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### Learning outcomes

- ✓ Learn in detail about brain/body development through childhood and adolescence,
- ✓ Understand the ways that trauma shapes children, young people and adult's states, needs and experiences,
- ✓ Develop creative and evidence based approaches and practice strategies to stay emotionally regulated and enable your clients to regulate
- ✓ Build approaches that resource change and connections across all environments

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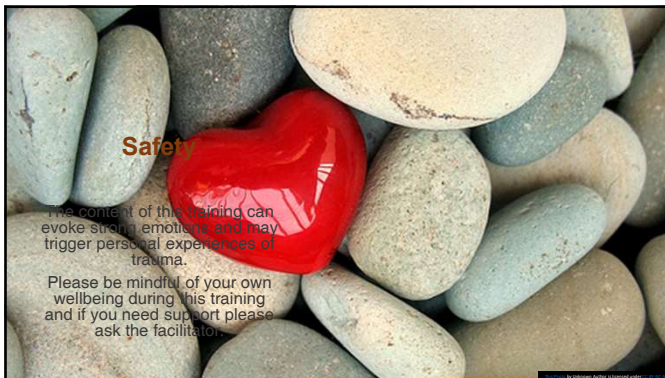
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**Safety**

The content of this training can evoke strong emotions and may trigger personal experiences of trauma.

Please be mindful of your own wellbeing during this training and if you need support please ask the facilitator.

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### Trauma Responsive Model

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### Brain development

- The brain develops through a mix of genetics and environmental factors.
- Key to this development are relationships
- The brain develops sequentially from the bottom up




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## Brainstem

Basic life functions  
Develops in utero  
Critical period of development: 0 – 8 months  
Responsible for our heart rate, breathing, sucking, swallowing, temperature control, blood pressure, regulates sleep cycle

What might you notice?



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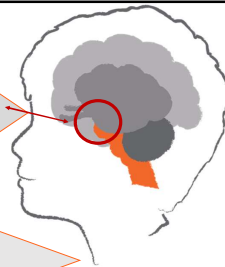
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## Superior Colliculus

Retinal neuronal input received by Superior Colliculus which engages the body in:  
**Avoidance and defensive behaviours**

Processes visual threats – looming objects identified by cells in the retina of the eye

May present as hypervigilant behaviours including excessive eye darting, flinching when someone approaches, attention focussed on perceived threat.



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## Cerebellum

The cerebellum accounts for approximately 10% of the brain's volume, it contains over 50% of the total number of neurons in the brain.

- Responsible for movement and interpreting physical and sensory stimulation
- Helps us to know where our body is in space
- Helps us with our posture, balance and muscle tone
- Helps us not to fall over and to control our movements
- Responsible also involved in diverse processes such as motor control, language, working memory, cognition and emotion



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### Limbic Lobe

Children who experience trauma experience dysregulation and interrupted attachment relationships.

This impacts their ability to:

- engage in relationships with others
- Self regulation
- Social learning – understand social cues, develop empathy for others



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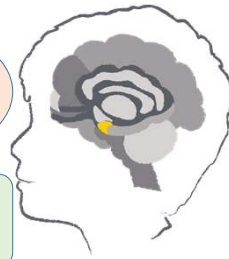
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### Amygdala – smoke alarm

Smoke detector

Only reads sensory cues in binary-  
**Safe or Not Safe**

Trauma = constant threat response



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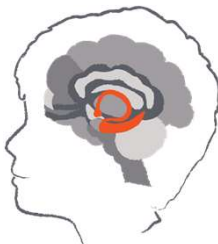
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### Hippocampus – Brain's historian

- Memory storage
- Implicit and explicit memory
- Trauma impacts on memory
- Trauma affects hippocampus development



**Cortisol is toxic to the hippocampus**



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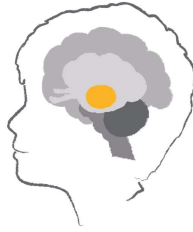
### Diencephalon: Thalamus and Hypothalamus

The thalamus provides two possible responses:

- **First response the high road**

- **The low road**

**Hypothalamus** initiates cortisol and adrenaline which activates the fight fight, run or freeze



*Children who have trauma often take the low road as a default nervous system response*



