What Is Trauma?

Trauma involves exposure to an experience or event that pushes the limits of normal human coping mechanisms. This usually means being involved in or witnessing a situation in which serious harm or death actually takes place or a realistic and believable threat of such damage exists. People may also suffer trauma if they learn about the unexpected death or injury of someone to whom they have close bonds. The traumatic experience evokes powerful emotions of intense and overwhelming fear, helplessness or horror. For children this may include sexual, emotional or physical abuse or witnessing violence. Trauma is not the same as stress. Manageable stress is a normal experience that can help to develop resilience. When an individual experiences trauma the usual emotional and bodily responses to stress are amplified and prolonged.

Developmental Implications of Trauma

The impact of trauma is always powerful and there is a serious risk of long-term consequences whether the traumatised person is a child or an adult. There is increasing evidence, however, that very early experience of repeated trauma actually affects the architecture of the brain. Chronic abuse or a violent environment during infancy and very early childhood appears to have different implications than the same experiences later in life. In all traumatic experiences there are effects on the neural pathways in the brain.

For the developing brain chronic fear stimulates certain pathways and prevents the activation of others. The frequent activation of the same synaptic connections means that preferred pathways are created. When an individual starts to learn a new skill such as playing the piano it requires intense concentration and effort to find and play the right notes in the right order. The more the skill is practised, however, the easier this task becomes and excellent musicians are able to undertake this almost without thinking. The piano playing pathways have been frequently activated and the connections between the synapses in the brain have been strengthened. A similar process seems to happen with survival and fear pathways when children experience repeated trauma. The very young brain is full of potential and is at its most "plastic". If at this stage the brain is concentrating only on survival then the opportunities to develop other pathways, connected with social or cognitive growth may be lost. Although the brain continues to develop new synaptic connections throughout life it is far harder to change these fundamental pathways that organise a child's response to his/her environment after the first few years of life. The activation of these neural pathways is a positive adaptation to a hostile environment. If, however, these early organising experiences shape a distrusting hostile response in the child to the environment then they become maladaptive if their physical, social or emotional situation improves.

Long Term Effects of Childhood Trauma

Traumatic experiences in childhood increase the child's vulnerability to a number of mental health difficulties in later childhood and when they become adults. These include post traumatic stress disorder, attachment problems, ADHD, conduct disorders, eating disorders, depression, suicidal behaviour, self harm, anxiety, substance abuse and personality disorders. In addition the response to trauma can produce symptoms that mimic other mental health difficulties. These may only be recognisable as trauma induced symptoms once a child begins to recover and difficulties reduce.

Trauma in childhood impinges on other aspects of an individual's life including physical health and social and emotional functioning. For looked after children who have often experienced prolonged exposure to traumatic events the consequences can alter their physical, social, emotional and cognitive development in particularly damaging ways.

Normal Response to Trauma

Trauma is experienced as a basic threat to survival and activates very primitive mechanisms to deal with the threatening situation. These are normal, adaptive responses that work to deal with an immediate danger. If the sensory input to the brain is experienced as severely threatening then a shortcut is triggered which alerts the body instantaneously to danger and prepares it for a survival response. This is why we may find ourselves jumping at sudden sounds or flinching away from unexpected movements before we have been consciously aware that there has been a change in our immediate environment. Although we experience ourselves as processing our conscious thoughts very quickly this actually takes much more time than the rapid alert system triggered by the brain when it senses danger. Although we may be embarrassed to find ourselves startled by something that is actually not dangerous it is obviously more adaptive to over respond in this way than to fail to respond to serious danger.

Fight or flight

When a child perceives a threat, a number of physiological responses are activated. As the sense of threat increases this arousal becomes heightened. Heart rate becomes faster, breathing more rapid and the muscles become ready either to fight or run away. The emotions experienced by the child will also change as the threat becomes more intense. With increased threat, a child moves from arousal through to terror. During the traumatic experience all aspects of the child's functioning will be altered; emotional, cognitive, behavioural and physiological. The child enters a state of hyper-vigilance that means that information that is not critical for survival will be tuned out.

