

Regulation Strategies in Juvenile Justice Facilities

Marti Smith, OTR/L

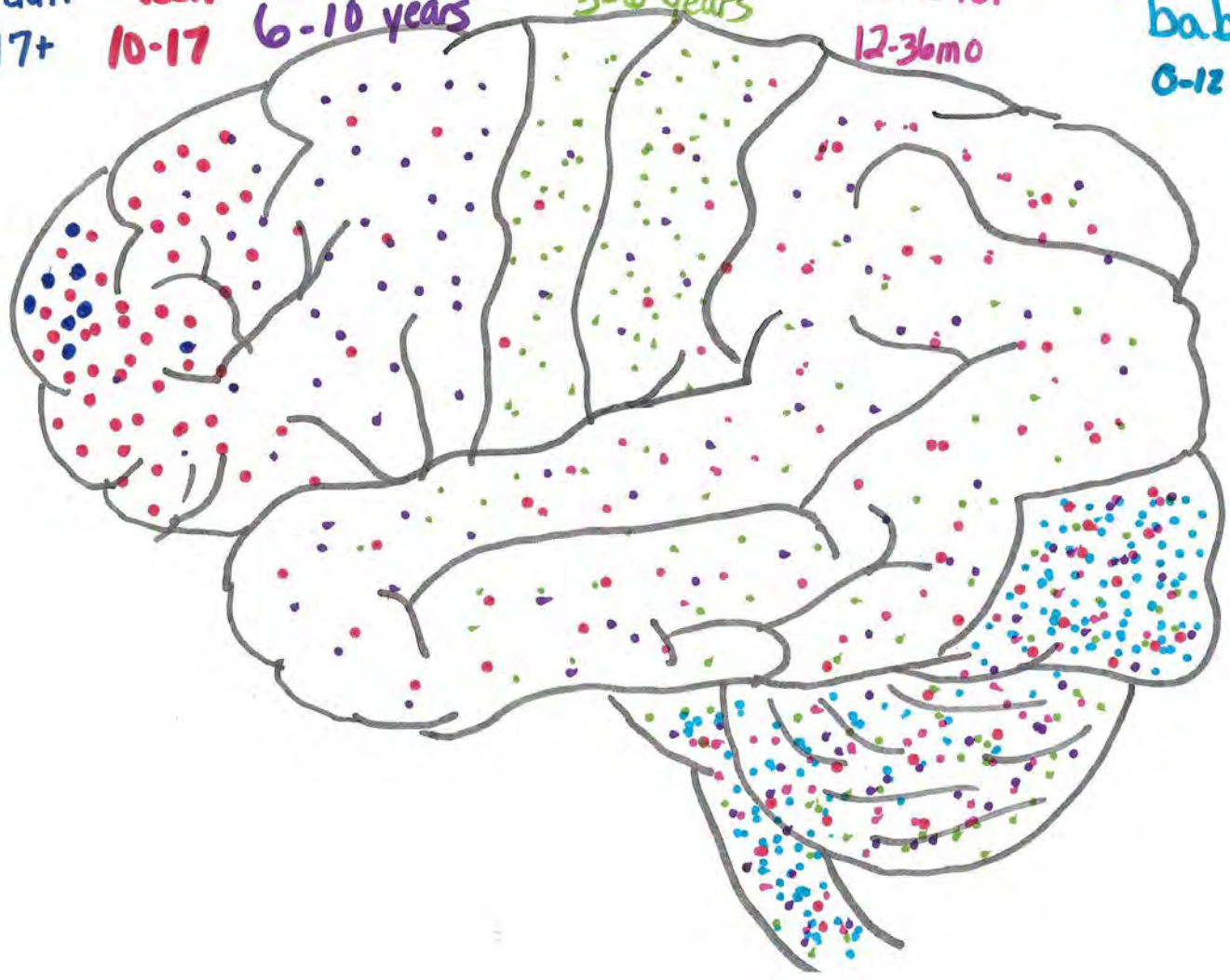
The more healthy relationships a child has, the more likely they will be able to recover from trauma and thrive. Relationships are the agents of change and the most powerful therapy is human love - Dr. Bruce D. Perry

