

Attachment 101, a Primer for Parents (and Suggested Readings) by Heidi Holman

How Attachment Relationships Impact Brain Development

As a prospective adoptive parent, the extent of my understanding of attachment could be found in a single line in Webster's: the bond felt between two people. I was dimly aware of dire stories of adopted children who were not able to bond, but the anecdotal information was overwhelmingly on the side of children bonding easily to their new parents. My sense was that attachment would happen intuitively, easily, and inevitably.

Ten years later, as the parent of one well attached child and one insecurely attached child, I have a much more complete understanding of the attachment process, the subtle signs of attachment problems, and the repercussions of attachment disorders. I've learned first hand that many adopted children indeed struggle with forming secure attachments, despite the best and most loving intentions of their parents. And I've seen how parents regularly miss the signs of impaired attachment, even as their children struggle with emotional, social, and learning issues.

While adoptive parents might be attentive to signs that a child is bonding, bonding is only a piece of the attachment profile. The red flags indicating attachment problems are often missed because they are subtle, counterintuitive or masquerade as typical development. For instance, it is extremely common for newly adopted infants and children to experience sleep problems, which are usually expressions of insecurity, grief, terror, or lack of control. Sleep issues in adopted children are best addressed by making extra efforts to reassure, whether by co-sleeping or otherwise meeting emotional needs. And yet parents routinely let children cry it out alone in the interest of fostering independence, often at the advice of friends, pediatricians or social workers. This advice might make sense for the securely attached but for those elsewhere on the attachment continuum it can impede attachment and generate further emotional difficulties. Our children require extra sensitivity in evaluating their behaviors. In many ways they are not like the general population of non-adopted children and addressing behavior requires a different set of strategies. Certain maladaptive traits are over-represented in adopted children. In addition to sleep issues, our children commonly exhibit issues around food and eating, hoarding or difficulty with sharing, anxiety, emotional hyper-reactivity, hypervigilance, hyperactivity, problems with memory, concentration or attention, and fears of abandonment. Yet to address these issues without considering the critical element of attachment history is to miss what is central in their etiology.

I believe that adoptive parents need a more informed understanding of attachment, especially those who assume that attachment just happens more or less naturally. Sometimes what comes naturally, instead, are maladaptive responses, crystallized during a period of critical brain development and traumatic experience. Adopted children come to us with largely unknown, often difficult histories that can impact their emotional health, cognition, social competence, and ability to form healthy and happy relationships throughout their lifetimes. We need to understand this, recognize that these problems stem from a time before we were in the picture, and learn strategies to help our children develop into secure, emotionally healthy people.

So what IS attachment? At its most basic, it is the child's primary bond to her first caregiver, which becomes the template for all future relationships. But it is also a critical internal system for dealing with stress. Typically the foundation for this system is laid through the formation of attachment during the first year of life. Most adopted children today come to us as older infants or children without secure attachment histories, via institutional care or multiple disruptions in caregivers. This means that most of them experienced ruptures in the attachment process or

never had the opportunity to form secure attachments or, by extension, an effective stress regulation system.

Can secure attachment, and a healthy stress regulation system, be formed after an insecure attachment history? Yes, but there are also ways in which early experience can derail their development, no matter how competent and loving the care afterwards. To understand this, it's necessary to look at how the infant brain develops.

At birth, the brain and central nervous system are very immature, a kind of primitive armature to be fleshed out by subsequent experience. Experience is what organizes the complex set of systems that are the brain and central nervous system. Many of the newborn's internal systems do not automatically self regulate, and one of the primary developmental tasks is to begin the regulation of these systems. This is accomplished through an emotionally attuned, committed caregiver who consistently responds to signals from the infant.

Initially, the states of the infant are as simple as being stressed or not stressed, expressed through crying when hungry, wet, tired, or startled, or calm when all is well. When an infant is stressed, there is a corresponding physiological response: stress hormones are released in her system, heartbeat races, muscles tense, breathing accelerates. If a caregiver doesn't respond quickly, stress escalates until the infant becomes overwhelmed as she is not instinctively able to regulate her stress to tolerable levels. By responding soothingly, the caregiver helps to bring the infant back into equilibrium.