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### Anterior Cingulate Gyrus (ACG)

Emotional  
bonding and  
attachment

Connects with the amygdala –  
related to emotions and fear  
conditioning, also PREDICTION

Emotional processing and  
vocalization of emotions



**“Joy releases opioids in rACG which triggers top down inhibitions of the defence system” (Dan Hughes)**



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### Cortex – higher order thinking

- Cortical function is diminished
- Goes 'offline' as the brain directs its energy to survival processes.
- Upstairs/downstairs model



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### Cognitive functions

Trauma impacts cognitive functions including:

- memory recall
- top down regulation
- delayed speech and language processing
- capacity to form a narrative of experiences.



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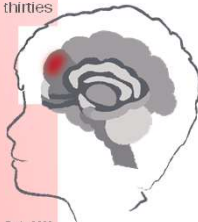
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### Medial prefrontal cortex

- Does not mature until late twenties in women early thirties in men.
- Is the best connected part of the brain
- This command post links directly to the amygdala

Trauma creates:

- Poor sense of self
- Attachment relationships impaired
- Executive functioning diminished
- Reduction in emotional literacy



Goldberg, E. The New Executive Brain 2009

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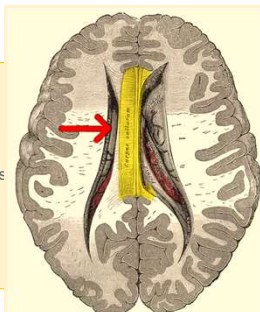
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### Corpus callosum

Trauma impact:

- Smaller in children with trauma
- Poor neuronal connection between hemispheres
- Diminishes capacity for integration of emotional experiences – language to emotion
- Poor coordination of midline processes



