

Tapestry

A Ministry for Adoptive and Foster Families

Sensory Integration Workshop

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Creating Safe Places for Our Children

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Following the war in Viet Nam, American soldiers came home with Post-Traumatic Stress Disorder (PTSD) and for the first time, we began to recognize the deep impact of chronic and acute stress. Many veterans were plagued by PTSD and continued to relive the traumatic events of the war in spite of having returned safely to the bosoms of their loving families. It was later found that veterans with PTSD had deterioration in important brain structures including the hippocampus, which is an important component in the “limbic system” in humans and is responsible for memory, learning and emotions.

Although it is not fully understood why brain structures continue to deteriorate even after danger has passed, it is clearly understood that there are significant alterations in the brain functioning of individuals who have experienced chronic stress. A stress hormone, cortisol, is believed to be one of the mechanisms driving these alterations. There appears to be a strong link between elevated levels of cortisol and deterioration in sensitive regions of the brain, such as the limbic system. These neurological changes have the ability to significantly affect behavior across many domains.

Cortisol is a stress hormone emitted in low levels among healthy individuals. However, during acute stress, cortisol and adrenaline flood the human brain and body, enhancing the capacity for quick movement and thought, which are needed for swift escape from dangerous circumstances. Cortisol serves as a survival mechanism—as part of our “fight or flight” response. Although the function of cortisol in normal daily life is as an aid for survival, in individuals who experience ongoing stress, it actually becomes a threat to survival. If the stressors occur early in development, they may ac-

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tually induce organizational changes in responses to future stressors, which are mediated by the HPA¹ axis. Children who experience sub-optimal care during the early months of life are susceptible to hyper-responsiveness of the HPA. Part of that responsiveness may include chronically elevated levels of cortisol which can become toxic to sensitive regions in the brain such as the hippocampus the limbic system which are involved in decision-making, and in understanding and expressing emotions.

In contrast, Serotonin is a protective neurotransmitter in the brain with primarily inhibitory functions, which is emitted, in normal amounts during normative development. Serotonin is produced naturally when a parent cuddles, holds, rocks or soothes their child. It is the “master-regulator” of the brain and in addition to giving a sense of well being, serotonin inhibits over-production of excitatory neurotransmitters. Children who don’t receive touch (hugging, rocking, holding) during their early months of life may have alterations in their neurochemistry which induce decreased levels of serotonin in addition to elevated levels of cortisol. Sadly, children who come from emotional “war zones” may ultimately develop neurochemistry akin to that of the Viet Nam war veterans.

A growing body of developmental research is uncovering new information about these mechanisms and how they affect human behavior. Our own research in a five-week summer camp for at-risk adopted children, *The Hope Connection*, is uncovering new information about how to positively calm these hyper-responsive neurological systems in children who have come from “hard places.”

Megan Gunnar, a researcher at University of Minnesota, recently tested cortisol levels in a sample of children who had been adopted from orphanages in Romania. Although the children had been home with their adoptive families for an average of five years, a sub-set of them continued to have levels of cortisol that were drastically elevated above normal levels. In addition, another sub-set of the children continued to have levels of cortisol that were significantly elevated.

Dr. Harry Chugani of Wayne State University in Detroit, Michigan, did some groundbreaking research several years ago by imaging the brains of children adopted from orphanages in Romania. He found that in some of the children, sensitive regions in the brain were reduced in size as well as in activity. It is believed that chronic levels of cortisol may be one of the mechanisms that is driving these developmental aberrations.

In the wake of current research, adoptive parents may ask what can be

¹Hypothalamic-Pituitary-Adrenal

done if their children are experiencing PTSD² or anxiety states associated with elevated levels of cortisol. We offer numerous suggestions from *The Hope Connection*, which are garnered from our years of work with families who've adopted children from hard places. Recognizing anxiety states can be accomplished through observation of behavior, physiological states and physical traits.

