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NATIONAL ASSOCIATION OF THERAPEUTIC PARENTS

Centre of Excellence in CHILD TRAUMA

An in-depth explanation of why we use therapeutic parenting techniques with traumatised children

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How Trauma Affects My Child's Brain

Research shows that up to 80 percent of children in the care system, including those who are adopted or in foster care placements, may have difficulties associated with poor attachment, or an attachment disorder. Birth children can also have attachment difficulties. These children may also have other difficulties associated with childhood trauma, which may include the following:
Being over familiar, charming, or affectionate with strangers. They can behave very differently, however, towards main attachment figures, especially the mother.

Having a poor sense of identity and / or struggling to think they are worthy of affection. This can be a core belief of the child.

They can be hypervigilant or find it difficult to concentrate on tasks as they are hyper-alert to what is going on around them. They may dissociate and have poor attention and listening skills. They can have memory and organizational difficulties, or have a seemingly erratic progression in learning, because stress affects the short-term memory.

They can be fascinated with death and violence or can be easy to anger or become aggressive. They may have difficulties in the area of empathy and can be controlling. They may tell lies more than other children, or steal, and they may lack cause and affect thinking, or have poor impulse control.

They may be preoccupied with food.
They can become over-excited very easily. They may have a habit of running away. They may have an under-reaction or over reaction to pain or display inappropriate sexualized behaviour.

They often have an inability to describe their feelings (alexithymia).

They can have friendship difficulties and friendships may be superficial. These difficulties often become more apparent with age. They can often behave like much younger children and can have the brain development of the same.

They can be anxious, avoidant and overly self-reliant.

These children do not often respond to reward and sanction – reward charts do not work with children who have been abandoned or abused! Their reward may be to win a power struggle, and they may not feel deserving of a reward or praise.

What is trauma?

Examples of trauma include neglect, separation from the birth mother or other main attachment figures, multiple home and school moves, having a mother with post natal depression, stress, or other mental illness or disorder, in-utero trauma such as exposure to drugs or alcohol, being born prematurely, trauma through poverty and deprivation, long term illness or hospitalization, or experiencing sexual, physical or emotional abuse. Any situation that prevents the normal 1:1 predictable interactive response between a baby and its primary attachment figure can lead to attachment difficulties.

The Impact of Childhood Trauma on the Developing Brain

Bruce Perry, Consultant Neuropsychiatrist, describes the Neurosequential Model of brain development.

It is now considered a fact that early parenting or trauma experiences have lasting effects on brain development. This is thought to prepare a child's brain to live in a world that is similar to the first environment in which it finds itself.

The process of brain development is "bottom up". The brain regions controlling the most primitive functions of the body, such as the brainstem and midbrain, develop first. The regions involved in regulating emotions, language, and abstract thought develop rapidly in the first three years of life, and during the first years in life, it is repetitive behaviours and consistent patterns of interaction, learning and stimulation that strengthen the synapses – the connections between the neurones, or nerve cells. The number of neurones generally increases until adolescence and in some areas of the brain, up until the mid 20's to early 30's. However, the synapses go through a pruning process "use it or lose it" and the numbers decrease after adolescence. If a child does not have regular stimulation or nurture, the neuronal connections will fall away.

By the age of three, the brain has reached 90% of the adult size. There are two final growth spurts before puberty into young adulthood, in the frontal lobe, the area of the brain which governs planning, impulse control, and reasoning.

Bruce Perry discusses that if children are traumatised or neglected, they need, for ongoing brain development, patterned and repetitive experiences that are appropriate to their developmental needs, those that reflect the age at which they'd missed important stimuli, and not their chronological age.

The limbic system

The limbic system is an important system in the brain for effective emotional regulation. Emotional regulation is the ability to feel and effectively deal with emotions. The limbic system develops rapidly during the first two to three years of life, and children rely upon

their attachment figures to co-regulate their affective experiences for this system to develop effectively.