Dissociation

Small children are not able to fight or run away because of their size and lack of strength. They may be forced into dealing with trauma through psychologically cutting off from the event. This response involves a totally different set of physiological and psychological changes from that activated in the hyper-arousal continuum. There is significantly increased activity in the parasympathetic nervous system which decreases blood pressure and heart rate (occasionally resulting in fainting). Dissociation may distort a child's sense of time or make them feel detached as though they are observers of their own experiences. Some children may deal with their helplessness by withdrawing into a fantasy world where they are endowed with special powers.

Both the hyper-arousal and dissociative responses are graded along a continuum (see below).The more serious and long lasting the threat the more intense is the response. In general small children and girls are more likely to respond to trauma through dissociation and boys through hyperarousal. Most children, however, adopt some combination of these two adaptive styles. In situations where escape is impossible size and strength are irrelevant and dissociation is the most normal response. The figure below demonstrates that as the perceived threat increases the child is less and less able to function normally and will certainly be unable to learn or respond reasonably in a school environment.

Hyper-arousal continuum	Rest	Vigilance	Resistance	Defiance	Aggression
Dissociative continuum	Rest	Avoidance	Compliance	Fainting	Dissociation
Sense of time	Extended future	Days/hours	Hours/ Minutes	Minutes/seconds	Sense of time lost
Cognition	Abstract	Concrete	Emotional	Reactive	Reflexive
Mental State	Calm	Arousal	Alarm	Fear	Terror

Response to Threat

The responses outlined are designed to ensure survival and they can be very useful strategies. The advantage of the hyperarousal response is that it activates systems in the body that allow the child to defend itself either by fighting back or running away. The dissociative response slows down bodily responses allowing the child the chance to hide more effectively from the threat and reduce the physiological danger from injury. As the traumatic event ends the mind and body slowly move back down the arousal or dissociative continuum. The child moves from the brink of terror through

fear, alarm, and, with time and support, back to calm. Heart rate, blood pressure, and other physiological adaptations return to normal. With support from concerned adults children may over time be able to make sense of the trauma and continue to develop normally. Almost all children return again and again to the traumatic experience in their thoughts, dreams and play long after the immediate threat has disappeared. They are likely to re-experience the feelings of being out of control and threatened. In the weeks following a traumatic event it is predictable and normal for children to suffer flashbacks and disturbed physiological patterns. They may also go to considerable lengths to avoid situations that remind them of the original trauma.

Even for children in positive emotional and social situations, however, the normal cognitive and emotional processing mechanisms that help children manage difficulties may fail as the event is so far outside normal experience that intrusive memories or flashbacks can overwhelm the child's capacity to cope. In about 50 percent of children who have experienced a severe traumatic event, these symptoms become so severe that the children develop post-traumatic stress disorders.

If a child is unable to return to a calm level of functioning there can be serious implications for the child's long-term functioning. Continuing physiological and emotional distress is exhausting and painful. Children who have experienced trauma and who continue to operate within a permanent state of low level fear show a range of problematic responses. Their bodies are in a constant state of readiness to defend themselves against attack. They may be impulsive, hyper-vigilant, withdrawn, hyperactive, depressed, unable to sleep or very anxious. They will be alert to all the non-verbal cues in their environment and are likely to be distrustful and aggressive.

A number of factors seem to increase the risk of long-term potentially permanent damage to the functioning of the child. If the trauma is a repeated event (e.g. abuse or domestic violence), if the child or someone they love experiences physical injury or if the child believes there is serious risk of harm this will increase the severity and length of the physiological and psychological responses. If the trauma is caused by a family member or if a caregiver is also traumatised by the event this increases the risk of a prolonged and damaging reaction. Conversely a supportive, attuned carer can protect the child from the worst consequences of exposure to trauma. If a child's previous experience is positive and they have healthy coping skills or if there are immediate interventions that help the child to process the experience then an adverse outcome is less likely. Looked after children, however, are likely to have experienced several of the risk factors for long term difficulties and will have access to few of the protective factors.