Hosted by TJJD, Inc. Spring 2021

4. Brain Pic: neurons @ track meet

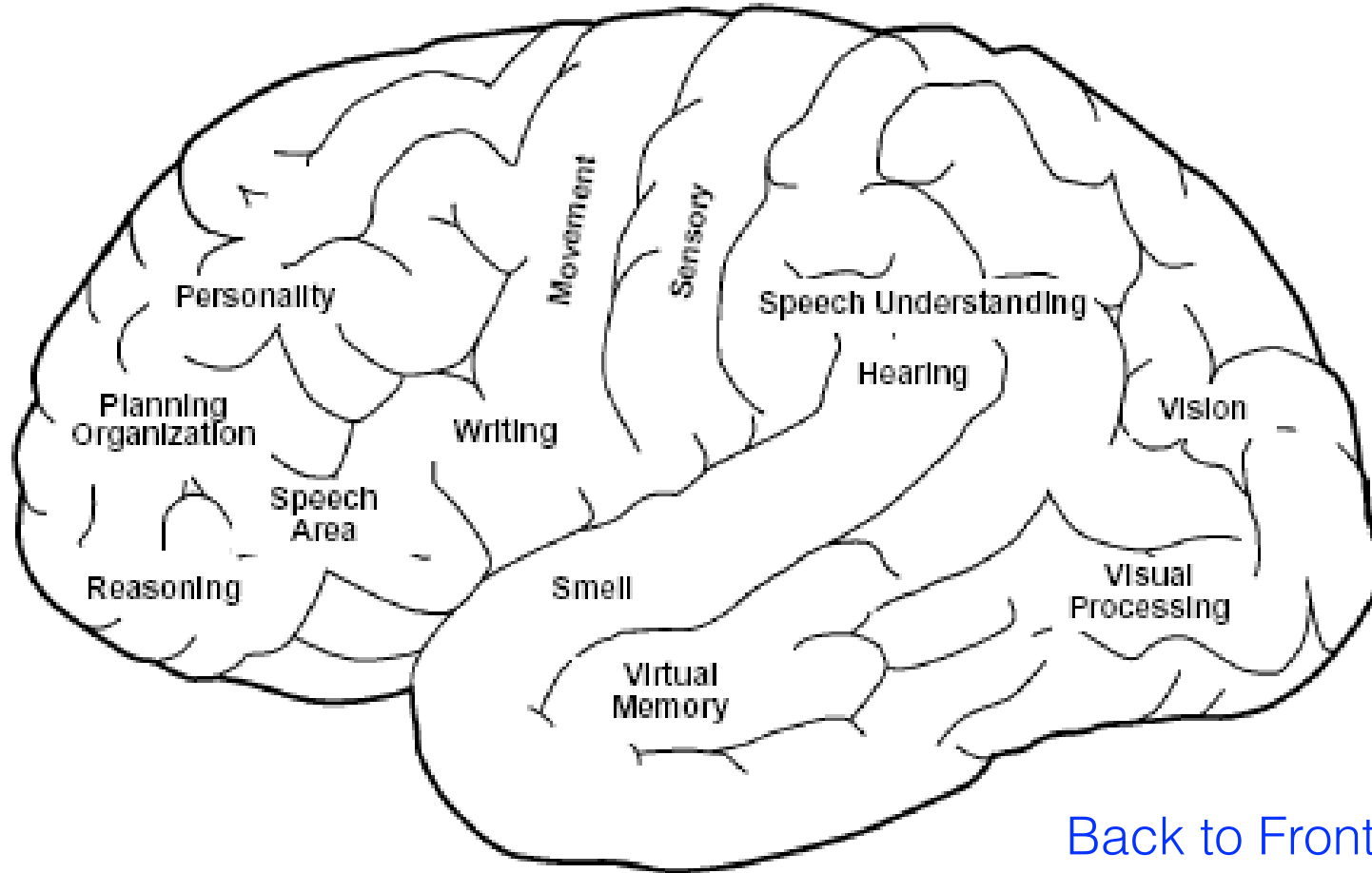


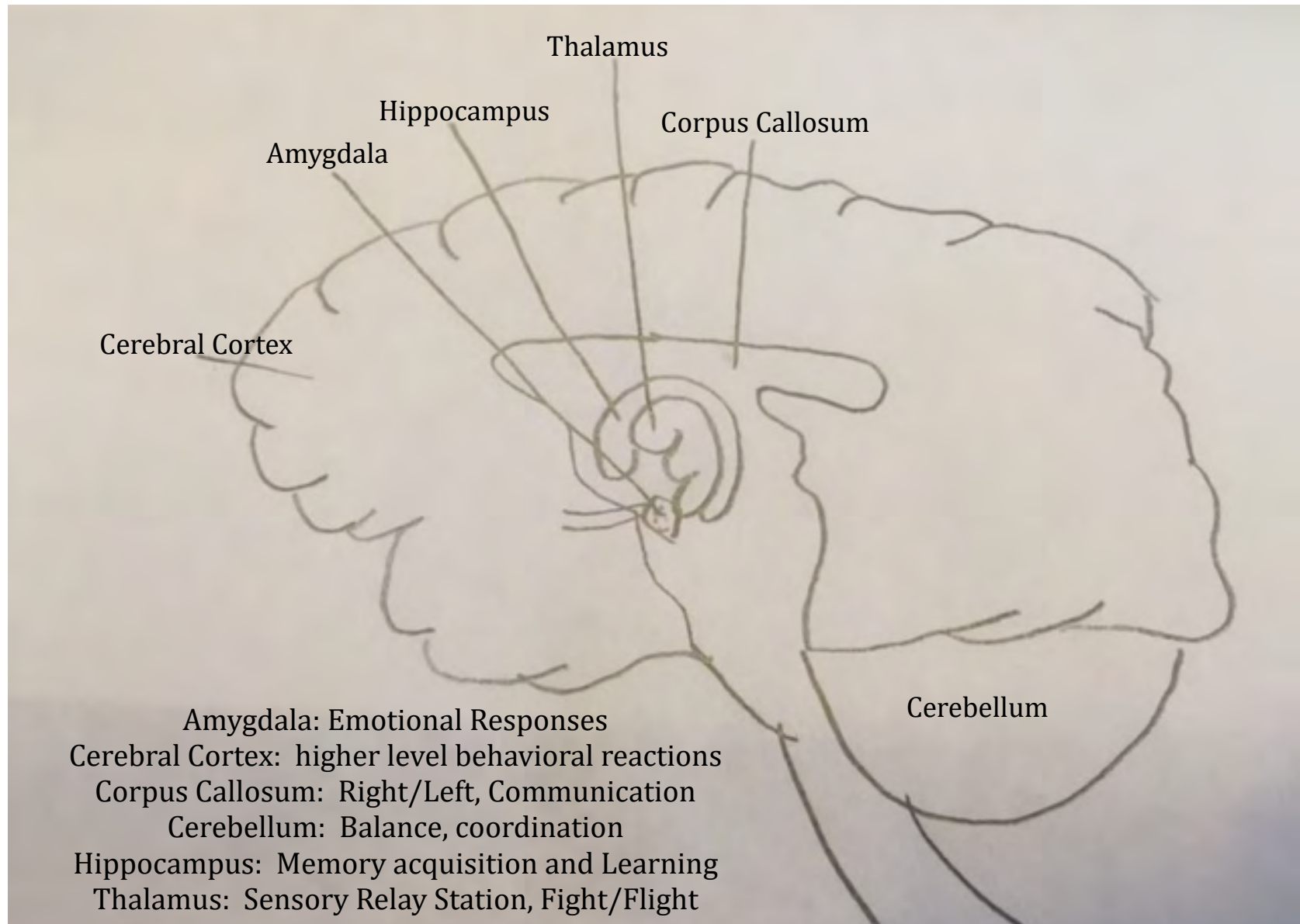
Adult 17+ Teen 10-17 child 6-10 years preschool 3-6 years Toddler 12-36mo New born/ baby 0-12 mo



Generalized Brain Development by Age

7 6 5 4 3 2 1 0





A few Key Trauma “Tendencies”

- 8x synaptic density in the first 18 months of life while neurons seek their “place”
- Outcomes worse for acute trauma in first 2 months vs. long term later in life
- 2 billion neurons a minute in a baby, only a few hundred in an adult
- Young children and females tend to dissociate more frequently
- Early caregivers give our experiences language and meaning
- Children can’t learn what they aren’t taught
- Trauma that involves relationship is the most impactful on long term health (ACEs)
- Even one caring, consistent caregiver can be a relational buffer

Image from Magic School Bus



Who is
driving
the
bus?