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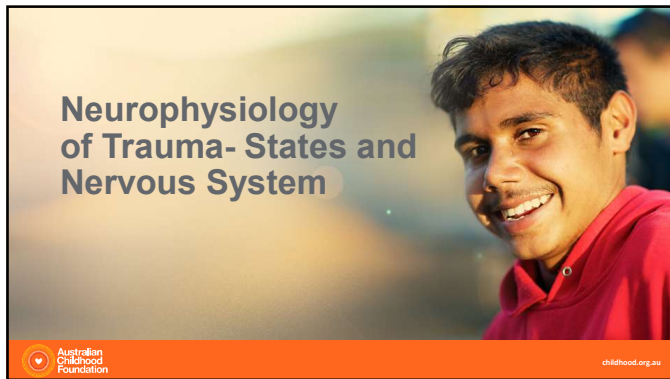
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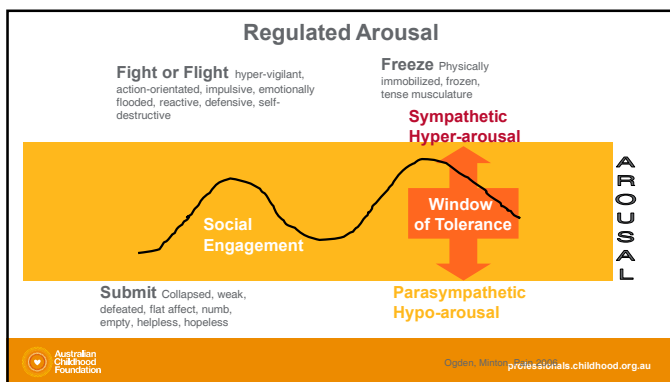
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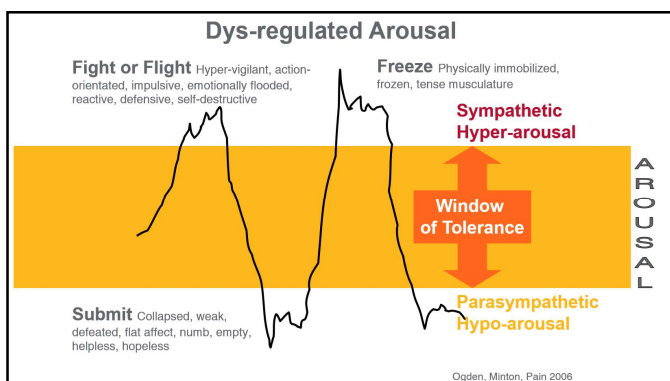
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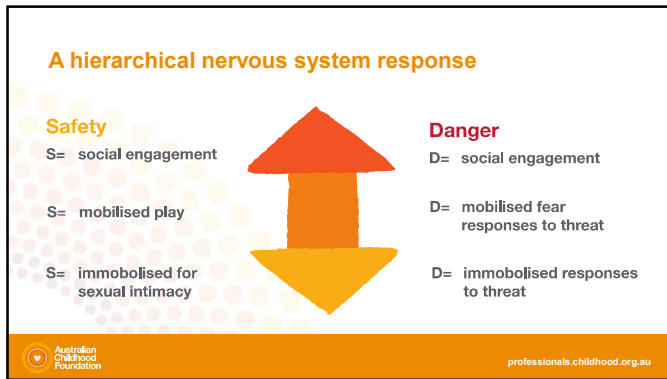
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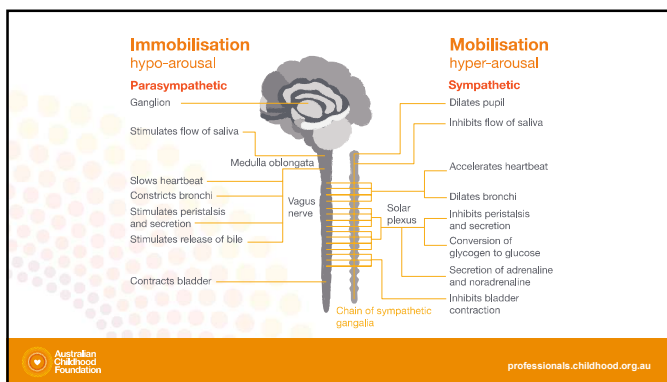
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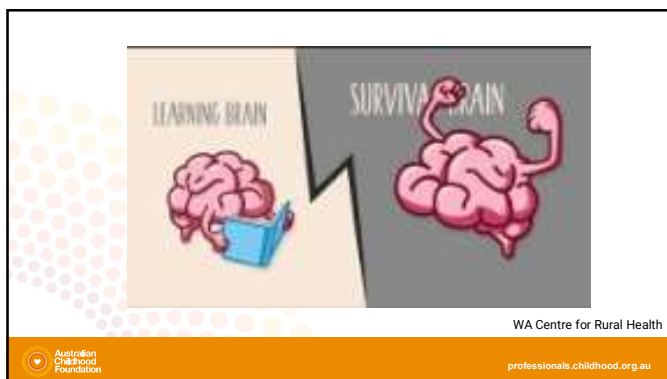
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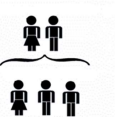
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### Inter-generational trauma

- The prefix 'inter' is from the Latin meaning between, or among, together or mutually together:

Intergenerational trauma is passed down directly from one generation to the next

- Intergenerational trauma occurs directly through experiencing the trauma or from seeing or hearing about it



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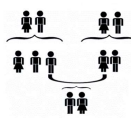
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### Transgenerational trauma

- The prefix 'trans' is from the Latin word meaning across or crossing, through, beyond or on the other side

Transgenerational trauma is transmitted across a number of generations

"This type of trauma occurs without direct stimulus but is instead transmitted from a parent who has experienced a traumatic event"  
(Davidson & Meller 2001 as cited in Goodman, West & Crevin, 2008)



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### Transgenerational transmission and cultural impacts:

Duran and Duran (1995) suggest:

“...that historical trauma becomes embedded in the cultural memory of a people and is passed on by the same mechanisms by which culture is generally transmitted, and therefore becomes ‘normalised’ within that culture.”



