Development, upbringing and learning

EDUCATIONAL PSYCHOLOGY

(LECTURE)

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1. Learning happens when…

„Learning involves consciously or nonconsciously attending to relevant aspects of incoming information, mentally organizing the information into a coherent cognitive representation, and integrating it with relevant existing knowledge activated from long-term memory.“ (APA)

- Optimal level of awareness (consciousness) and Attention (sustained, focused) - frontal lobe, basal ganglia, thalamus
- Thinking (evaluation of information, sorting, analyzing) – access to cortical regions
- Memory (working memory, storage) - hippocampus

Cognitive processes are dependent upon mental/bodily state of arousal/activation = affect and its regulation (limbic system and developped, functional prefrontal cortex)

impaired self-regulation of affect = impaired learning

Biology of emotions

Brain (limbic system) - amygdala -> processes the information quickly and sends signals to the hypothalamus, which in turn activates the autonomic nervous system.

The cortex -> processes the information more slowly, allowing people to **appraise or evaluate the event** and **choose/modulate reaction**. The cortex under an influence of a strong emotion is more likely to process information incorrectly.

Autonomic nervous system:

Sympathetic nervous system involves expending energy (fight or flight)
Parasympathetic nervous system works to keep energy in the body (rest/repair and digest)

AUTONOMIC NERVOUS SYSTEM: PRECISION REGULATION

** WHAT TO LOOK FOR **

	LETHARGIC Parasympathetic I (PNS I)	CALM Parasympathetic II (PNS II) *Ventral Vagus*	ACTIVE/ALERT Sympathetic I (SNS I)	FLIGHT/FIGHT Sympathetic II (SNS II)	HYPER FREEZE Sympathetic III (SNS III)	HYPO FREEZE Parasympathetic III (PNS *Dorsal Vagus* Collapse
		"Normal" Life			Threat to Life	
PRIMARY STATE	Apathy, Depression	Safe, Clear Thinking, Social Engagement	Alert, Ready to Act	React to Danger	Await Opportunity to Escape	Prepare for Death
AROUSAL	Too Low	Low	Moderate	High	Extreme Overload	Excessive Overwhelm Induces Hypoarousa
MUSCLES	Slack	Relaxed/toned	Toned	Tense	Rigid (deer in the headlights)	Flaccid
RESPIRATION	Shallow	Easy, often into belly	Increasing rate	Fast, often in upper chest	Hyperventilation	Hypo-ventilation
HEART RATE	Slow	Resting	Quicker or more forceful	Quick and/or forceful	Tachycardia (very fast)	Bradycardia (*very* slow)
BLOOD PRESSURE	Likely low	Normal	On the rise	Elevated	Significantly high	Significantly low
PUPILS, EYES, EYE LIDS	Pupils smaller, lids may be heavy	Pupils smaller, eyes moist, eye lids relaxed	Pupils widening, eyes less moist, eye lids toned	Pupils very dilated, eyes dry, eye lids tensed/raised	Pupils very small or dilated, eyes very dry, lids very tense	Lids drooping, eyes closed or open and fixed
SKIN TONE	Variable	Rosy hue, despite skin color (blood flows to skin)	Less rosy hue, despite skin color (blood flows to skin)	Pale hue, despite skin color (blood flow to muscles)	May be pale and/or flushed	Noticeably pale
HUMIDITY — Skin	Dry	Dry	Increased sweat	Increased sweat, may be cold	Cold sweat	Cold sweat
HUMIDITY — Mouth	Variable	Moist	Less moist	Dry	Dry	Dry
HANDS & FEET (TEMPERATURE)	May be warm or cool	Warm	Cool	Cold	Extremes of cold & hot	Cold
DIGESTION	Variable	Increase	Decrease	Stops	Evacuate bowel & bladder	Stopped
EMOTIONS (LIKELY)	Grief, sadness, shame, disgust	Calm, pleasure, love, sexual arousal	Anger, shame, disgust, anxiety, excitement, sexual climax	Rage, fear	Terror, may be dissociation	May be too dissociated to feel anything
CONTACT WITH SELF & OTHERS	Withdrawn	Probable	Possible	Limited	Not likely	Impossible
FRONTAL CORTEX	May or may not be accessible	Should be accessible	Should be accessible	May or may not be accessible	Likely inaccessible	Inaccessible
INTEGRATION	Not likely	Likely	Likely	Not likely	Impossible	Impossible
RECOMMENDED INTERVENTION	Activate, Gently Increase Energy	Continue Therapy Direction	Continue Therapy Direction	Put on Brakes	*Slam on Brakes*	*Medical Emergency* CALL PARAMEDICS

***Observe client states: To modulate arousal with brakes. Adjust in yourself: To think clearly & prevent vicarious trauma & compassion fatigue.**

1. Early brain development

90% of brain development happens before the age of five.

