behaviors, all speak of something profoundly challenged in our children's early life experiences that has altered their sense of well being and the ability to form healthy relationships.

This paper explores some factors that go into the attachment/bonding experience that are often overlooked in our current culture. We will discuss the attachment issue on a continuum from pre-natal development through the first year of life, taking into consideration neurological factors that affect the central nervous system and the developmental sequence from conception to the first birthday. We will look at motor and sensory prompts that mature the nervous system and how these facilitate a healthy relationship with the parent. We will also consider the benefits of a consistent and available parent and the role that disrupting this relationship might play in the poor mental health of many of our children.

Hopefully this discussion will inherently suggest solutions for the larger community, parents, childcare programs and schools. As well we hope to someday prompt discussion of improved civic strategies to favor better outcomes for children.

### **Bonding Before Birth**

As early as pregnancy, the bonding process starts, with a mother who is in good health and happy to be welcoming a new life into the world. From my perspective as a NeuroDevelopmental Movement Practitioner working with adopted children I have witnessed the harm done to children simply by the fact of the anticipated rejection by the birth mother.

We might assume that the mother, by the very fact that she is planning to give up her child for adoption, is under stress, be it rejection by her family, depression or another mental health issue, an abusive relationship, poverty, daily grinding work, malnourishment and fear. During the 9 months of pregnancy the child is swimming in the sea of hormones and chemicals from the mother's body, experiencing in some way the same emotional states.

Dr. Gabor Mate, author of several books about trauma, prenatal experience, and the brain\* has written with great insight about rejection by the mother and the later damage to brain functioning, leading to a wide range of dysfunction, from ADHD, attachment challenges, even drug abuse and addiction. We know from his studies that many children with ADHD are also



survivors of early abuse, trauma or separation, emotional or physical, from their primary care giver and that these are primary drivers of the ADHD. We would like to direct you to Dr. Mate's work for deeper insight into this pre-natal distress.

In our work we use a sensory, motor process known as NeuroDevelopmental Movement, to replicate the activities that are present before, during and after the birth of a child who comes to be labeled attachment disordered. In doing so we are able to access incipient memories and often with some startling responses from the child.

In the case of a boy we will call Bob, the responses were quite explicit and lead to a tremendous shift in his learning and behavior. Bob was adopted at age two by a very loving, appropriate family highly skilled in working with children with challenges. When we met Bob he was a five-year-old "wild man". His only known form of mobility was running; his only form of contact with others was hitting, punching, kicking. He could not sit at a table to eat; could not learn letters or numbers.

The considerable work we did with him in our first 8 months of therapy had a marked effect, however there was an element of trauma we had not yet touched. We began to do the 'fetal patterns' of movement. These small motor activities replicate the stereotypical activities of a healthy fetus. These simple movements made Bob extraordinarily uncomfortable. He squirmed and fussed in his adoptive mother's lap. Two weeks into this phase of our therapy Bob sat up and proclaimed "Tummy mommies are scary; babies aren't safe in tummy mommies; I was scared."

Bob was, in fact, the birth child of a woman who was alcoholic, and tried to stay sober through the pregnancy with some success. However the father was a binge drinker who would leave for a couple of days and then come home drunk to beat her up. Indeed, his 'tummy mommy' was not at all safe. Bob was unaware of his biological family's history.

After Bob admitted these startling fears, this wise and skilled adoptive mother began to speak to him as if he had been her own birth child. "Let's pretend I am your tummy mommy. I can feel you moving. You are so strong. I love feeling you move. I love you even before you are born." In this environment of total affirmation the mother was able to 're-script' some of his early experience. Within two weeks Bob's behavior had calmed. He was willing to accept affection. He had made a significant shift from the wild boy he had been. And a year later, with the exception of a few remaining learning issues, he is considered a neuro-typical child. And, most exciting of all, he began to bond with his mother.

The inability of the fetus to feel safe and protected before birth is a contributor to later attachment and behavior issues.



## Bonding in the Birth and Neonate Stages

At the time of birth, mothers whose labor is progressing slowly may be given Pitocin, a chemical form of the hormone oxytocin. This hormone encourages cuddling, love, peace, relationship, relaxation and its presence is one of the reasons we are so drawn to holding newborn babies. Pitocin so overwhelms the newborn that their body limits their own natural capacity to create oxytocin, interfering with the ability to bond. Mothers who have been induced using Pitocin may not feel that strong surge of 'motherly love' after the birth because the baby is not prompting it through their own oxytocin production.\*\*

Children who were born in great distress and who are considered to have a bonding issue may react in different ways to feeling a surge of oxytocin in their own bodies when we try to bond with them. Among that group is a sub-group who appear to be afraid of anything that would release their own 'cuddle hormone'. They are averse to holding babies, to gently stroking animals, to being held. The surge of oxytocin that might occur during those moments challenges them to relax their hyper-vigilance, which can feel like a threat to their very lives. The children who cannot bond, but love babies and animals, find these situations to be a safe place to feel 'yummy' without compromising their hyper-vigilance towards adults.