The Amygdala

The amygdala is part of the limbic system. It is the body's threat detection centre and it is able to detect threat in 1/10 of a second. The amygdala specializes in threat detection and fear conditioning on the right-hand side of the brain. The amygdala is very responsive to facial expressions, eye to eye contact, and eye movements. It is also sensitive to the changes in the region of the face around the eye, including lower or arching of the brow, change in pupil size or brightness, and shifts in gaze.

Newborns pay huge attention to a primary care givers eyes, and a defensive reaction in the amygdala will occur if that person looks at them in an unfriendly way.

Living in an unfriendly environment can sensitize the amygdala to fearful or angry facial expressions and can lower the threshold in later life for triggering defensive reactions to other people.

The amygdala also records implicit emotional memories. These are memories that cannot be consciously recalled or put into context. An example would be that a child witnessing a man being violent towards its mother could lead to an implicit memory that associates males with feelings of fear. So later in life being around males can trigger defensive reactions without the person knowing the cause.

The Hippocampus

In the healthy brain, the amygdala and hippocampus work together to help put emotional experiences into context. Together they create conscious and autobiographical memories. The hippocampus is slower in development and to mature than the amygdala, and it is very sensitive to stress hormones.

A traumatic memory could trigger the amygdala to respond, and the stress could lead the hippocampus to effectively "shut down", and so the child will lose the distinctions of "back then and now" as if they are reliving the trauma.

Research shows that in people who have been traumatised as children, the hippocampus development is often suppressed.

Ventral (higher) and dorsal (lower) brain circuits.

The dorsal brain circuit is connected to our visceral organs including our hearts, lungs, and digestive tracts. This generates emotions, feelings and visceral reactions to things. When this lower stream is activated, we have "gut reactions" and we can even feel paranoid. The ventral circuit helps us to look at things more objectively. Scans show that children who have suffered from trauma are more likely to use the dorsal circuit than the ventral circuit.

In the first 18 months, a child's amygdala develops its 2-way connections to the lower part of the pre-frontal cortex (National Scientific Council on the developing child, 2008).

The frontolimbic connections that are most important are the orbitofrontal cortex and the anterior cingulate. These 2 regions can directly inhibit the activity of the threat detection process. This system allows a child to interpret the reactions of someone to their actions, and then make adjustments. Again, its development depends upon the experiences one has early in life. Research shows that in children who have experienced trauma, the anterior cingulate activation is reduced when the amygdala is triggered, leading to poor emotional control, and difficulty controlling negative reactions.

Hormones and the Nucleus Accumbens

In humans, oxytocin plays a strong role in bonding in positive relationships. People whose brains release a lot of oxytocin into the limbic regions (the amygdala, hippocampus, and the orbitofrontal cortex) find interactions and relationships pleasurable. Positive relationships also lead to the release of neurotrophic growth factor (NGF) which helps continued growth in the social and emotional regions of the brain. Stressful relationships lead to the suppression of the activity of chemicals such as oxytocin and NGF. This can block brain development.

There are lots of receptors for oxytocin in the reward centre of the brain, the nucleus accumbens. Dopamine is a neurotransmitter that sends messages to this area. A well-cared for child's brain makes more of these receptors. The oxytocin – dopamine – nucleus accumbens system is also affected by stress. This could go some way to explaining why traumatised children find it hard to form and maintain healthy relationships. Research also links oxytocin with people reading abilities.

Pain of separation

When someone is rejected, or their feelings are hurt the same areas of the brain are affected as if they had physical pain. If a child has been rejected, neglected by, or separated from, it's primary care giver, they release opioids into these brain areas to block the pain. This happens when something is too stressful or painful, and it stops the child from caring. Traumatised children, as a result, may not only not respond to physical pain as much as other children, but also can be seen to dissociate, or freeze, to numb themselves when under stress or when they have negative responses from adults. As a result, reward / punishment behavioural interventions rarely work for them, because they may have "stopped caring" to prevent further pain. Negative consequences can reinforce the message that they are bad or not loveable, and the same effect can be produced.