What is happening neurobiologically in this exchange is that the infant's dysregulated state starts aligning with the caregiver's regulated state. With repetition, calming communication both verbal and nonverbal (soothing sounds, gentle touch, loving looks and body language) activates neural firings that become imprinted in the infant's brain. The firing neurons of the infant start mirroring the neural patterns of the caregiver. In this way, over time the caregiver effectively downloads her own stress regulation system into the infant's developing brain.

In optimal situations, emotionally attuned caregivers positively shape the stress regulation system of infants. But if the caregiving is inconsistent, neglectful, or abusive, the infant is left to fend for herself in a totally dysregulated state of growing stress, which can have devastating long term emotional, neurological and physiological impact. Often the only relief from this overwhelming and unendurable state is an emotional numbing and withdrawal called dissociation. Dissociation in infants is a key predictor of future Post Traumatic Stress in children.

Healthy stress regulation systems prepare children to meet a range of challenging and stressful events without becoming overwhelmed. Over a lifetime, emotionally healthy individuals draw on this internalized system to tolerate both normal daily stress and larger, more catastrophic stress. The ability to moderate stress to tolerable levels is key to emotional health and resiliency. The absence of healthy stress regulation results in individuals who are easily overwhelmed or who respond in maladaptive ways.

Many of our children endured chronic neglect, trauma, even abuse as infants. The typical orphanage structure is one where the emotional needs of babies go summarily unmet as staff concentrates on meeting basic standards of care. Many institutions do their very best with limited resources and actively attend to physical, nutritional and medical needs. But emotional need is less well valued or fostered. These infants rarely benefit from the consistent, attuned, devoted attention that most infants in biological families receive on a daily basis. Even in the best orphanages, infants are routinely left physically and emotionally alone for long stretches of time during a period of critical brain development.

Although it is tempting to postulate that infants who are fostered fare much better, the reality is that they often experience sub-optimum care as well. In theory, foster care is a better context

for consistently meeting emotional needs, and for some fortunate children this is borne out by their secure attachment and emotional health. However, far too often foster care provides a similar set of traumas. Sometimes foster parents are only part of a rotating matrix of care, taking a child for a time before she is returned to the orphanage until adoption, creating new trauma. Fostering might mean that a caregiver brings an infant home at night, while she spends her days with her emotional needs unmet in the institution. Or a foster family might tend to multiple infants in the home, replicating on a smaller scale the group care of orphanages. Sometimes foster parents are just plain inattentive, inept or abusive. The result is that many children who were fostered come to their adoptive homes with the same range of trauma and neglect issues that are found in post-institutionalized children.

Not only do these infants fail to benefit from consistent, warm, emotional interaction and stimulation, they fail to learn effective stress regulation and they experience a form of trauma. Many of us are used to thinking of trauma as acute, one time events that are highly stressful to experience but which then resolve. For an infant, chronic neglect is experienced as ongoing trauma without resolution. Minus the moderating influence of a healthy stress regulation system or an attuned caregiver, the neurobiological response to neglect can permanently alter the biochemistry of the brain, creating a lifelong hypersensitive response to stress.

Emotional neglect has other physical manifestations in developing neurology. The neurobiological responses to neglect and trauma can become embedded in the emerging personality, creating a distorted lens through which the world is viewed. Innate personality can be trumped by the superimposition of maladaptive response, resulting in children who are unusually prone to a host of traits. How many of our children can be described as strong willed, bossy, controlling, easily frustrated, anxious, lacking self-esteem, emotionally immature, or experiencing learning issues? There is a disproportionate intersection of these characteristics in kids with histories of neglect, trauma and poor attachment.

The parts of the brain that are coming online in the first six months or so are in the limbic system, which processes emotions and emotional regulation, memory and the emotional meaning of events, and social cues and responses. High stress experiences during this stage of infancy can profoundly impact a child's ability to self regulate, trust others, read social cues, and understand her own internal experiences. Stressed infants often go on to have classic attachment difficulties affecting mood regulation, behavioral control, interpersonal relationships, cognitive abilities, self concept, and physical health.

One of the challenges of addressing issues that stem from early neglect and trauma is that in the first several months of life, experiences are processed by the preverbal right side of the brain, which develops first. Traumatic experience can become embedded as part of subconscious, implicit emotional memory that can later be triggered by simple emotions, sensations, or events. Meanwhile the left side of the brain, where verbal, logical, explicit memory resides, comes online later.