Once born, the infant looks into the eyes of the mother, and during this deep gazing will note the mother's pupillary size. The open soft pupils of a relaxed adoring mother signal the baby to create more 'cuddle hormone', which will cause the mother to create more of the same and the love fest begins! Here there is safety. Here is warmth. Here is certainty and survival.

Meanwhile this surge of oxytocin is prompting the hippocampus, which supports much learning and memory. This baby feels safe to explore, to learn and to remember. Initially the learning is largely about their own body and that of the mother, and later about secondary bonding figures, the father, grandparents, etc. The baby is learning the facial expressions and body language, the mood states, and communication, and, fundamentally, how to survive, what to do to interact with this being so that the baby's life is protected. Oxytocin is a prompt for learning, memory, curiosity. It also protects the mother/child bond so that the child survives.

In the absence of the holding, gazing, and comfort, the neonate's brain will create stress hormones such as cortisol that impact the amygdala, interfering with the work of that lovely hippocampus and harm the process of curious exploration, learning, retention, and cause the baby to withdraw.

Now let's stop right here! What can we possibly do about this? Most of this appears to be out of our control. Mothers are stressed. Children get pregnant at age 14 and disowned by their



families, or run away in fear. Women are abused, including pregnant women. Pregnant women without resources do struggle, starve and worry.

Again, programs of NeuroDevelopmental Movement have been used to 're-script' the child's experience. Early, incipient memory is evoked by an approach that replicates the stereotypical activities of birth and neonatal experience. And this information is available to the brain through the life span. The primitive brain continues to respond to input that is communicated in its own language, reflex, movement and sensation. NeuroDevelopmental Movement (NDM) has been used to address pre-natal and early life deficits primarily in children, as well as teens, and even adults into their 50s and beyond who have found a therapeutic support community and used NDM to help 're-script' their trauma.

## The First Six Months: Parental and Cultural Influences on Bonding/Attachment

For a better future to be possible for our children we have to also look at the larger culture in which we are raising them. Several factors negatively impact attachment, which will later impact behavior, costing our society far more than it would have spent on the early support of the mother/child bond.

Because a human infant is born, basically premature, we have to find more effective ways to support the relationship of the mother and child during the first year. Other mammals are born and within days to a couple of weeks are doing most of what they will do as adults. Horses, dogs, cats are, within hours of birth attempting to walk to relate to their litter mates in ways that will closely mimic what they will need to know as they mature. The human infant has a much longer learning curve, and basically, we could consider ourselves 'premature' until we are one year old, when walking and talking emerge.

During this period of time the child is learning more about relationship than about other learning skills. The oxytocin factor continues to drive the child's learning, but now they are beginning to grow from the safety of the mother/child bond, to strive for some independence. They begin to crawl with their belly buttons on the floor, strengthening those parts of the brain that will create horizontal eye tracking. This skill, originally a way to keep track of a caregiver, as well as to read her emotional state (noted earlier), will be ultimately used for reading, but initially it is a way to monitor the baby's safety. "Where is my mother/caregiver?" is the priority concern for this infant.

Crawling will also awaken and trigger the part of the brain that is keenly aware of life preserving boundaries. This infant is specifically aware of and will respond to heat, cold, pain, and hunger. These are sensations that we need to understand to save our own life. And for the infant their



life-saving behavior involves crying loudly in the presence of these distresses until their needs are met.

The mother who understands her infant knows that it is not possible to spoil the child at this time. She must attend to a crying baby. The infant cry evokes a pro-active response in any sane adult. Attuned parental response to this crying is the way that the infant understands that they have value and power in the world and are not alone. The hungry baby will cry loudly and this cry is meant to trigger the mother to come to the baby and meet the need.

When those needs are routinely ignored oxytocin is suppressed and cortisol, a stress hormone, again emerges to limit the baby's capacity to learn, while emphasizing survival strategies instead. The regular meeting of this life-saving need creates a cycle of trust and encourages the baby to know they are safe and loved. Through this process survival becomes, over time, less of a primary driver of behavior. Relationship, curiosity and learning will take over, pushing the child to their ultimate brilliance.

Crawling also supports a secure attachment because the child is learning a kind of independence. This independence involves the ability to move their body from one place to the other without interference of an adult. A baby struggling on the floor is doing hard work, and too often it is interrupted by adults feeling that they know how to make better use of this baby's time. The attached child will be able to move away from mom without fear, knowing that she is there, thus creating a secure, non-anxious attachment.

In situations where babies are not given an opportunity to crawl, other big opportunities are missed as well, including reduced visual motor tracking skills, reduced physical competence, and poor refinement of the ability to identify life preserving sensations.

During this time of crawling, up to 7 months of age, a wonderful formula for babies is to spend half of their waking time tummy down on a smooth surface where their feet can get purchase to mobilize. The other half of their waking time is best spent in mother's arms where after only one minute (some have said only 20 seconds) of warm human contact, oxytocin is again released.