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### Epigenetics

The prefix '**Epi**' in epigenetics comes from the Greek word meaning:

- beside
- to
- upon
- over
- 'in addition to
- toward
- among



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### Epigenetics

Epigenetics is defined by the Journal of Science as:

“the study of heritable changes in gene function that occur without a change in the DNA sequence”



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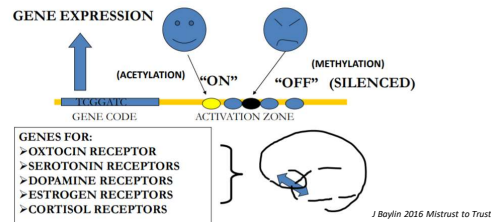
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### Epigenetics and hormone receptors



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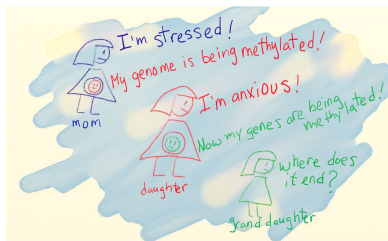
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### Epigenetics and stress



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### Engaging families with trans-generational trauma

- Client's perception of safety
- Physical and emotional safety
- Attunement and intersubjectivity
- Body language
- Cultural safety
- The language you use
- Environmental safety
- The worker-client relationship
- Child AND parental trauma



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### Engaging families with trans-generational trauma

#### Strategies to help clients calm themselves:

- **Prosody** – gentle calm voice (brainstem/limbic)
- **Facial expressions** – (vagus nerve/ANS)
- **Body language** – (vagus nerve/ANS/right brain)
- **Offer a glass of water**, cup of tea (brainstem)
- **Breathing** 5-2-7 breath work (brainstem, limbic)
- **Listen and validate** feelings (limbic/cortex)
- **Hold space** (when safe)
- **Check in** with your own emotions/triggers (right brain to right brain, co-regulation)
- **Show Empathy** (limbic/cortex)
- **Connection** – relating (limbic/cortex)
- **Draw on strengths** (limbic/cortex)
- **Humour** (limbic/cortex)
- **Unconditional positive regard** (right brain/limbic/cortex)

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### Engaging families with trans-generational trauma

- Encouraging family traditions and rituals, cultural values - anchors
- Storytelling – meaning making, identity and belonging

**“Family stories can inspire us, protect us, and bind us to others”**, Elaine Reese 2013



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### Reward versus Threat systems

The brain wants to maximize reward and minimize threat.

The brain processes threat at a level below consciousness. Neuroception.

We use similar brain networks to process social/physical pain and social/physical pleasure



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### Family violence

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### Impacts of family violence on children

**Behaviours:** fight, flight, freeze or submit activation can lead to a range of behaviours.

**Development:** developmental delays

**Relationships:** impacts on attachment to primary caregiver

**Emotions:** heightened fear response and poor attachment to secure base can impact on child's sense of self, their emotions and mental health

**Learning:** heightened fear response impairs a child's ability to learn

**Cognitions:** impaired when in a constant state of fight or flight.

**Physical health:** psycho-somatic (Brain-body) symptoms caused by stress response can lead to physical ailments; potential injury from exposure to violence.

**Cultural identity:** fractures connections to family and culture

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## Foundations of Intervention

### ENSURE CULTURAL INTEGRATION

- Considerations of family's cultural background
- Address needs within the context of culture and community
- Maintain contact and seek to work positively and constructively



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## Foundations of Intervention

### ENSURE CULTURAL INTEGRATION

Principles of Healing Practices & Models (SNAICC 2010)

- Safe Space – Physical and Relational
- Ownership
- Holistic and Relationship Worldview
- Flexible
- Imparting cultural knowledge and pride
- Strength based approaches – 'prevailing strengths'
- Address Causes



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## Foundations of Intervention

### SUPPORT NETWORK ENGAGEMENT & COLLABORATION

- Children and young people benefit from a collaborative approach by agencies
- Shared understanding of the issues
- Build a platform for communication and coordination of responses
- Mediated and run through structures such as care teams



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## Foundations of Intervention

ADDRESS DYNAMICS OF FAMILY VIOLENCE



- Specific underlying dynamics that lead men to engage in violence
- Men's psychological, attitudinal, social and cultural issues need to be addressed
- Strategies which hold men accountable for their violent behaviour

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## Impact on parent – child bond

- Diminishes capacity for mother to be present for her child
- Often preoccupied with the perpetrator
- Little capacity to provide nurturing or strengthen attachment with child
- Mother likely to have a diminished sense of self
- Perpetrator often sabotages relationship with the child
- Perpetrating parent, who should be a source of safety is their source of fear



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## Impacts of family violence on parent-child relationship