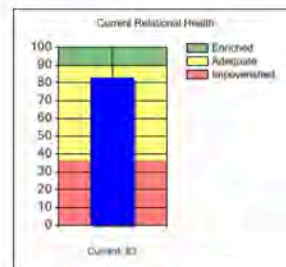
April 2021

- 12 y.o. boy
- Maternal violence
- Multiple placements

Current CNS Functionality

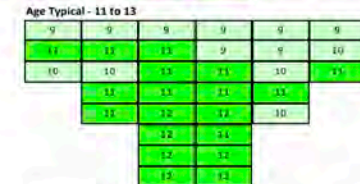
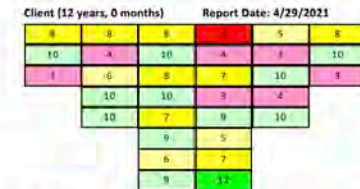
	Client	Typical
Brainstem		
1 Cardiovascular/ANS	9	12
2 Autonomic Regulation	12	12
3 Temperature regulation/Metabolism	6	12
4 Extraocular Eye Movements	7	12
5 Suck/Swallow/Gag	9	12
6 Attention/Tracking	5	11
DE/Cerebellum		
7 Feeding/Appetite	7	12
8 Sleep	9	12
9 Fine Motor Skills	10	11
10 Coordination/Large Motor Functioning	10	10
11 Dissociative Continuum	10	11
12 Arousal Continuum	3	11
13 Neuroendocrine/Hypothalamic	10	11
14 Primary Sensory Integration	4	11
Limbic		
15 Reward	8	11
16 Affect Regulation/Mood	7	11
17 Attunement/Empathy	8	10
18 Psychosexual	10	10
19 Relational/Attachment	3	10
20 Short-term memory/Learning	3	11
Cortex		
21 Somato/Motorsensory Integration	10	11
22 Sense Time/Delay Gratification	4	9
23 Communication Expressive/Receptive	4	11
24 Self Awareness/Self Image	3	9
25 Speech/Articulation	10	11
26 Concrete Cognition	10	10
Frontal Cortex		
27 Non-verbal Cognition	8	9
28 Modulate Reactivity/Impulsivity	2	9
29 Math/Symbolic Cognition	8	9
30 Reading/Verbal	5	9
31 Abstract/Reflective Cognition	8	9
32 Values/Beliefs	8	9
Total	228	338

Current CNS Confidence Level: Moderate



Current Relational Health Confidence Level: Moderate

Functional Brain Map(s) and Key



Functional Item Key

AST (11)	AAH (12)	PEB (12)	MEQ (28)	EEB (30)	VAL (12)
SPRO (12)	GMIM (28)	SD (21)	TINP (24)	MLF (24)	EGDS (29)
MR (10)	WTJ (17)	NEW (15)	AFF (10)	SEA (18)	MRM (20)
	NE (11)	OBS (11)	ARS (12)	P9 (14)	
	PM (9)	PRD (27)	SLP (8)	JAF (14)	
		SSG (5)	ATTN (6)		
		MET (1)	EODM (4)		
		CV (1)	ANS (2)		

Functional Brain Map Value Key

DEVELOPMENTAL

Functional

12	DEVELOPED
11	TYPICAL RANGE
10	
9	EPISODIC/EMERGING
8	MILD Compromise
7	
6	PRECURSOR CAPACITY
5	MODERATE Dysfunction
4	
3	UNDEVELOPED
2	SEVERE Dysfunction
1	

Activities for each row of the Brain Map:

(Activities can be repeated and cross referenced, these are just some things to generate more ideas)

Frontal Cortex: Timers, metronomes, crafts, How Does Your Engine Run, Early Mozart music

Cortex: auditory therapies, communication boards, visual schedules, social stories, visual timers

Limbic: First-Then, organization help, parallel games, lots of high interest with a just right stress component, massage, sensory (tactile) bins, physical classroom supports (stretchy bands on chairs, tennis balls on chairs, modified weighted sweatshirt

DE/Cerebellum: fine motor games, feeding intervention, sleep intervention (weighted items, routines, melatonin), auditory therapies, Therapressure program, individual sports