- **BEHAVIOR CONSISTENT WITH ADHD:**³ First, we encourage parents begin to take stock of their children's activity and attention states. Do they seem hyperactive? Have they been diagnosed with attention-deficit? If so, there is a chance that they're not hyperactive, but simply hypervigilant. That is, they are always on guard, observing the environment for signs of "danger." Hypervigilance is common among children who did not have attentive, protective parenting during important developmental periods of their lives.
- **FREQUENT/CHRONIC PUPIL DILATION:** Second, we encourage parents to observe the pupils of their children's eyes for signs of anxiety or fear. Are the pupils enlarged? Do they become enlarged often and during minor stressors? Are the pupils enlarged even though the child seems calm? Most children with histories of early neglect have learned to mask their behavioral responses. As a matter of fact, they may not even be able to identify their own states of fear or anxiety, until parents guide them to recognize and "name" the feelings. We invite parents to look at the pupils of their children's eyes. Enlarged pupils typically indicate excitation in the central nervous system, which may be associated hyper-responsiveness of the HPA axis and with the release of stress hormones in the body and brain of the child.
- **RAPID HEART-RATE/RACING HEART:** Third, we encourage parents to monitor the heart rate of their children. Many of our parents put their hand over the heart of their child when they speak to them, or for a small child, parents can put a gentle hand over their children's hearts while they are sitting in their laps. Is the heart pumping wildly, even though the child appears to be sitting calmly in your lap? These are signs of a chronic state of anxiety. Some children even mask their anxiety and fear by becoming aggressive. Guiding your children to understand their states, and guiding them to "use their words" and tell

²Post-Traumatic Stress Disorder

³Attention Deficit Hyperactivity Disorder

you what they feel and what they need are critical tools for adoptive parents. Many parents find “feeling charts” to be helpful in guiding their children to identify and name the feelings. Charts of children’s facial expression of feelings can be purchased at bookstores and school supplies stores.

- **PHYSICAL CHANGES:** Finally, we encourage parents to observe their children for other physiological evidences of elevated cortisol, such as pain agnosia and diminished physical size. Pain agnosia means literally “to be agnostic (not knowing) of pain.” Elevated levels of cortisol can block sensations of pain. This is actually part of the protective survival response, which under normal circumstances numbs pain from occasional physical injuries. However, children with pain agnosia can have significant injuries, which seem to go unnoticed. These are the children who barely whimper with injuries that might send other children screaming to their mothers. In addition, diminished physical size can also be associated with chronically elevated cortisol. Again, under normal circumstances, this is part of the survival mechanism in which during occasional crises, the body uses all of its energy to mount a response to the stressor. However a body that is on chronic “alert” does not expend energy for growth for long periods of time—all energy remains devoted to constant vigilance against threats of danger. Of great interest, following our summer camp each year we have children who experience dramatic growth for the first time since their adoption. That growth is associated with reduction in their anxiety levels and reduction in their attendant levels of cortisol.

In our summer camp program with adopted children we began collecting salivary cortisol three years ago. What we discovered the first year when we gathered cortisol was astounding. We discovered that in their homes, the week prior to camp, the morning cortisol in our children was inflated to levels two-and-a-half times greater than normal. Both at home the week before camp, and the first week of camp, their levels were virtually identical. However, much to our delight and amazement, during the second week of camp, we documented cortisol levels that were half of the previous levels! At the same time, we documented positive changes in behavior, attachment and language that were statistically correlated with the reductions in cortisol. These data provided us with increased understanding about why our summer camp intervention is so effective for children with histories of neglect or maltreatment. What we have learned can be applied by any parent, in any

home, with any child. We call it creating an environment of “felt safety.” It is not enough that the parents know the children are safe—it only “registers” in the children’s physiology and neurochemistry if the children themselves know that they are safe!

Adoptive parents may ask what can be done if their children show signs of hypervigilance, enlarged pupils or rapid heart-rate. Again, we offer suggestions from our work with families of adopted children. Helping children heal these anxiety states can be accomplished through multiple mechanism including physical activity, appropriate sensory input, and by creating an environment of predictability and control.

- **PHYSICAL ACTIVITY:** Physical exercise naturally reduces cortisol and increases serotonin. In the camp, we offer physical activity every two hours during the day. Running on the playground, climbing the slide, jumping on a trampoline, riding a bike - all of these physical activities bring down levels of cortisol. Any “stereotypic” movement (doing the same movement over and over again), such as walking, riding a bike, bouncing on the trampoline, and swinging, not only reduce cortisol, but actually elevate serotonin.
- **SENSORY INPUT:** Appropriate levels of sensory input are calming. Tiffany Field found in her work with premature infants, that if she gave them “baby massages” several times a day, they gained weight faster than children who were not touched. In addition, she found that the “touched” preemies were released from the hospital much earlier than infants who did not receive the baby massage. Tiffany has published numerous articles and books on touch in which she documents the fact that touch is one of the mechanisms of early child development that calms the infant’s central nervous system, and induces balanced neurochemistry in the developing child. Safe sensory input such as hugging, rocking, touching—all help the infant’s HPA axis down-regulate and arrive at a calm state.
- **PREDICTABILITY:** Creating a safe place for children can be accomplished through the mechanism of predictability and control. Predictability can be established by telling the child what will happen next. Parents can do this naturally throughout day, by saying “In five minutes, we will put up the toys and have supper.” “In ten minutes we’re going to bed.” “In 10 minutes, we’re going to leave for church.” By “marking the task” and making it predictable, parents can allay their children’s anxiety about what happens next. We encourage