Neurons that fire together wire together and survive together

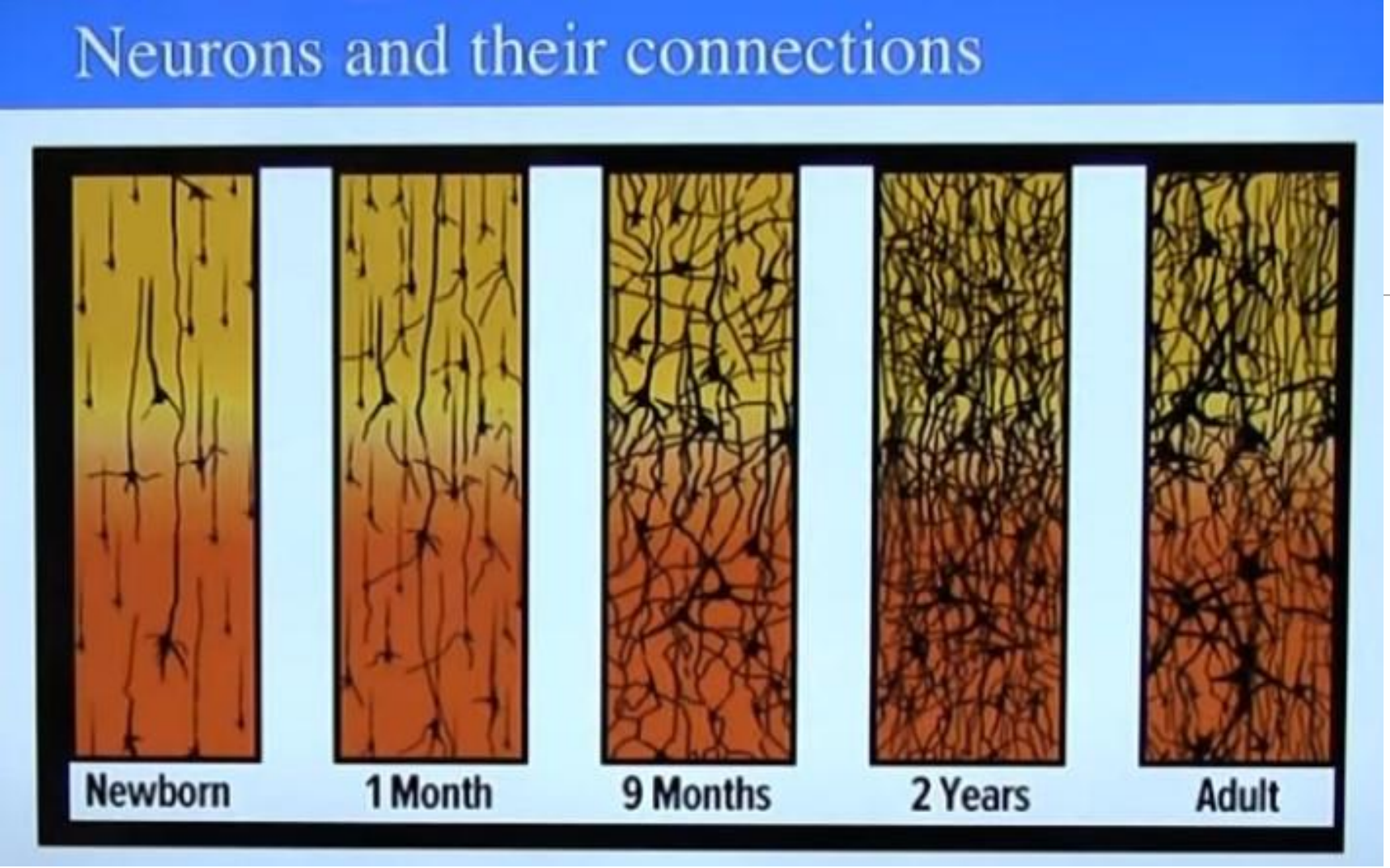
Neural pruning - ‘use it or lose it’

