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## Introductions

- Name
- Role

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*What are you passionate about in the work you are doing, with children and young people who have experienced trauma?*



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## Outline of our day


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- 9.00am Start
- 10.45am – 11.00am Morning Tea
- 12.45pm – 1.15pm Lunch
- 3.15pm – Evaluations
- 3.30pm Finish



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## Session outline

- **examine** brain development in children
- **define** complex abuse related trauma
- **understand** the impact of trauma on children's and young people's development and functioning
- **develop** strategies for working with traumatised children
- **discuss** whole school or service approaches to supporting traumatised children



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## Key learning outcomes – success criteria

- **develop** an enhanced understanding of complex abuse related trauma, with a particular focus on its effects on brain functioning.
- **apply** a framework for responding to children who have been impacted by trauma
- **build** on practice skills and interventions which promote recovery for children in education settings.

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## Principles guiding this session

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**Your emotional safety is paramount**

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## SMART PRACTICE


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## Safety and relationships are key

It is important to remember that safety – feeling and being safe and having safe, connected and attuned relationships are key to supporting a child or young person who has experienced trauma.

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## Stress

**POSITIVE** – Brief increases in heart rate, mild elevations in stress hormone levels.

**TOLERABLE** – Serious, temporary stress responses, buffered by supportive relationships.

**TOXIC** – Prolonged activation of stress response systems in the absence of protective relationships.

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## Trauma

How would you define trauma?

What have you noticed with your students?

| | |
|---|---|
| Simple | Intergenerational |
| Complex | Transgenerational |
| Developmental | Historical/Collective |

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**Trauma** is not what happens **to** you,

but what happens **inside** you.

(Gabor Mate 2018)

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## The growing brain……

How much does a brain weigh?

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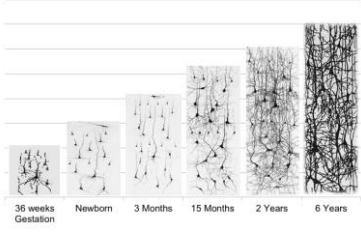
## Neural Circuit Formation in the Early Years

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## Brain development

Cortex
*Reasoning/judging centre*
3–6 years

Limbic System
*Emotional centre*
1–4 years

Cerebellum
*Motor centre*
Birth–2 years

Brain Stem
*Basic survival functions*
Pre-birth–8 months

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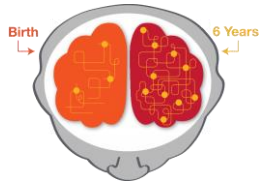
## Neuronal connections

- The neural system has the ability for one neuron to communicate with up to 10,000 other neurons
- The newborn brain has approximately 100 billion neurons

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Three Core Concepts in Early Development

1 Experiences Build Brain Architecture

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD
Center on the Developing Child HARVARD UNIVERSITY

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## Strengthening neuronal connections

Provide opportunities for repeated experiences

- Ensure students have an opportunity to practice tasks over and over
- Provide encouragement when tasks are achieved as this will connect to the brains' reward system
- Include lots of physical activities that are repetitive – playing musical instruments, skipping, dancing etc
- Model positive relational connections, emotion, fun and relational attunement

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## Brainstem – survival centre

- basic life functions
- first part of our brain to develop & the most developed brain part at birth
- responsible for regulation of our
  - heart rate
  - breathing
  - sucking, swallowing chewing reflexes
  - temperature control
  - blood pressure
  - circadian (sleep) cycle
  - involuntary reflexes

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## The brain stem under stress and trauma

- may experience fast or slower heart rate
- shortness of breath or breathing difficulties
- sleep disturbances and unsettledness
- sucking and swallowing and digestion difficulties
- may feel hot or cold or not notice changes in temperature

What do you notice?



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## Cerebellum – body and balance centre

- helps us with our posture and balance
- helps us with our coordination and to control our movements
- helps us to know where our body is in space
- helps us with our voluntary movements such as walking and writing

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## The cerebellum under stress and trauma

- lack of coordination and balance
- difficulty in maintaining posture
- difficulty in undertaking tasks that require balance
- lack of awareness of their body in space
- difficulty with voluntary movement tasks – walking or writing

What do you notice?