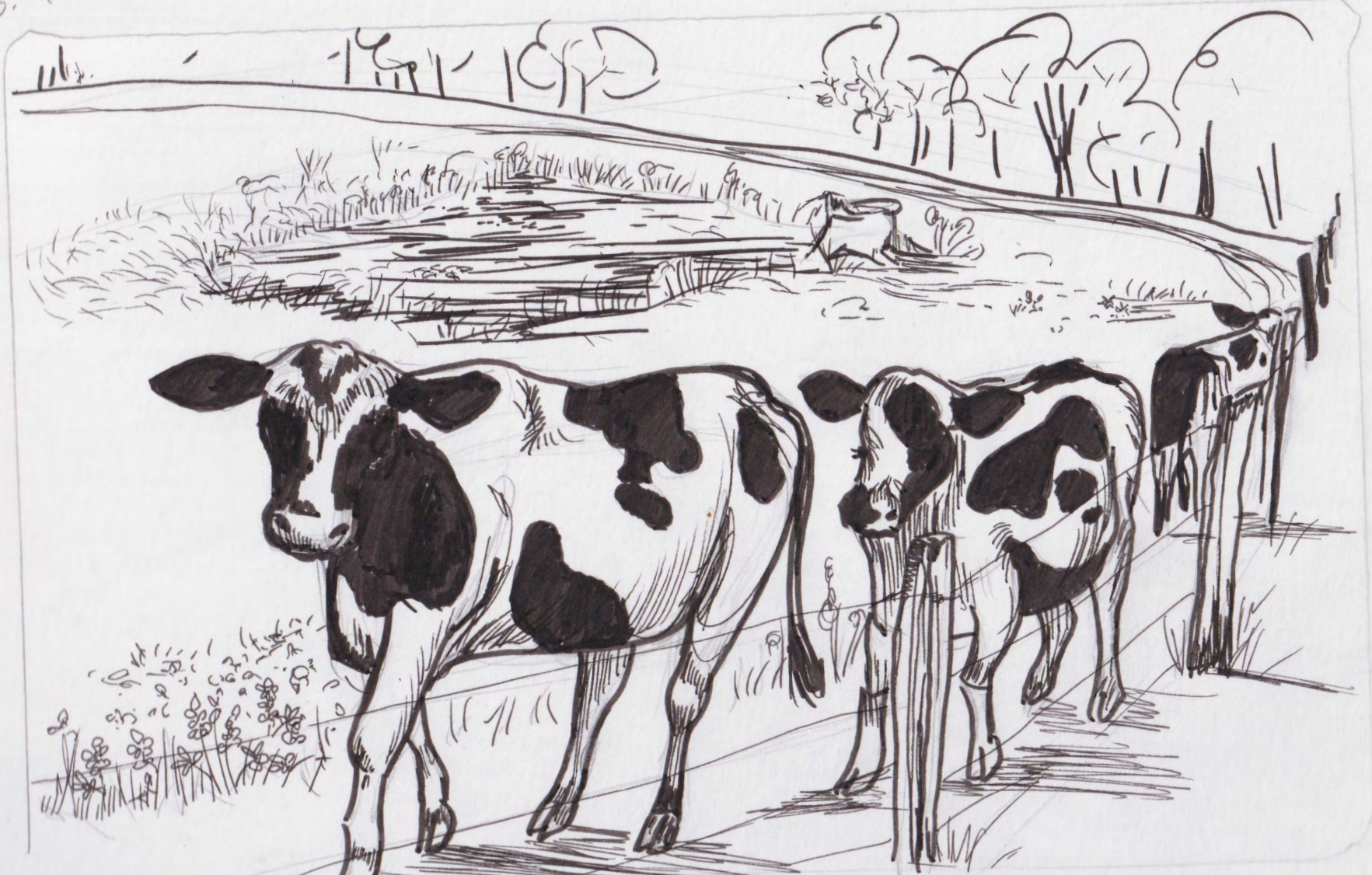
Brain Stem: rhythmic, relational, repetitive, repetitive, repetitive, Simple activities that don't arouse too much, vision exercises, oral motor exercises, Lycra swaddles and play, puppets, rhythmic swinging and gross motor games

Developed by Marti Smith, OTR/L
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If we do not build a strong foundation, you can't put paint on the walls

- Crawling develops hand muscle stability, reciprocal movement patterns, eye movement, and core strength
- Eye tracking is needed for reading and solving math equations
- Understanding our own feelings helps us understand others
- Thousands of uncomfortable sensations paired with relational connection builds resilience

3. Cow Paths





Neural Paths are not created equal.

Some paths are made quickly with high emotion or high intensity (proprioceptive) events.