- Reliance on self protection when safety is not provided
- Reliance on self-soothing when co-regulation is not available
- "irresolvable paradox" – biologically primed for dependence on the parent who is the source of terror (perpetrating parent) or unable to protect (non-offending parent)
- Parent locked into stress response (hyper or hypo-arousal) – unable to tune into and respond to child's cues, states and needs
- Role reversal – instrumental and/or emotional parentification

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### Beliefs a child or young person may hold as a result of family violence

- My needs are not important
- This is what relationships look like
- I have to look after others
- It's my fault
- It's mum's fault – she is crazy (Maternal alienation)
- This doesn't happen to anyone else
- I must be bad
- I can't get close to anyone or I will get hurt



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### Understanding Fetal Alcohol Spectrum Disorders (FASD)

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### Trauma and FASD....

"The trauma our communities have sustained has brought into being complex harms, of which FASD is one of the most damaging. With better understanding of trauma, we will overcome its harmful effects and 'Make FASD History'. We will allow our societal strengths to flourish again, as we confront, heal and put an end to all forms of harm caused by intergenerational trauma."

June Oscar AO, Aboriginal and Torres Strait Islander Social Justice Commissioner, 2017

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### What is FASD?

- Fetal Alcohol Spectrum Disorders (FASD) is a term used to describe the lifelong physical and/or neurodevelopmental disorders that can result from fetal alcohol exposure.
- FASD occurs in all parts of Australian society where alcohol is consumed
- FASD is primarily an acquired brain injury that is a symptom of parents use of alcohol during pregnancy related to not being aware of the dangers of alcohol consumption for the developing foetus during or whilst planning pregnancy or not being supported to stay healthy and strong during pregnancy.
- FASD is a lifelong disability. Individuals with FASD will experience some degree of challenges in their daily living, and need support with motor skills, physical health, learning, memory, attention, communication, emotional regulation, and social skills to reach their full potential.
- FASD is a serious public health issue. There are more children born each year with FASD than with ASD, Spina Bifida, Cerebral Palsy, Down Syndrome and SIDS combined (Mather Wiles & O'Brien, 2015)



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### Who is at risk?

- Prenatal alcohol exposure is a risk to babies from all cultures and socio-economic backgrounds.....

.....wherever there is alcohol, there is the potential for FASD



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### What causes FASD ?

- Alcohol is a neurotoxin (poison) and a teratogen
- A teratogen is an agent that is known to cause birth defects and permanent brain injury to a foetus
- Alcohol is a substance that can cause harm to the developing baby at any time during the pregnancy
- Research suggests alcohol freely crosses the placenta and creates a blood alcohol level in the foetus the same or higher than that of the mother.

(Brown and Elliott, 2016)



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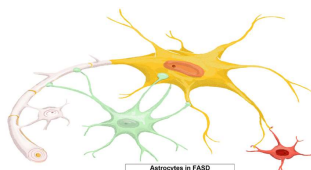
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### Impact of FASD

- Working memory
- Attention
- Impulsivity
- Learning
- Social skills
- Language development
- Executive functioning – planning, learning from experience, control impulses



Oligodendrocytes in FASD	Astrocytes in FASD	Microglia in FASD
White matter reduction and demyelination	Inhibition of astrocyte proliferation	Increased microglia activation
Delayed myelination, reduced myelin thickness, ultrastructural myelin abnormalities	Reduced release of factors promoting neurite outgrowth from astrocytes	Increased microglia-mediated hypothalamic neuron death
Abnormalities in biochemical profile of myelin	Increased release of factors inhibiting neurite outgrowth from astrocytes	
Unmyelinated oligodendrocytes	Astrocyte activation of TNF- $\alpha$ , IL-1 $\beta$ , MCP-1 and cyclooxygenase-2 induction, GSH depletion	
Alteration and expression of GSH and myelin associated proteins	Cholesterol homeostasis alterations in astrocytes	
Oligodendrocyte apoptosis	Reduced progenitor cell survival and astrocyte differentiation	

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### Key components of the FASD Diagnostic Assessment include the documentation of:

- History – presenting concerns, developmental, medical, mental health, behavioural and social
- Birth defects- dysmorphic facial features, other major or minor birth defects
- Adverse parental and postnatal exposures, including alcohol
- Known medical conditions – including genetic syndromes and other disorders
- Growth information

Infants and young children under the age of 6 and older adolescents and adults warrant special consideration during the FASD diagnostic assessment process.