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## Growing and regulating the brainstem

Provide activities which are rhythmical and synchronous with others:

- Rhythmic sounds - stories, songs, rhymes & music
- Rhythmic movement
- Rhythmic touch

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**SMART PRACTICE Focus – Predictable and Calming**

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## Growing and regulating the cerebellum

Provide activities which have support and balance, develops gross and fine motor skill elements and are synchronous with others

- Balancing activities
- Stretching – aligning the spine activities
- Spine/lumbar support
- Throwing and catching objects
- Writing, drawing, colouring, making

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## Diencephalon – sorting and sending centre

- develops mainly after birth
- sorts out "messages" coming into the brain and sends them out to other parts of the brain
- uses hormones to send signals to body
- hormonal signals tell your body what it needs, eg. food, water, love

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## The diencephalon under stress and trauma

- becomes overwhelmed and cannot sort the information
- is unable to send information to the memory and thinking parts of the brain – that pathway shuts down
- it alerts the amygdala which sets of a sensory information response sequence

What do you notice?

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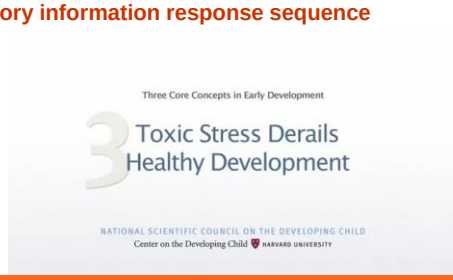
## Sensory information response sequence



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## Strategies for transforming – diencephalon

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**SMART PRACTICE Focus – Responsive and Translating**



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## Limbic lobe - emotion and memory centre

- develops mainly after birth
- helps us attach an emotion to an experience or memory
- particularly involved with the emotions
- heavily involved in attachment processes
- two important brain parts – the amygdala and the hippocampus are in this part of the brain

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## Amygdala

Has three roles:

- Alarm centre - the 'smoke detector' of the brain
- Memory centre - processes & stores implicit memories
- Emotion centre – helps with emotional understanding and regulation

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## The amygdala under stress and trauma

- can be over active or under active
- can evoke reminders and flashbacks of the trauma (awakenings)
- may have difficulty in emotional regulation
- may have difficulty in reading facial expressions

What do you notice?

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## Strategies for transforming – Amygdala – ALARM CENTRE, IMPLICIT MEMORIES, EMOTIONS

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**SMART PRACTICE focus: Responsive, Attuned and Connecting**

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## Growing and regulating the amygdala

Provide activities that support emotional and social connection, understand the implicit memory needs and that calm and connect

- Explicit emotional literacy teaching
- Calm, sensory supportive environments
- Support the child, reassure
- Stay present – provide safety

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## Hippocampus

- explicit memory centre
- provides context to memories
- provides consolidation of information from short term memory to long term memory
- memory puzzle sorting centre

Image source: ©2021 ACF



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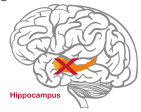
## The hippocampus under stress and trauma

- doesn't function properly - it feels as if the trauma hasn't ended.
- reduction of hippocampal volume up to 25% as a result of high levels of cortisol
- working memory, retention and recall (retrieval) capacity is severely impacted

What do you notice?

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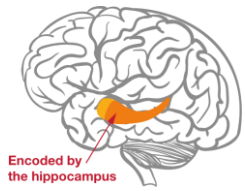
## Implicit and Explicit Memory Systems

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## Strategies for transforming – hippocampus – EXPLICIT MEMORIES

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**SMART PRACTICE Focus – Responsive and Translating**



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## Growing and regulating the hippocampus

Provide activities that support memory retention and recall and review and repetition

- Practice activities and learning skills over and over
- Reinforce learning through repetition
- Provide playful opportunities to learn
- Use visuals to assist

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## Cerebral cortex – thinking centre

- the largest part of the brain
- associated with higher brain function such as thought and action
- examples of functions:
  - reasoning
  - logic
  - judgement
  - voluntary movement

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## Cortical areas under stress and trauma

Unable to:

- use foresight and anticipation, focus or sustain attention
- plan, organise or prioritise or make decisions well
- reflect or have self-awareness
- be enthusiastic, motivated or persist with activities
- use impulse control

What do you notice?



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## The Prefrontal Cortex- executive function centre

Final part of the brain to reach maturity in one's mid to late twenties

- self awareness
- reasoning and judgement
- foresight and anticipation
- focusing and sustaining attention
- planning organising and prioritising
- decision making
- reflecting
- enthusiasm, motivation and persistence
- impulse control
- working memory

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## Strategies for transforming - cortex

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**SMART PRACTICE Focus – Translating and Involving**



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## Growing and regulating the cortical areas

Provide activities that connect the cortical areas, through choice, problem solving, planning and voluntary movement

- Play thinking and choice games
- Map out and plan activities together
- Break down problems to work through
- Allow choice and options
- Use voluntary movement activities