parents for example, when they go to the home of a new friend, to seek permission from the hostess to take their children on a tour of the house, and show them where different rooms are—where the toys are—where the family puppy sleeps. By familiarizing a child with the strange house, the child can feel safer. Most adults remember times during their own childhood that they were afraid of “something” sinister in their dark closet, or under their bed. Because it was dark, it was easy to imagine fearful, terrifying things. Simply turning on the light and looking under the bed was enough to ensure us (and I do means “us”) that we were safe. In many ways parents can “turn on the lights” for their adoptive children and let them see that they are actually safe. Predictability about their environment is a major element in helping children experience this type of “felt safety.”

- **CONTROL:** Giving appropriate levels of control to children helps them feel safe. Ongoing research has repeatedly demonstrated that having a sense of control over the environment greatly reduces anxiety. Giving appropriate control can be as simple as asking a child “Would you like to wear your red dress or your blue dress today?” or “Would you like to hold my hand or just walk beside me?” or “Would you like to play on the playground first or have your snack first?” or “Would you like to use the crayons or the markers?” By simply giving children choices, parents can help them learn to make good choices, but also, help the child feel appropriately empowered. And a child who feels empowered and is in an environment that feels predictable is far less likely to have negative physiological and emotional responses.

When we look at the three years of cortisol data from *The Hope Connection*, we see that every year our new campers have an average cortisol level that is more than double the normal rate. Each year we document the fact that by the second Wednesday of camp, our children have cortisol levels in the normal range. To many parents amazement, their children begin to speak, to express emotions and appropriate social responses during camp. Possibly the most important lesson we have learned during our years in this work, is that children who experience “felt safety” are free to learn and to grow. Children who feel safe can be released from emotions that have held them hostage. They are no longer prisoners of war; they are free to heal and to become secure, trusting children!

**Six Words for Adoptive Parents to
Live By**

By: Dr. Karyn Purvis

Six Words for Adoptive Parents to Live By*

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During the course of the last six years we have been involved in an exciting project with adoptive parents and their children. Our journey with these families has been filled with joy and delight. The mission statement of our project cites a passage from the book of Isaiah, which says simply “and a child shall lead them” (Isaiah 11:6). The greatest and most significant research findings garnered in our work are the simple truths that the children themselves have taught us. Among the greatest lessons of truth that we have learned from the children are those insights about how to guide parents and children to connect in new ways. Thus our project is aptly named, *The Hope Connection*.

For many children who have experienced neglect or maltreatment prior to their adoption, the path between them and their adoptive parents is unclear. It is providing guidance toward deeper connections that has become our favorite focus when we speak to parent groups; our most common topic is *Lessons of Hope from the Hope Connection*.

In the process of walking with adoptive families through the years, we have come to realize that there are six words which identify some of the most effective mechanisms for building strong relationships between parents and children. Our six important words for adoptive parents to live by are: BE COMPASSIONATE! BE FIRM! BE PROACTIVE!

BE COMPASSIONATE!

We ask parents who have adopted children from the “hard places” to be aware of the implications of non-optimal care on developing children. Before

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† www.child.tcu.edu

we can provide these children with a message of safety and love, we must first learn to “speak their language”. In order to do that, it is imperative that we have insight about neural and sensory development and possible alterations in belief systems, which may significantly affect behavioral and attachment.

NEURAL SUB-SYSTEMS ISSUES: An example of understanding neural development through the lens of compassion can be found in viewing children’s idiosyncratic behaviors and beliefs. Children adopted before the age of two rarely have retrievable memories of their experiences. However, if they experienced hunger, or loneliness, or fear during this time, they may exhibit a chronic and pervasive sense of hunger, loneliness or fear. Their brain development was not complete enough for them to have tangible memories such as those of four or five year old children. Yet in spite of now living in safe homes with adoring parents, these children may be haunted by overwhelming feelings of being unloved. Paradoxical as it may seem, children with concrete memories of their hardships are often easier to guide. They can learn to “use their words” to talk about pre-adoptive memories. “I was hungry and there wasn’t enough food, or “I was lonely and I wanted to be held and no one was there for me.”