In kids with preverbal trauma experiences there is often a disconnect between implicit memory and explicit memory. In effect, the two sides of the brain can't communicate and can't integrate traumatic experiences, which makes it nearly impossible to process them and move on. Early experience may have molded a child to be emotionally hyper-reactive in ways that she has no way of logically understanding. She may have trouble interpreting the meaning of events or her own internal states, which will impact her sense of herself, her social relationships, as well as memory, concentration and attention.

This is the reason that many attachment impaired kids don't respond well to traditional parenting techniques such as time outs. A parent may issue a time out as a way to "teach a lesson" about cause and effect. But attachment impaired kids have poor cause and effect

reasoning, and might instead be catapulted back to a time of great stress, reflexively responding by becoming severely dysregulated.

The Effects of Early Loss and Trauma on Development

One of the most enduring myths about infants is that they are resilient. The notion persists that infants are more or less blank slates, incapable of absorbing or retaining experience before the acquisition of language. Current research from neuroscientists informs us that infants are actually the most impressionable and vulnerable to their early experiences, when their daily interactions exert the most influence on their development. Neurological development is experience dependent; experience determines how the developing brain and central nervous system organize, which directly impacts emotional, social, cognitive and physical growth.

Resilience is the ability to bounce back after adverse experience. Resilience is a learned trait, dependent upon the establishment of an effective internal stress regulation system and consistent emotional support. A well attached and emotionally healthy child will likely bounce back after trauma if she is supported, precisely because she has learned how to moderate stress through her interpersonal experiences in the process of becoming securely attached.

An unattached and unsupported infant, on the other hand, will have her brain molded by adverse experience. The brain is malleable and it will adapt itself to the experience of maltreatment in order to survive. Adaptive neurobiological responses will help to tolerate chronic stress at the expense of more typical development, and over time will become established neural pathways in the developing brain. The child likely will carry these adaptive responses forward with her into an adoptive family, at which point they are maladaptive for family life and healthy development.

This malleable and adaptive quality of the brain is called neuroplasticity, and is what drives the experiential process of brain and central nervous system development. The stage of optimum neuroplasticity is the first three years of life, a period of critical and rapid brain growth. The brain grows and organizes in response to experience in a predictable developmental sequence, starting with the brainstem and moving on up the midbrain and the cerebral cortex. There are certain developmental windows of opportunity when specific areas of the infant brain and central nervous system organize. Once a window has closed, the developmental sequence continues to unfold regardless of how optimum previous development has been.

Brain development builds upon itself and higher function is dependent on the organization of lower structures. Disorganization in a foundational stage of brain development will impact subsequent developmental stages in a cascading series of dysfunction. If early brain function is underdeveloped, the brain will not intuitively fill in the gaps but will continue to build on whatever foundation has been laid down. If the foundation is shaky, the structure it supports can never be solid.

As delicate as the timing of this sequence may seem, in typical development the brain and central nervous system self-organize easily and optimally through daily, ordinary experience. As a social species we have evolved to develop and thrive via daily interpersonal relationships and interactions with our environment. Typically, the infant gets everything she needs for healthy emotional, physical, cognitive and social development through ordinary interaction within a family.

Unless there is a placement shortly after birth, for most adopted kids this process will have been compromised. Neurobiological development will end up being shaped by loss, neglect, trauma, and poor attachment, resulting in a reduced capacity to integrate sensory, emotional and cognitive information into a cohesive whole.

Understanding how experience dependent neurological development is makes it easier to understand why some adopted kids struggle years after adoption, even if they have been adopted into emotionally healthy family situations.

Many of us entered into adoption believing that the positive influence of love and family would be enough to overcome early adverse experience. It doesn't help that this belief is echoed at large by society, professionals and institutions. Many pediatricians, therapists, social workers and adoption agencies are behind the curve on neuroscientific research, and reinforce the outdated idea that adopted children are little different than children born to us. Perhaps this is a notion held over from a generation ago, when the majority of adoptions were private domestic relinquishments of newborns. Now that the profile of adoption has totally transformed and the majority of adoptions are of older infants and children (via international programs and domestic foster care) we need a new paradigm.

