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BRAIN DEVELOPMENT

and the impacts of trauma

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Sequential brain development – building blocks

	The Thinking brain 3-5 Years
	The Emotions and Memory Brain - Birth to 4 years
	The Movement Brain Birth – 2 years
	The survival brain Pre birth to 8 months

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Neurosequential development

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Trauma and the Brain

Hypothalamus
Links the nervous system to the endocrine system via the pituitary gland. It synthesizes and secretes hormones to control body temperature, hunger, thirst, fatigue, sleep, and circadian cycles.

Corpus Callosum
Bridge between the 2 hemispheres. Chronic stress can damage and thin down this bundle of neurons

Prefrontal cortex
Responsible for executive functions, such as judgement, reasoning, and self awareness. Final part of the brain to mature in one's mid 20s.

Amygdala
Survival response centre within the limbic lobe that becomes enlarged and more sensitive the more it is activated through responding to threats

Hippocampus
Consolidates memory by providing the context/ sequential data for episodic memories. Goes offline if trauma overwhelms and disrupts cortex.

Thalamus
Sensory receptor within the diencephalon. Receives and passes on sensory data to be further processed by other areas of the brain

Cerebellum
Balance and coordination, motor skills may be impacted by trauma

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Summary: Brain development

- The brain develops through a mix of genetics and environmental factors.
- Relationships are central to development
- Relationships= survival; Isolation=death
- The quality of relational right brain to right brain interactions in childhood influence our development in all areas of life
- There are critical periods of development, trauma experiences during critical periods can result in significant impacts later in childhood and into adulthood
- Culture influences brain development in utero- sensory based

A child's brain develops through relationships with others. The quality of these relationships shape children's brain development.

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The Endocrine System

https://www.youtube.com/watch?v=HXPCQBD_WG&t=11s
An alternative video about this issue is also available at:
https://www.youtube.com/watch?v=vLCg_kyuyw4

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Hypothalamic (Diencephalon) / Pituitary / Adrenal Axis

1. The hypothalamus secretes the hormone **corticotropin-releasing factor (CRF)**, which rouses the body.
2. CRF travels to the pituitary gland.
3. The pituitary gland secretes **adrenocorticotropic hormone (ACTH)**.
4. ACTH circulates in the bloodstream, traveling to the adrenal gland.
5. The adrenal gland releases **cortisol**, another hormone.
6. Cortisol stimulates many reactions in your body, including a rush of energy and alertness.