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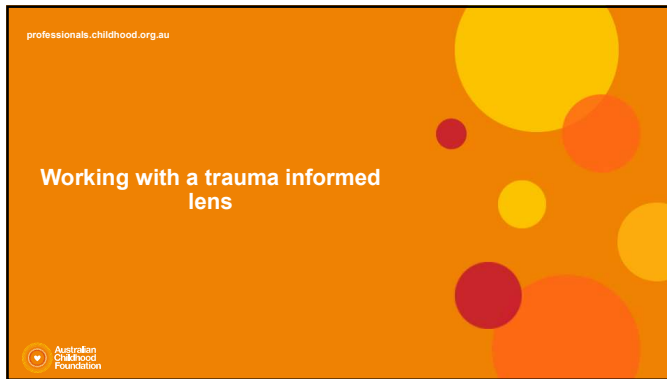
### Two diagnostic categories were recommended:

A diagnosis of FASD can be divided into one of two sub-categories:

1. FASD with three sentinel facial features
  - Fetal Alcohol Syndrome (FAS)
2. FASD with less than three sentinel facial features
  - Partial Fetal Alcohol Syndrome (PFAS) and
  - Neurodevelopmental Disorder-Alcohol Exposed (ND-AE).

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### Trauma informed in our settings

- Similar to other child and family-serving organizations, being trauma-informed in means being informed about and sensitive to trauma, and providing a safe, stable, and understanding environment for children, parents and staff.
- Trauma informed approaches represent a holistic approach to shaping organizational culture, practices, and policies to be sensitive to the experiences and needs of traumatized children, families and communities
- A primary goal is to prevent re-injury or re-traumatization for everyone, and acknowledging trauma impact for children.



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### Consider the adults history

- Many of the adults/parents you work with will have their own trauma histories.
- Whether trauma is a past experience, a current reality, or both, it can shape a parent's behaviors, feelings, and decisions.
- The more we learn about trauma, the more we can modify our practices and communication to support and engage parents
- Develop respectful; attunement communication
- Co-regulate



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### Trust versus Mistrust

THE CHILD and Adult BRAIN:  
TRUST OR MISTRUST?

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### TWO RELATIONAL SYSTEMS: BONDING AND SOCIAL HIERARCHY

GETTING CLOSE: SOCIAL ENGAGEMENT SYSTEM

GOOD TENDING PROMOTES DEVELOPMENT OF BONDED RELATIONSHIPS

BONDED RELATIONSHIPS: OXYTOCIN, OPIOIDS, PROLACTIN, AND DOPAMINE

KEEPING YOUR DISTANCE: SOCIAL AVOIDANCE / DEFENSE SYSTEM AND "KNOWING YOUR PLACE"

POOR CARE SHIFTS THE DYNAMICS FROM BONDING TO HIERARCHY

POWER-BASED, "RANKING" RELATIONSHIPS: STRESS HORMONES, LOW SEROTONIN, AND HIGH STRESS HORMONE IN LOW-RANKING MEMBERS

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### Understanding the adult

- Effect perception of self, the world, their future
- Impacts on their ability to form secure attachments with the child
- Impacts their ability to trust others
- Affected sense of safety
- Impacts ability to cope with life changes
- Changes the way the brain operates

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## Psychoeducation

Provide resources to children, families, on trauma, its impact, and treatment options.

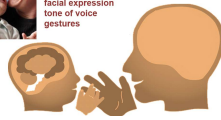
Build on the strengths of children and families impacted by trauma.

Use different modalities to educate staff, families, adults and communities: social media, newsletters, focus day or week.

Collaborate across departments/sectors to coordinate psychoeducation



facial expression  
tone of voice  
gestures



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## Reparative Action

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## Strategies for Repair & Rehabilitation

- Revise environment to increase cues of safety
- Train staff to increase felt sense of relational safety
- Support staff to increase capacity to regulate and co-regulate
- Increase capacity in young people to shift states
- Provide reparative exercises to integrate brain regions and hemispheres
- Support building and strengthening of new neural pathways
- Support the building of narrative overcoming shame
- Systemic response based on social neurobiology

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### Trauma versus safety

This new world the child is placed into is so foreign... (serious culture shock!) and different means scary!