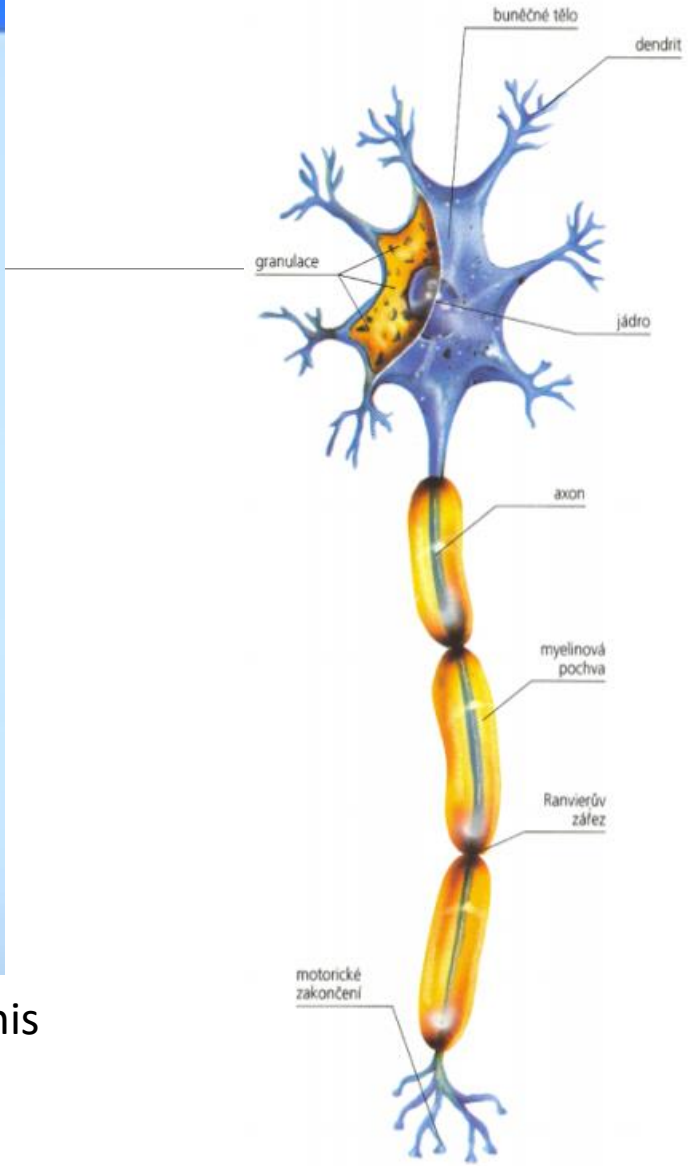
Sensitive Periods

Critical windows

Myelination

Plasticity





"The human cerebral cortex adds about 70% of its final DNA content after birth, and this expanding brain is directly influenced by early environmental enrichment and social experiences." (Alan Schore)

Attachment and brain development

Behavioural model of attachment in 60s-70s **Bowlby, Ainsworth** > Cognitive model in 80s-90s Emotional (Affect) model of attachment **Alan Schore**

Right brain development (3rd trimester to second year of life), experience dependent growth

Process of emotional regulation = co-regulating process > right brain – to – right brain communication (mostly non-verbal: facial expression, tone of voice, gestures, posture, tactile)

- Includes both up playing of positive emotions and down playing of negative emotions
- Formation of the integrated self
- Connection to the body
- Formation of empathy

Absence of secure early emotional relationship results in dysregulation

Can be shaped by later experience – requires relational experiences with an emotionally sensitive and empathetic other