Experts now believe that any time a child joins a family through adoption that attachment will be an issue. At a minimum, unless adopted at birth, adopted children have suffered two major losses: the primary maternal loss and the loss of the subsequent, intermediate caregivers. Pre-, peri- and postnatal research demonstrates that infants have bonds to their mothers in utero, and recognize their mothers at birth. A newborn knows her mother's smell, voice and touch and will experience acute distress if separated from her. A days old infant abandoned on a street for even a short time experiences extreme trauma. Separation from her mother is literally a life or death threat, and she will react neurobiologically with a massive internal stress response.

What our children endured as infants was likely horrific for them. As adults with well developed coping mechanisms it's difficult for us to imagine the utter helplessness, annihilating terror, overwhelming dread, and staggering loss that these infants faced, well before the establishment of any sort of internal system for dealing with stress. Many of them then went on to experience varying degrees of stress in subsequent caregiving situations that failed to comfort, nurture, or provide the kind of consistent, attuned attention necessary to mitigate the effects of early stress and trauma.

Because this kind of relational trauma happens before the acquisition of language, it becomes stored as sensory and motor memories in implicit memory systems that are operational in the first months of life. These infants absorb their implicit emotional experiences and form mental models of themselves, their caregivers, and the world.

A nurturing caregiver who responds appropriately and consistently to the infant's distress helps the infant to internalize a mental model of herself as worthy of love, care and protection, and the belief in a benevolent and nurturing caregiver and, by extension, a benevolent and nurturing world. In the absence of consistent and nurturing care, infants internalize very different implicit mental models of themselves and the world.

In this way, adopted children can bring preverbal feelings of loss, shame, anger, helplessness or worthlessness with them into their adoptive families. Logically, these feelings may make no sense to adoptive parents, especially if there is little weight given to early experience. But to an infant or child, the feelings can be deeply imbedded beyond logic or words.

Manifestations of these imbedded feelings and mental models are expressed in a variety of ways in adopted children. There is a large range of possible outcomes and not every child will be affected equally. Each child is uniquely wired, and each child has a unique experience, so it's difficult to generalize about how children will fare. For some, adverse effects from early experience will be subtle and difficult to detect. However many will carry the effects of early loss and trauma forward with them in salient ways.

Some common areas of difficulty that emerge and persist in adopted children include:

Emotional Regulation: Adopted children frequently have a low tolerance for frustration and may have difficulty coping with normal daily stress or negative emotions. These children are often hyper-reactive, quick to anger or burst into tears over what others might consider insignificant or nonexistent slights. It can be difficult to calm these children with logic, consequences or discipline and many have out of control tantrums long past toddlerhood.

Social Interaction: Many adopted children have difficulty with social skills and navigating relationships. They often can't read social cues. They might have trouble sharing toys, food, friends, or family members, long past what is age appropriate. They might feel threatened by other children or in competition with them, or engage in sneaky, manipulative, or aggressive behaviors with peers. They might have trouble keeping friends, and in general mistrust others.

Control: Many adopted children have an intense need to be in control. They might seek to control the actions of others as well as their environment. This inevitably will affect their social realm, as they have trouble tolerating relationships on any terms other than their own. They are often bossy and manipulative. They may try to manipulate people, timetables, rules, or activities. Often they have trouble participating in competitive games and are sore losers. Sometimes control is expressed in unusual relationships with objects, possessions, or food.

Cognition: Children with early histories of loss, trauma and attachment difficulties frequently have trouble with higher brain cortical functions. They often have poor cause and effect reasoning and problem solving skills. Many adopted children struggle with poor visual or auditory processing. Learning and language disorders are common, as are behaviors that resemble ADD or ADHD.

Transitions: Adopted children often have greater than average difficulties with transitions. They are not "go with the flow" kids, but do best in environments of structure, predictability, and regularity. Often the transition from the school year to summer, vacations, holidays or other changes in routine are times of great stress, dysregulation, regression, and acting out.