Von Economo neurones

Von Economo neurones are cells that connect the insula and the anterior cingulate in humans and empathic animals. They are involved in empathy, social awareness, and self-control, and are triggered by the experience of distress in another. There are differences between empathic and less empathic people in the density of these neurones. They respond to experiences, especially in early life, by expanding or contracting (Cozolino).

Right and left brain

The brain develops from the right to the left side. The right side of the brain has more functions in defence, and in generating emotions, and the right side of the brain has a role in self-protection. Children who have been abused or neglected have a tendency to continue to process information more from the right side of the brain, and the left side, which is also important in speech, tends to be less developed. This can lead to alexithymia, a difficulty these children have in describing how they feel or what they think.

Prefrontal Cortex

Our prefrontal cortex grows from very early in our life until at least our 20's or early 30's, to help us to control our impulses, plan ahead, and to resolve conflicts. Frontal lobe function is suppressed by an increase in stress hormones in the brain. The amygdala then takes over. This means that when a child perceives a threat, whether real or a memory trigger, they can be unable to think rationally. Hyperactivity, depression, poor sustained attention, language difficulties, and impulsive or impetuous behaviour are common in children with inadequately developing frontal lobe function (Leisman and Melillo, 2012).

Helping Traumatised Children

For the reasons above, children who have experienced trauma may respond to situations in ways that can be difficult to understand.

We can help them by modifying the way we respond to their behaviours, and co-regulating their emotions if they have become dysregulated, angry, or are clearly not managing a situation well. To do this, we use a model of parenting referred to as "Therapeutic Parenting".

Empathy needs to be repeatedly remodelled and encouraged in younger childhood before it becomes part of a child's behaviour - "Poor Peter, he is having a really tough time". For an older child, you may need to help a child understand how something would feel if it happened to them, because they may not be able to understand the feelings of someone else "How would it feel if someone called you a fat pig?".

Traumatised children may have difficulty in trusting adults or may have learned not to trust them at all, but to rely upon themselves. You can help them by being consistent, reliable, and keeping to your word as much as possible. Try not to let them down, and if you have to, explain why and apologise.

Traumatised children may need to take control to feel safe. They may seem oppositional, or confrontational, or they may be bossy or run away. Try to give these children "win-win" choices, and age appropriate responsibility.

Engage these children with playfulness, be empathic to their behaviours, be curious, and do not judge them. If you say to them "It was a strange thing to come and kick me. I wonder why you would do that? Is it because you were upset that I am going out tonight?" a child can start to relate their feelings to their behaviours. Show empathy "it must feel awful to need to bang your head when you are angry. Come here and let me rub it better".

The amygdala is primed to respond to previous trauma triggers in these children. Try to use warm expressions. Do not look at them in an angry way. If their hippocampus and frontal lobe areas become flooded with stress hormones, you will have "lost" your child for the time being. Do not ask a child to explain his behaviour whilst he is stressed. He will simply be unable to do that. Explore his behaviour later, when things have calmed down.

Do not use time out. This will replicate the pain of rejection, especially in children who have suffered early neglect or abuse. Use time in.

These children can be skilled manipulators. They can have immense superficial charm. Be aware of this. Direct parent appropriate tasks back to the parent. Do not allow them to "split" their caregivers.

Rewards and praise may not be effective. Their core beliefs may be that they are bad, unworthy or unlovable. They may simply see you as not being trustworthy. Do not use shaming words. They may have been shamed inappropriately in early life, and shame may retrigger previous traumatic responses.

To help the emotional regulation systems develop on a more normal trajectory, help the child to co-regulate his emotions. If he is angry or upset, have a box of things that may help him to regulate to hand, such as lollipops, theraputty, a snugly with a familiar scent on, even a fidget spinner. Take the child for a walk or cool him down. If you co-regulate negative emotions, you will help the regulation centres in his brain develop.

References: Brain Based Parenting. *Daniel Hughes, Jonathan Baylin, Daniel Seigel.* April 2012. W.W. Norton Publishers.

The boy who was raised as a dog. *Bruce Perry*. Feb 2008. The Perseus Books Group.