Such a change is going to take a long time to adapt to

Who is "safe".



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### Safety principles

Safety is embedded in our physiology

Safety is a relational experience

Child abuse is a deep violation of a child's sense of safety



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### Important domains of Safety

**Physiological safety:** arousal levels the young person will change under different circumstances.

**Relational safety:** trauma heals in relationship.

**Environmental safety:** consider the sensory environment for the young person



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## How do you promote safety?

How do we create safety:

- In our work settings?
- What does neural safety look like in our work setting?
- When the person is in fight/ flight mode?
- When the person is shut down/disassociated in life threat mode?



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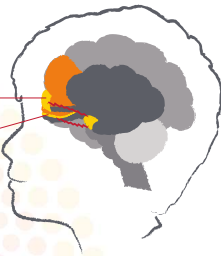
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## Mindfulness and co-regulation

**Pre-Frontal Cortex**  
(the centre of  
Mindfulness/  
Self awareness)

**Right Orbitofrontal Cortex**  
(Regulation of  
Arousal)



- Mindful awareness/  
meditation de-activates  
the amygdala
- Quality co-regulation  
de-activates the amygdala

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## Relational Repair in Practice

*What you did is not ok, but you're still a good person  
and our relationship is still strong.'*



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### Working with empathy



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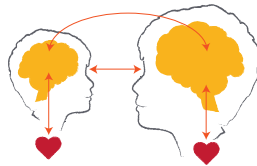
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### The right hemisphere in relationship

These primary relationships contribute to:

- stored internal working models of primary relationships recorded in the right hemisphere
- the perception of emotion in self and others, enabling empathy and humour.



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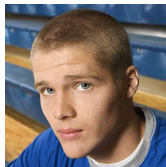
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### Meaning- Restoration of the narrative

- Every behaviour has a **meaning**
- Behaviour is often a person's way of **communicating** with us
- Learning how to **understand** behaviour is a more effective tool than memorizing a list of prescribed responses for common "challenging behaviours."
- We need to learn to ask "**What is this behaviour telling me?**" and be curious about what it might mean so that we can best respond



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**What does the behaviour mean?**



What you see:

Feeling fearful  
Feeling confused  
Feeling detached  
Feeling insecure  
Feeling sad  
Feeling connected  
Feeling angry  
Feeling calm  
Am I loved? Am I loved?  
Can I do things for myself?  
Am I capable? Am I competent?  
Do I belong? Am I respected? Do I  
Have power? Am I secure? Am I included?  
Are my thoughts valued? Am I understood? Do I matter?

(What's really going on)

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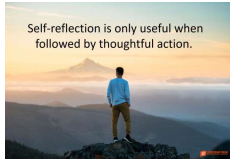
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**Self care**

- Staff need to understand self care, vicarious trauma and compassion fatigue
- Staff require good self reflective functioning and understanding of their own trauma or attachment which leads to a capacity to be *mind-minded*.
- Ability to emotionally regulate when feeling under stress.
- Ongoing organisational support that can meet the needs of the developmentally traumatized person
- View the person through a trauma lens

Self-reflection is only useful when followed by thoughtful action.



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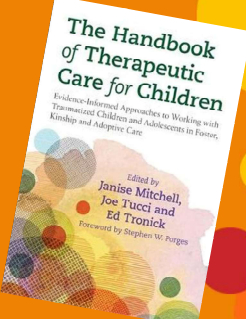
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**A valuable resource**

Includes chapters from:

- Martin Teicher
- Ed Tronick
- Allan Schore
- Bruce Perry
- Dan Hughes & Jon Baylin
- Kim Golding
- Cathy Malchiodi
- Joe Tucci
- Janise Mitchell
- Glenda Kickett
- Noel Macnamara



**The Handbook of Therapeutic Care for Children**  
Evidence-Informed Approaches to Working with Traumatized Children and Adolescents in Foster, Kinship and Adoptive Care  
Edited by Janise Mitchell, Joe Tucci and Ed Tronick  
Foreword by Stephen W. Porges

Australian Childhood Foundation

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