Some other common manifestations: Dislike of physical closeness in relationships, superficial charm or indiscriminate affection, inappropriately demanding or clingy, lack of impulse control, self-destructive, blaming others inappropriately, aggression or violence towards others, lying or stealing, opposition, sleep disturbances, disorganized play or thoughts, distorted self-concept. *(This is not a comprehensive list. For more information and list of symptoms go to <http://attach.org/>)*

Even for the sensitive parent, it can be difficult to determine whether a behavior is part of typical development or whether it is being driven by an underlying adoption issue. Often the answer lies in the degrees rather than the behavior itself. Out of context a behavior, in and of itself, can mean little. Evaluating it in context, a behavior can stand out for its intensity, its persistence, or for being developmentally age inappropriate.

For parents who wonder whether a behavior is normative or not, it's useful to ask some questions: is a behavior interfering with a child's success socially, emotionally or academically? Is it standing in the way of a child's happiness and ability to fit in, in groups, at school, with peers? Is it persisting long past age appropriateness? If so, it's probably worth investigating through the lens of early experience and attachment.

Why is it important to view behavior as attachment related? Isn't an impulse control problem just an impulse control problem? The distinction is important in informing the

response. Approaching symptoms piecemeal rather than as manifestations of an underlying systemic disorganization is failing to see the whole picture and missing the opportunity for effective intervention.

For children impacted by attachment and trauma issues, certain parenting techniques can exacerbate existing problems. Placing a child in time out, or letting her cry it out at night, for instance, can reinforce internalized feelings of shame, worthlessness, or fears of abandonment. For the securely attached child there may be little risk of harm, but for children with early loss experiences these techniques can be counterproductive at best, and emotionally damaging at worst. Parents can unwittingly aggravate underlying issues by inadvertently re-traumatizing their children.

Children with histories of early loss and trauma can find it exceptionally difficult to reconcile their internal emotional landscapes with their current realities. Despite living in safe and loving families, they might be held hostage by their own hyper-reactive responses to the triggers in their environments. In brains shaped by early loss and trauma the corpus callosum, which facilitates left brain-right brain communication, is often underdeveloped, making it much more difficult to process and integrate traumatic implicit memories through explicit autobiographical memory systems. For such children, therapists experienced in adoption and attachment issues can help in processing and integrating early traumatic experience.

Attachment therapy is a dynamic and evolving field that incorporates findings across many disciplines including neuroscience, trauma studies, academic attachment theory and developmental psychopathology. A unifying theme in attachment therapy is the implementation of corrective emotional experiences that address non-integrated or dysregulated neural networks, promoting better psychological functioning. Central to this methodology is the notion of attunement. More than just sympathy, attunement is the experience of recognizing, connecting with, and sharing inner states with the child. In effect, it is providing the child with the profound, formative, verbal and nonverbal communication of mother and child that so many of our children missed in infancy. This powerful interaction helps to heal and facilitate developmental organization in the child.

Psychotherapist and author Daniel Siegel writes that "attachment relationships may serve to create the central foundation from which the mind develops. " While children with early experiences of loss, neglect and trauma may have missed the development of a solid foundation, neuroscience gives us enormous hope for rebuilding structures, growth and healing. With insight and care, a child's primary relationships can calm, soothe, help organize her experiences, and teach her that negative emotions can be tolerated and overcome.

Sources/Suggested Reading:

"Nurturing Adoptions: Creating Resilience After Neglect and Trauma" by Deborah Gray, 2007.

"The Boy Who Was Raised as a Dog: What Traumatized Children Can Teach Us About Loss, Love and Healing" by Bruce Perry, 2006.

"Dysregulation of the Right Brain: A Fundamental Mechanism of Traumatic Attachment and the Psychopathogenesis of Posttraumatic Stress Disorder" by Allan Schore, 2002.

"The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are" by Daniel Siegel, 1999.

Additional reading:

"The Connected Child" by Karyn Purvis, David Cross and Wendy Lyons Sunshine, 2007.

"Beyond Consequence, Logic and Control" by Heather Forbes and B. Bryan Post, 2006.

"Smart Moves: Why Learning Is Not All In Your Head" by Carla Hannaford, 2005.

"Parenting the Hurt Child: Helping Adoptive Families Heal and Grow" by Gregory Keck and Regina Kupecky, 2002.

Heidi Holman is also the author of "Short Circuits; An Adoptive Mom's Exploration of the Neurological Impact of Trauma, Neglect and Sensory Deprivation" which can be found at:
http://www.baas.org/news_special.php