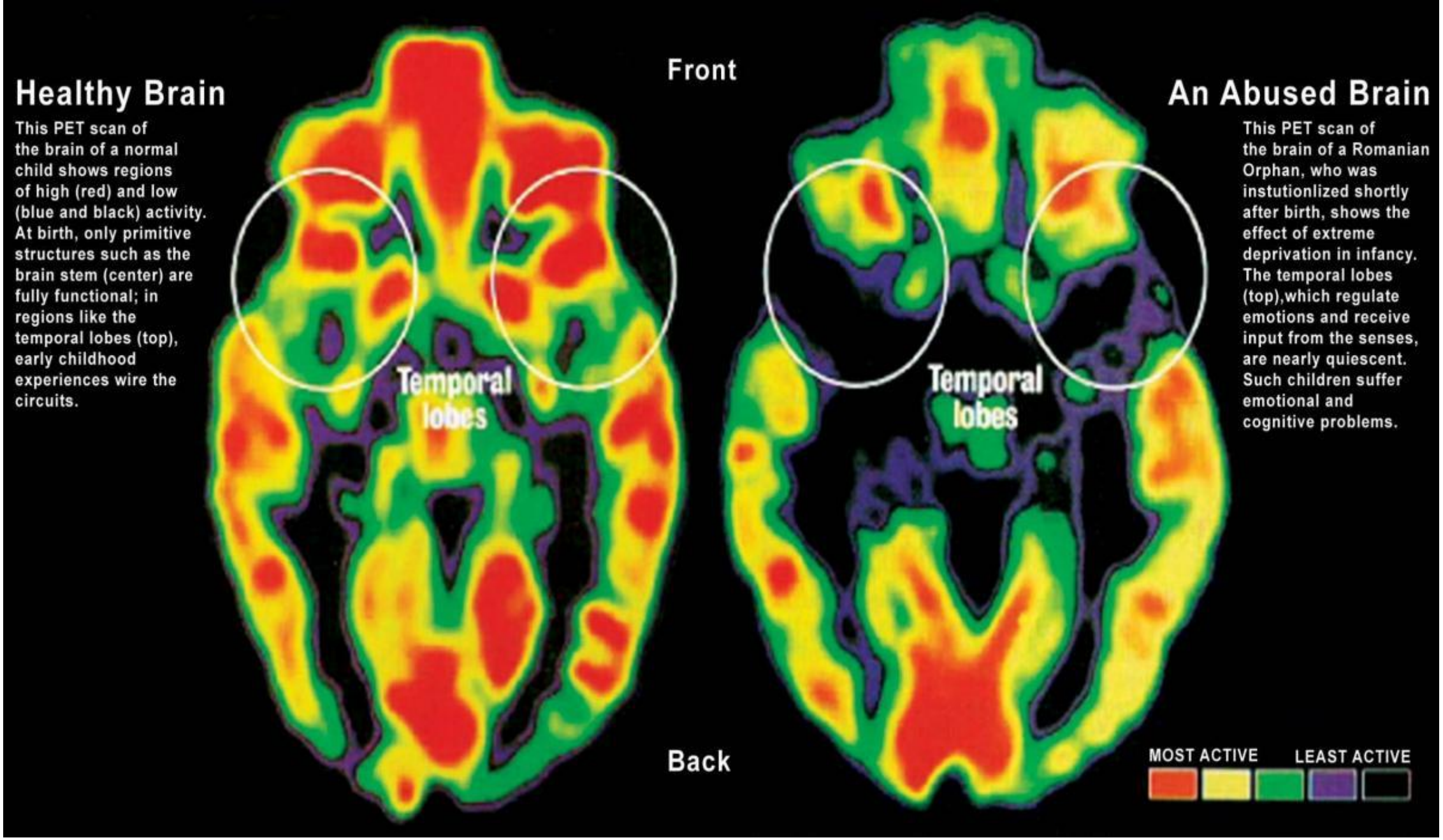
Early exposure to stress

Cummulative exposure to CORTISOL compromises the ability of neurons to withstand neuropathological insults. Has a neurotoxic effect on the **prefrontal cortex.**

AMYGDALA - sets in motion the stress response. Overrides the prefrontal cortex. Shows volume increase. Increase in reactive behaviors.

