Easy Guide: The effects of trauma and neglect on behaviour

Trauma and neglect at an early age can impair the development of many of the brain functions and affect the development of thinking, relationships memory and health. Exposure to repeated stress means that the structure and function of the brain may not develop properly just as repeated positive experiences help the brain to grow properly have not

This may mean that some young people who have not received nurturing and safe caring will have difficulty in regulating emotions and impulses. They may also have an excess of the stress hormone cortisol which makes them hyper vigilant and wary even in situations where they are safe. Sometimes they may react to events of situations subconsciously because something has triggered the fight or flight reaction. It is important that we understand and aware of the child or young persons past experiences and how they might affect their behaviour now. Children and young people learn to manage their reactions and emotions through relationships and connections with calm and soothing adults who model appropriate behaviours.

Sometimes adults feel it is their duty to correct behaviour by using to authoritarian commands threats and punishments and often end up mirroring the angry and impulsive behaviours of the young person creating unhelpful conflict cycles.

It is important not to prejudice children’s reasons for reacting or behaving in ways that we feel are appropriate and to reframe these as developmental delays rather than ‘bad behaviour’

*Why does an understanding of brain development matter?*

In the last ten years there has been an explosion of interest and research in brain development. New technologies such as MRI scanners have allowed us to observe brain activity in a non intrusive way. There is a growing scientific consensus that maltreatment in infancy can have long lasting effects on the brains of children which affect their capacity to learn and to manage social situations. This work is also, however, beginning to help us to understand how to intervene more effectively to enable children and young people to recover more quickly and completely from adverse experiences in childhood.

**How does the brain develop?**

The brain develops sequentially from the bottom up so the first areas of the brain to develop are the brainstem and the mid brain. These brain areas govern the bodily functions necessary for life and are referred to as ‘autonomic functions’. The limbic system and the prefrontal cortex develop last. The limbic system and the prefrontal cortex regulate emotions and social behaviours and are involved in memory formation and abstract thought.
The brain consists of brain cells or neurons. These have a cell body, dendrites (branch like structures) that receive information from other cells and an axon (a long tail like structure) that transmits information to other cells.

How do brain cells work?

Transmission of information through the neuron is an electrical process. The cell body integrates the electrical signals arriving from the dendrites and, according to the strength of these signals generates a nerve impulse which travels down the axon to an axon terminal. Axon terminals lie close to the dendrites of neighbouring neurons. When the nerve impulse reaches an axon terminal it causes the release of a chemical - a neurotransmitter - that travels across the gap, or synapse, between a terminal and the dendrite of the neighbouring neuron. Neurotransmitters attach to
receptors in the neighbouring dendrite and trigger an electric charge that travels down the dendrite to the cell body. Our behaviour is the consequence of billions of cells talking to each other via these chemical and electrical processes.

**Early brain development**

At birth, a baby's brain contains 100 billion brain cells – about the same as an adult brain. The main structures of the brain are in place about three months before the baby is due to be born. Nevertheless the brain of a new born baby is much less “finished” than that of most other baby animals. The brains of the most highly evolved animals are least hardwired at birth so the brains of human babies are very sensitive to their environment as they learn and their brain grows. In the first three years of life the brain goes from 25% of adult weight to 90% of adult weight. This growth is as a result of a huge proliferation of synaptic connections between nerve cells and the hard wiring of these connections within the brain. The infant brain is hugely responsive to its sensory and emotional environment and experiences create or consolidate connections between cells by transmitting information from one cell to another. Connections that are regularly activated create “preferred pathways” in the brain. Over time the axons of the cells that form these pathways become coated in myelin which acts as an insulator and improves the speed and efficiency of transmission of these signals. Babies need new experiences - if they are not exposed to stimulation they will make fewer connections and those they do make will be less well developed. New born babies have very little control over their environment and are dependent on others to provide appropriate sensory and emotional experiences. By about the age of three, the brain has made many more connections than it will ever need. Connections that are not regularly used are “pruned” so that fewer connections exist in adulthood than in early childhood, as illustrated by these slides of human brain.

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1 Courtesy of Prof Peter Seaman
Critical periods

The development of certain parts of the brain can only take place within a “critical period”. If a baby receives no visual sensory stimulation then the synaptic connections necessary for developing vision will not take place and after a certain age no matter how intensely those neurons are stimulated vision will not develop. The critical time has passed. There is no evidence that the early months of life are a critical period for emotional and cognitive development in this extreme sense. There is developing evidence, however, that babies are sensitised to engage with adult caregivers in ways that promote positive secure relationships. The development of a number of core emotional abilities comes from the frequent activation of pathways associated with arousal and soothing. For infants who are chronically stressed and frightened alternative connections are created and these become the preferred and reinforced pathways. As babies are dependent on adults to regulate stress these infants’ mechanisms for dealing with stress become very distorted. Either they may become over reactive and respond adversely to the slightest stimulation or they may switch off and become very unreactive even in highly threatening situations.