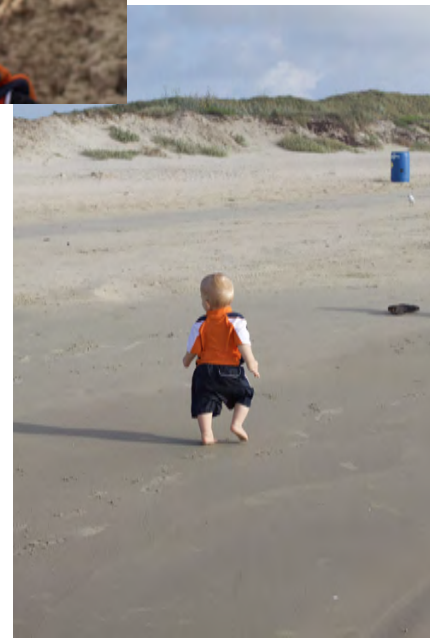
These can be positive or negative events.

Our early pathways are relational. We depend on our caregivers to guide us. To help us form these pathways.



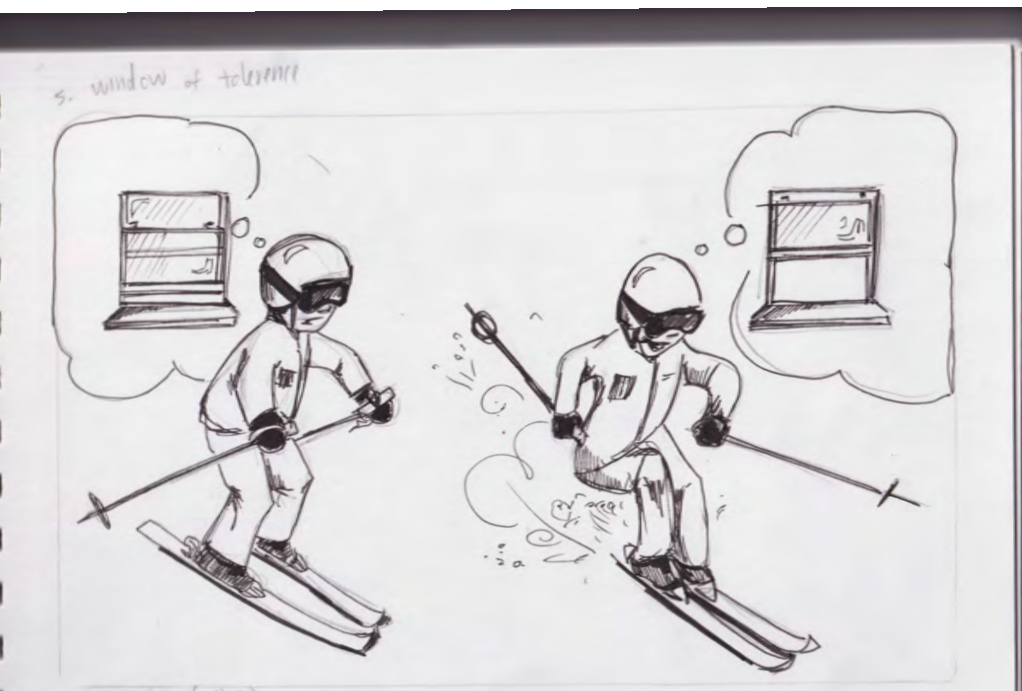


Patterned,
predictable,
relationally
buffered stress
leads to
resilience



How do we help Larry Limbic Bus Driver?

Recognize the Window of Tolerance



Hot Stove Example



Normal

Through neurodevelopment experiences, pathways are made within the brain. When these pathways are formed, we no longer “think” about our responses and can focus on other new/novel input.

Future experiences follow these developed pathways and allow for higher level development and function.



How do we influence the Environment for
Optimal Regulation of the Sensory System?

The 6 Rs of Trauma Healing

- Relational (connected and safe)
- Relevant (developmentally matched and meaningful to the individual)
- Repetitive (predictable and patterned)
- Rewarding (pleasurable and inviting)
- Rhythmic (resonant with neural patterns)
- Respectful (of the child, family, culture)