This might cause us to wonder about the children who are sent to nursery as young as 6 weeks. This is a critical bonding time when mothers need to be available to their infant, and we may want to question why our culture does not support more opportunities to allow new mothers to nurture our future. I recently worked with a family whose child is biologically their own, but who is suffering from the challenges of a disordered attachment. The mother said she put a real priority on giving her son a good start so she 'stayed home for a full three months after he was born', then returned to work leaving him in day care "for a reasonable 8 hours a



day, nothing too extreme". For the infant an hour is extreme. An hour may be a time when they feel they are going to die at any moment. An hour can be the beginning of a disordered attachment.

Only education can alter this kind of thinking so that our children can have a brighter and more attached and peaceful future.

## The Second Six Months and Vital Attachment Concerns

As the child approaches the second half of the first year bonding goes through another surge, particularly at nine months. The right brain, the social, emotional and bonding hemisphere is growing more rapidly than the left hemisphere.\*\*\* New lessons are being learned. And the prompts for those new skills are the motor activities of the infant in the context of contact with a primary caregiver.

During this time the brain is organizing its 'bridge' between the survival brain of the young infant, and the brilliant and unique human cortex. This brain, referred to in NeuroDevelopmental Movement as the 'midbrain', helps us understand the social relationships around us, allows us to filter out irrelevant, non-life threatening stimuli to focus on the people around us, on the environment we live in.

The motor activities such as hands and knees creeping in addition to parental attunement will, at this stage of development, prompt the brain to be able to learn social skills, such as the meaning of certain facial expressions, gestures and postures. The infant, even before they have words to use, begins to understand varying tones of voice and their meaning. This little brain is beginning to prioritize sensory information: "I don't need to pay attention to or cry about the sound of the vacuum cleaner in the other room; I am much more interested in Daddy coming in the front door."

In our experience working with children for 26 years who have problems with focusing, filtering, reading body language, understanding tonality, interpreting the world around them appropriately, the physical prompts of returning to creeping and the other activities characteristic of and critical to this phase of development, plus the loving attention of a supportive parent can, indeed organize these functions.

As the tether of attachment lengthens, allowing more independence and exploration, it is critical that it not be broken at this time.

During this phase the bonding that takes place at about 9 months is also a crucial consideration. The first popular book on attachment disorders in the United States, and the



book that introduced this writer to the concept of Reactive Attachment Disorder, was the book "High Risk" \*\*\*\*. This book strongly emphasized the devastation wrought upon the brain when a child is separated from their primary caregiver at nine months. Much was made of the case of Ted Bundy, the infamous serial killer in my own state of Washington, and other killers who had been separated from his primary care giver at this age.

In my own work I have found a deeper distress in children who have been adopted, taken away from a foster family at nine months, or a child whose mother returns to work at nine months. At this age they look so 'ready to go.' They are bigger, social, more hearty, and certainly are not going to die of SIDS. They are charming, interactive and delightful. However a huge price is paid when the child loses their primary care giver and is sent to nursery, to another family, even to another country at nine months of age. The tether to the attachment figure has been cut.

In the discipline of NeuroDevelopmental Movement we replicate the sensory and motor environment of this stage of life and find many wonderful opportunities to 're-script' the distress of that nine-month-old child. Our clients may at this point be 5 years old, 9 years old, even into their teens, but the access to the primitive brain remains available through the stereotypical sensory/motor activities of the infant.

Our work in NeuroDevelopmental Movement over the last 26 years has allowed us to develop an ever deepening understanding of not only the way that exposure to a rich motor/sensory environment creates function in the brain, but also the power of replicating that environment in the older child, in the presence and under the guidance of a loving parent. Additionally, over this period we have been watching the way that the separation from mother or primary care giver in the first year of life, the interference of toys and media that keep the child from moving and exploring in developmentally appropriate ways, and the rise of 'early learning' have eroded the relationship of the child to their primary caregiver.

As a consequence we believe that our society too is being eroded. The unattached child, teen and adult comes with huge problems that can raise the level of abuse, crime, disaffection and mental health disorders. They become the adults who populate our prisons, who make our streets less safe, who make the news for their criminal behaviors, or who succumb to the lure of various addictions. Our children need, in particular that first year, and of course far more, but in the very least that first year to be adored, safe, to be free to move in ways that prompt the brain, to have their primary care giver near. In short, we need to re-examine how we might make a healthy future possible for our children and our society. For of course, our children BECOME our society. And attached, bonded, curious, healthy children will create a wonderful future for all of us.





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\**Scattered*, also sold under the title *Scattered Minds*, Gabor Mate, M.D., 1999 is ostensibly about ADHD but offers tremendous insight into bonding /attachment and trauma as they affect the brain and its development.

See: [drgabormate.com](http://drgabormate.com).

\*\*Conversation with Nina Jonio, NeuroDevelopmental Movement Practitioner

\*\*\* *Stress in Daycare*, article by Richard Bowlby, 2007

\*\*\*\* *High Risk: Children Without A Conscience*, Dr. Ken Magid and Carole A. McKelvey, Bantam, 1988