Crucial cognitive skills are also laid down in the first months and years through the experience of relating to others. These include an early understanding of cause and effect, a sense of the progression of time, a capacity for interpersonal communication and the early development of emotional intelligence. Although very few people will have clear memories of their earliest years children learn more in the first three years than they ever will again.

What is the impact of negative early experiences on children when they go to school?

These core cognitive and emotional abilities are essential for effective functioning in the world of formal education. If they are not in place children may, with difficulty, manage to learn a number of formal skills such as reading or doing maths but they are unlikely to be able to integrate their learning and their achievement is likely to be patchy. Many children who have been neglected or abused in infancy or early childhood fail to develop effective executive functioning. These executive functions allow children to use their intelligence effectively by controlling impulsive behaviour and emotional outbursts, organising themselves and materials, planning, initiating, motivating, shifting, developing working memory and self monitoring. Teachers may be surprised and frustrated that a child who apparently understands a quite complex concept is unable to use it effectively in a different situation or is unable to hold on to an idea over time. An intelligent child may appear to be lazy or defiant when in fact they are unable to manage a task that a much younger, less able child with a more positive history would easily cope with.

Later brain development

During primary school years the brain develops in response to the formal learning environment as well as continuing the everyday process of synaptic reinforcement begun in infancy. Motor skills are reinforced and the pathways that are the basis for abstract reasoning begin to be developed. Recent research now suggests that as children reach their teenage years a further important phase of brain development occurs. This is centred in the frontal lobe of the brain and particularly in the prefrontal cortex which is associated with higher levels of reasoning. This involves a further proliferation of synaptic connections and the pruning of these in a use dependent way. This again means that the synaptic pathways that are used regularly will be
reinforced and those that are not will eventually be lost. Myelination of these regularly used pathways makes them both more efficient and more durable.

Impact of puberty

Simultaneously with changes in the prefrontal cortex the adolescent brain is flooded with hormones, as a result of the onset of puberty that affects emotional development. These changes happen more quickly than the changes in cognitive functioning. There is some evidence that the combination of these changes mean that adolescents are LESS able to make sensible assessments of social situations and risk than they were in their later primary school years. Economic and cultural changes have also meant that children in the developed world are reaching puberty at a significantly earlier age. This makes the task of integrating the cognitive and emotional changes in their brains an even harder task.

Risks and opportunities

Although this time of increased activity in brain development leaves young people vulnerable to adverse experiences it also allows an opportunity for positive change and development. In contrast to their early years young people are no longer dependent on their adult caretakers to provide the opportunities for developmental experiences. The decisions that teenagers make about activities they regularly engage in will literally influence the structure of their brains. Encouraging and supporting young people to make positive choices of friends, leisure activities, learning experiences and social interactions can help them to change the way their brain functions and consequently have a major impact on their wellbeing and achievement. Clearly this is no easy task as looked after young people are subject to all the normal stresses and strains of adolescence and in addition carry their heritage of difficult and distressing earlier experiences with them. It is important, however, to recognise that this research suggests that this period of a young person’s life is a real second chance.

- The emphasis is on providing behaviour support and learning rather than correction and behaviour management. (Do I need an age and stage caveat?)
- Behaviour must be seen as a form of communication often challenging behaviours are used to get basic needs met by CYP who have difficulties expressing themselves or understanding what is happening.
- Children and young people learn how to manage their own behaviour and regulate their impulses through relationships.
- They may need to relearn more socially appropriate and safer ways of expressing themselves.
- By being a calm and safe role model you can help them to learn these skills or you may be supporting their families and carers to help them do this. You should respond to challenging behaviours with sensitivity, fairness and concern for the child or young person, and avoid entering into power struggles. This will also encourage families or carers to work in a similar manner.

*Taken from Looked after children and young people: We can and Must do Better
Please download these Safety Tools, these can help you and the child recognise potential triggers and warning signs and identify helpful responses.

For more information about the effects of trauma on behaviour
Calming together by Howard I Bath.
Trauma informed care by Janina Fisher (Creating Positive Cultures of Care)
Working with traumatised children SIRCC
Download this presentation: Child Abuse, Neglect and Trauma:David Howe 2009
www.trauma.org

Books
The boy who was raised as a dog and other stories form a child psychiatrist notebook by Bruce Perry 2006
Why love matters How affection shapes a babies brain by Sue Gerhardt 2004
Also see Understanding Behaviour Reading List