Those children with touchable memories can learn to use their words to tell their stories and to be released from the power of early experiences. But for younger children who experience harm before myelination of the brain was complete and before brain maturation gave rise to tangible memories, the journey for healing can be at times frustrating for both parents and children. However, in time, and with consistent, compassionate care, parents who understand their children’s neurological issues can guide little ones to the truth—that they are safe, and loved and deeply cared for!

Most adults can remember a time in their own childhood when they experienced food poisoning; many have not eaten the “poisonous” food since that childhood experience. In evolutionary terms, we recognize this to be a function of the “primitive” brain structures that are responsible for survival. Humans are considered “opportunistic feeders” which means that we eat whatever is available to us in the environment. Therefore, evolutionary brain structures developed which were designed to protect us from death. Our avoidance of a childhood “offender-food” which appears idiosyncratic, is actually an evolutionary skill designed to ensure our survival.

We invite parents to ask two questions when they observe behaviors that seem unacceptable or idiosyncratic. The first question is “What is your child really saying,” and the second is “What does my child really need?” By being attentive to neurological and sensory issues, and residual belief

systems, compassionate parents can more easily navigate their children's histories and understand their children's language.

SENSORY SUB-SYSTEMS ISSUES: Sensory processing deficits are another common outcome for children who fail to experience optimal care during the early months of life. Sensory processing deficits can cause children to misunderstand their environment in ways that cause them to misinterpret, for example, social cues, facial expressions, and the meaning of touches and hugs. In these things, parents must be informed about how sensory issues can be addressed and treated, and must also understand behavioral manifestations of sensory processing issues. We recommend the book by Carol Kranowitz, *The Out of Sync Child*, which clearly describes each of the "internal senses," how sensory defensiveness manifests, and how we can effectively intervene in the home and school environments.

We encourage parents to be compassionate towards the behavioral issues that might be associated with sensory-processing deficits. For example, a newly adopted child who is tactile-defensive may not want to be hugged or touched. Although this is a painful experience for parents, (and is often mistaken for attachment problems), this deficit can be effectively treated. However, it will require compassionate patience on the part of the parent. A similar corollary to a child who does not want to be hugged due to tactile defensiveness, is the child who has a proprioceptive deficit and yelps when his parents hug him, claiming that they are hurting him. This hypersensitivity to physical pressure can also be effectively addressed (for specific information, see *The Out of Sync Child*).

BELIEF SUB-SYSTEM ISSUES: Adopted children very frequently develop belief systems associated with their experiences with early caregivers. Those belief systems may include beliefs like "I am not loveable," "Adults can't be trusted," "If I had value I wouldn't have been given away."

It is important for adoptive parents to be compassionate toward the children's belief systems, while gently leading them to know the truth—that they are beautiful, and precious, and valuable, and loved!

We ask parents in their compassionate responses towards their children to honor the child's history while giving them a hope for the future that they can live by. For example, if the child has not received adequate nutrition during early development, they may "hear" a message of hunger that causes them to hoard or steal food. In this circumstance, a parent can say "It is true that you were hungry many times before you came home, but my promise is that you will never be hungry in our home. **But**, you may not steal food, nor hide food. Anytime that you are hungry, come to me and I will go to the kitchen with you and you may sit and eat whatever you

are hungry for. If you would like, I will even take you to the grocery store and let you choose favorite snacks and nuts and fruit to put in a basket in your room.” In these ways we show compassion towards our children while bringing them out of their pre-adoptive history and into the complete safety of our home and our love.

BE FIRM!

While compassion is a profoundly important component for parenting a child from the hard places, compassionate firmness is equally important. Children—who have not had healthy boundaries before they came home to you—will need clear, enforceable boundaries. They need to be encouraged to “use words and not behaviors” to tell you their needs. They need to be encouraged that “all feelings are okay,” but need to be guided into appropriate ways to express those feelings.

Because sensory deprivation in the early months of development, and/or chronic ear infections, can disrupt auditory processing, we encourage parents to use few words! Children who have auditory processing deficits can easily become lost in an “onslaught” of words. Unfortunately, these children may be labeled as “disobedient” or “willful,” when in truth they did not fully understand the meaning of their parent’s “word clutter.” These children need to be given short auditory scripts that they can easily encode and learn to follow.

Important concepts to teach younger children are “Be gentle and kind,” “Listen and obey,” “Practice showing respect,” “With permission and supervision,” “Making compromises,” and “Accepting no.” ACCEPTING NO is an important principle, because many children from hard places find it difficult to relinquish control to their adoptive parents out of fear. This is because in the child’s past, those who were in control were not trustworthy and his or her life felt out of control. It is important to gently wrest control from the child because a child who is “boss of the world” doesn’t need a mommy or daddy.