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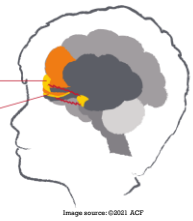
## Medial Pre-frontal Cortex and the Right Orbito-frontal Cortex

Medial **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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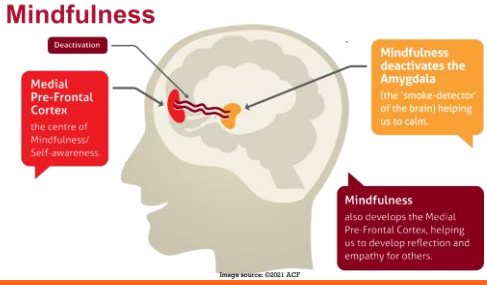
## Mindfulness

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## Strategies for transforming – prefrontal cortex/MPFC

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SMART PRACTICE Focus - Attuning and Connecting



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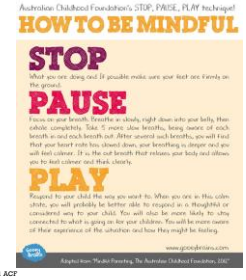
## Stop…Pause…Play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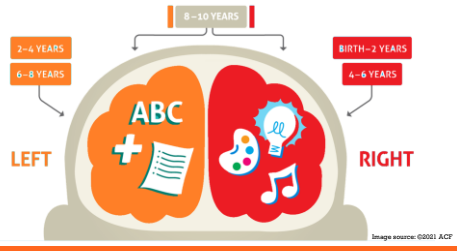
## Lateral brain development



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## Hemispheres under stress and trauma

- will struggle to process the content of our words (left hemisphere - Wernicke's area )
- may not be able to speak or articulate (left hemisphere - Broca's area)
- will be tuned into the tone of voice, not the content (right hemisphere)
- difficulties with understanding and knowing feelings and articulating them
- difficulties with tuning into, understanding and responding to social cues in communication
- will be acutely aware of facial expressions, posture, gestures, intensity of movements and eye contact and searching for signs of disapproval, rejection & danger



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## Strategies for transforming – building RH/LH connection and the Corpus Callosum

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**SMART PRACTICE Focus – Involving, Connecting, and Engaging**



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## Attachment and the right brain

- Neuroimaging studies show areas of the right hemisphere lighting up in the brains of parents & infants during non-verbal interactions.
  (Schore, 2003)
- A secure attachment relationship facilitates right brain development and promotes efficient affect regulation.

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## The importance of play


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## Neuroplasticity

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## Safety and connection

- Children effected by trauma need stable, safe, consistent environments and relationships to help them to be calm and open to learning
- Safety = predictable and consistent routines, relationships and responses

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## Neuroception of safety: predictability

Predictability is a metaphor for safety.

**"The removal of threat is not the same as the presence of safety"** **(Porges, 2014)**



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## Building predictability

Predictability is achieved by:

- Reliable routines e.g. bedtime story/song, start to day
- Using visual cues to help children prepare for the day – sequencing…better to use photos of the actual child, than clipart
- Preparing children for what's coming next
- Talking to baby/child about your intentions
- Same staff & caregiver/s every day

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## Transitions

List all the transitions you expect children to traverse in one ordinary day

- **How many are essential?**
- How can you provide safe passage for children through the transition?
  - Safe Person
  - Safe Activity
  - Safe Place



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## Building safety and connection

Managing transitions and change is extremely difficult for traumatised children

- transitions are experienced as a threat
- they feel a lose of their sense of safety
- they may revert to survival mode

**How can you help children to feel safe during TRANSITIONS?**



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## Engagement with safety

- understand & respect the child's need for distance in relationship
- increase your tolerance for 'stuckness' and 'crisis'
- practise mindfulness
- use phrases like: *'I noticed that…', 'Isn't that interesting!'*
- practise self-care and seek support
- practise calming techniques (Janina Fisher)

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## Summary – Be a safe harbour

*'Be my anchor when I'm all at sea'*
PREDICTABLE PERSON

*'Ferry me to calmer waters'*

SING-SONG VOICE
RHYTHMIC, REPETITIVE ACTIVITY WITH OTHERS
SENSORY INPUT



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## Day 2 Strategies – what's coming up in our next session…

In Day 2 you will

- Be introduced to the Polyvagal Theory and the concept of the Window of Tolerance.
- Explore the different arousal levels and consider supportive strategies for each.
- Explore further the meaning of the behaviours we see in our students.
- Build a toolkit of strategies, focusing on the SMART Audit Tool



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## Holding hope

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What are your hopes for the children you work with?

What are your hopes for your school?



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## Thank you for your participation…

We appreciate your feedback!

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