The concept of “else” and state dependent functioning



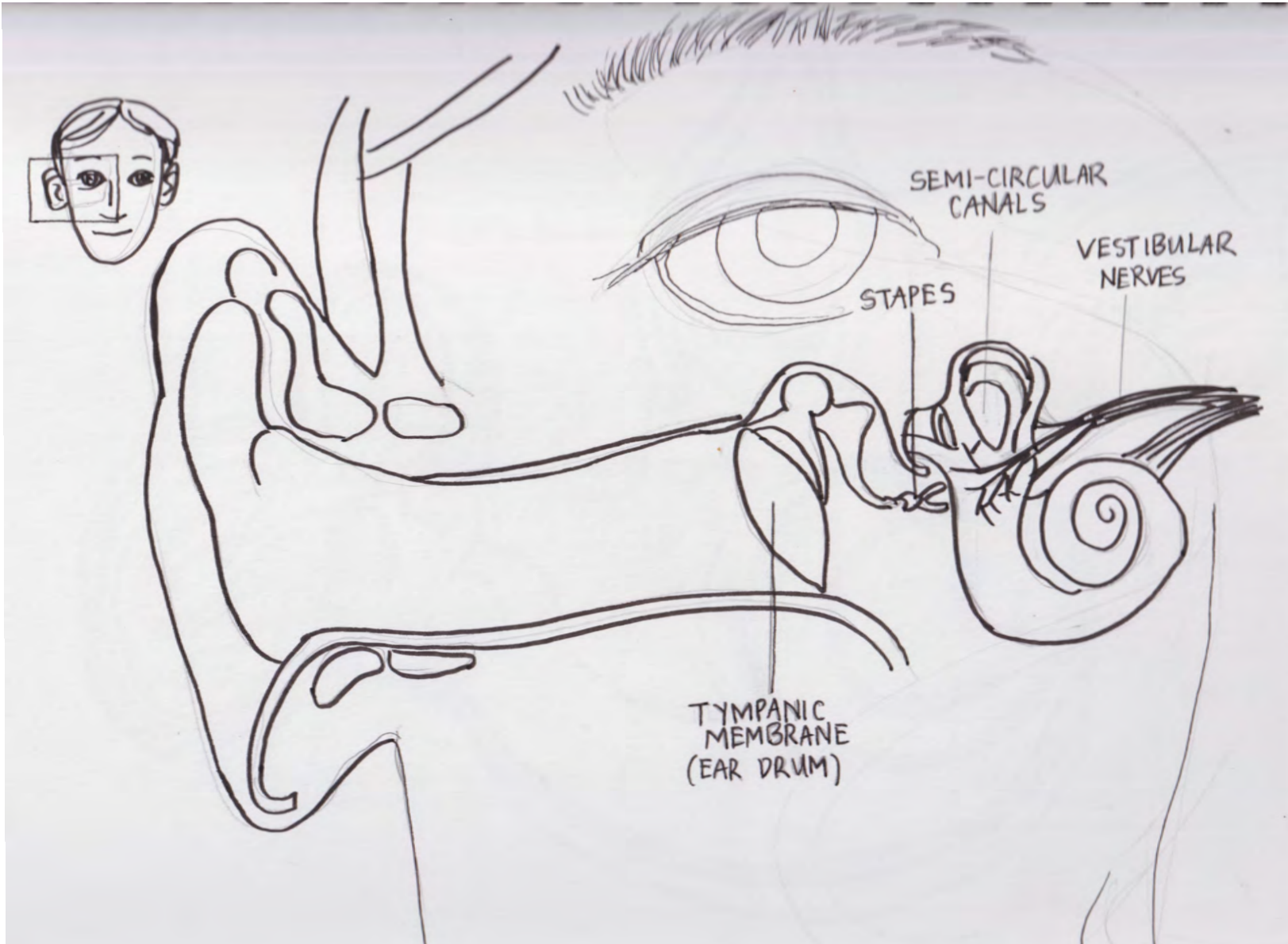
Brainstem Functioning
leads to poor
interoception

Brain stimulation is easiest at optimum times. Looking at a baby is easy. Looking at a ten year old is not. The therapist must work to provide opportunity to re-structure the brain in regards to milestones in as natural of a way as possible.