BE PROACTIVE!

In a home where there is a balance of compassion and firmness, nurture and structure, it is also important to be purposefully proactive. By analyzing our children’s behaviors we can make realistic plans for how to address their needs. We encourage parents in our program to make careful journal notes about when and where their child has behavioral difficulties. Do they

become tearful when they go into a new environment? Does going into a crowded room cause them to become withdrawn, afraid or agitated? When they are hungry do they have behavioral meltdowns? By keeping thorough journal notes for a few weeks, most of our families can identify events, places and times which present particular challenges for their children. Parental responses can be guided by compassionate understanding of the neurological, sensory and belief-system issues, which are fueling their children's behaviors.

For example, we recommend feeding children a nourishing snack every two to three hours. Many parents have reported that simply providing stability to their child's blood sugar significantly reduces behavioral challenges during the day. Other parents have discovered through assessing their journal that their child needs appropriate sensory input before activities that require them to sit still for a long period of time. Those parents may opt for a half-hour at the park or McDonalds playground prior to sitting in the doctor or dentists office for an hour or prior to going to the grocery store.

The goal of our work at TCU's Institute of Child Development is helping parents and children make deeper connections. We believe that these six words, **BE COMPASSIONATE! BE FIRM! BE PROACTIVE!**, are among the most powerful tools we have observed for not only bringing our children into the safety of our homes, but for bringing them into the safety of our hearts!

Sensory Integration Dysfunction Becoming a Sensory Detective

By: Polly Godwin Emmons and Liz McKendry Anderson

Sensory Integration Dysfunction - Becoming a Sensory Detective

By Polly Godwin Emmons and Liz McKendry Anderson.
Authors of Understanding Sensory Integration

People often ask, "What constitutes sensory integration dysfunction or a sensory processing disorder? When do we know the child has sensory integration dysfunction? What is the difference between a sensory issue and sensory dysfunction?" These are good questions and this remains a somewhat complicated issue. First of all, sensory integration dysfunction by itself is not a clinical diagnosis, according to the DSM-IV (American Psychiatric Association 2000). Which, translated, means that there are no blood tests of biological markers, so basically it requires a health professional (usually an occupational therapist or a physical therapist) working from an observational checklist marking off specific indicators under specific categories. Second, the term "sensory integration dysfunction" is often used interchangeably with "sensory dysfunction" and "sensory processing disorder," making things confusing at times. And frequently sensory integration dysfunction is concurrent with diagnoses such as autism spectrum disorder, cerebral palsy, Down syndrome, ADHD, learning disabilities, etc. However, it has been our experience as teachers (special education and general education) that sensory integration dysfunction is most often a co-condition with another diagnosis. Only rarely have we encountered a child with a straight diagnosis of only sensory integration dysfunction.

Again, it is our belief that there is a significant difference between sensory integration dysfunction and a mild sensory issue. For us the bottom line is "Are the sensory difficulties impacting daily living, relationships, learning, and behavior; and, if so, to what degree?" Here is where we need to talk about degree and quality. Now, for a four-year old who is exhibiting "typical behavior in every other area but refuses to put her hands in the sandbox, is this really a big problem? Is it really pervasive? Is it really adversely impacting her life? Could it be that this is just a "stage" or something ephemeral? In other words, will she grow out of this? And, does it really matter if she does? (There are plenty of adults who do not lie to get their hands dirty.) However, if she doesn't like to put her hand in the sandbox, and gags when she touches blue or fender paint, and falls out her chair, and the slide terrifies her, and her mother has intense daily power struggles with her about what hose is going to wear and what she is going to eat, and is obviously overwhelmed by large group activities, now do we have a big problem? Is it pervasive? Is it impacting her life/learning/social development? Maybe. At this point, as parents and as teachers, we would want to take a closer look at this child's level of previous experience and exposure these types of activities. If lack of exposure and experience can be ruled out as a strong contributing factor, then we would recommend to this child's parent that she receive further evaluation while at the same time begin to kick into gear some sensory-based strategies to help this child's individual needs.

If, as a parent or a teacher, you suspect that a child (or your child) has significant sensory issues or sensory integration dysfunction, you now become the detective. Now is the time to start documenting your dealing with the inevitably complicated array of service providers, and gathering information that will be useful for a professional assessment.

This article is excerpted from Understanding Sensory Dysfunction by Polly Godwin Emmons and Liz McKendry Anderson, with permission of Jessica Kingsley Publishers. Read about the book or purchase: Understanding Sensory Dysfunction.