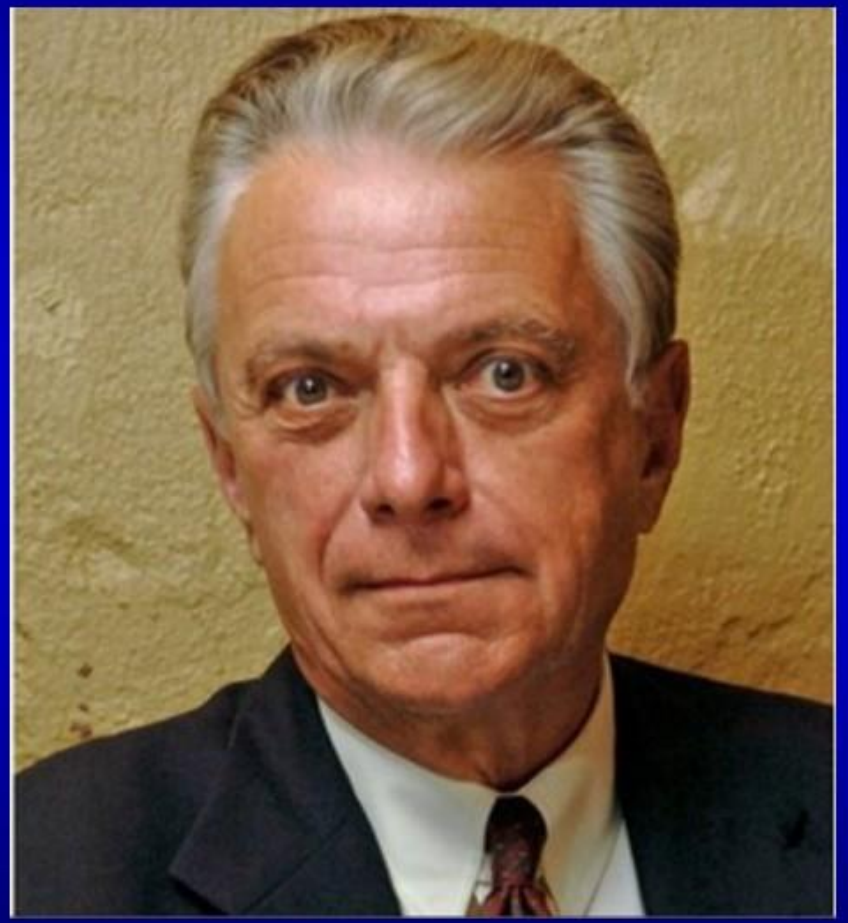
HIPPOCAMPUS - Short-term memory loss. Neuronal loss. Impaired memory, sleep, immunity.

Trauma effect: chronic state of low- fear (alarm reaction) – even though outwardly children may look calm and relaxed.


Healthy Brain
This PET scan of the brain of a normal child shows regions of high (red) and low (blue and black) activity. At birth, only primitive structures such as the brain stem (center) are fully functional; in regions like the temporal lobes (top), early childhood experiences wire the circuits.
Front
Temporal lobes
Back
An Abused Brain
This PET scan of the brain of a Romanian Orphan, who was instutionlized shortly after birth, shows the effect of extreme deprivation in infancy. The temporal lobes (top),which regulate emotions and receive input from the senses, are nearly quiescent. Such children suffer emotional and cognitive problems.
Temporal lobes
MOST ACTIVE
LEAST ACTIVE

Adverse Childhood Experiences (ACE) Study

- Dr Vincent Felitti
- Chief of Preventive Medicine at Kaiser Permanente
- Obesity Clinic 1985
- CDC
- Short Video Introduction to ACE Study



ADVERSE CHILDHOOD EXPERIENCES INCLUDE:

ADVERSE CHILDHOOD EXPERIENCES HAVE BEEN LINKED TO:

Adverse Childhood Experiences (ACEs): Impact on brain, body and behaviour

https://www.youtube.com/watch?v=W-8jTTIsJ7Q&app=desktop (6 min)

Try to find ACE´s study relevant for your country.

Further recommendations:

Gabor Maté

Bessel van der Kolk

Cultivation of emotional functioning

Appropriate emotional functioning is dependent upon ability to **discern and name** emotional states within oneself and in other people.

1. **Self-Awareness:** knowing one's own emotions, strengths and weaknesses, values, drivers, etc.
2. **Self-Regulation:** the ability to control and adapt one's own emotions, impulses, and energies
3. **Social Skills:** the ability to effectively manage relationships with groups or individuals
4. **Motivation:** the internal drive to work consistently toward one's goals
5. **Empathy:** taking the feelings of others into consideration.