Food as a Social Connection

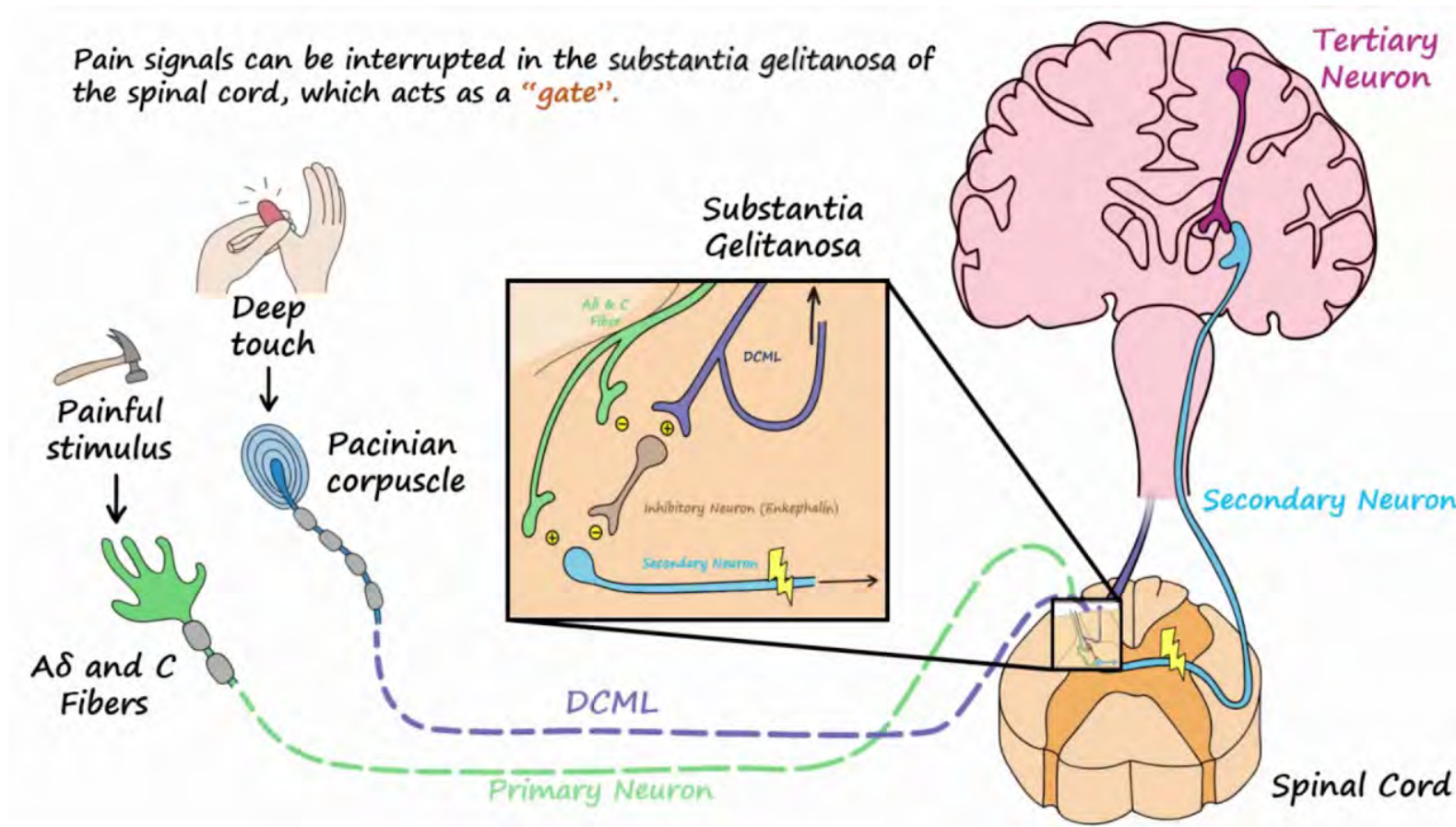




Vestibular Continuum

- Up and Down (head to toe)
- Front to Back
- Side to Side
- Elliptical Movement
- Tight Spin

Deep Touch Stimulation



Gate Control Theory



Playful Engagement

Sense	Considerations	Tips to Calm	Tips to Alert
Tactile	<ul style="list-style-type: none"> • Light touch is the threat response • Deep touch is the thought response • First to develop in utero • Easy to access or insult • Increased sensitivity on hands, face, feet, and genitalia • Shuts down when overstimulated • Stimulation can last up to two hours 	<p>Soft, consistent textures Minky blankets Weighted blankets (SmartWeight) Firm pressure/rubs Tight clothing Heavy clothing Warmth Two handed touch</p>	<p>Uneven/Inconsistent textures Feathers Tickles Light pressure Cold One handed touch</p>
Vision	<ul style="list-style-type: none"> • The peripheral/side vision is the threat response • The Focal/midline vision is the thought response • Infant field of vision is only 10-12 inches, it is easily overstimulated with outward facing carriers • Eye muscles develop in coordination with crawling, something many children from trauma do not do • Over scanning in childhood can make the visual system over-reactive • Eyes are connected directly to the vestibular system and help to "stabilize" the vestibular system (spotting when spinning) • Pupils are responsive to stress 	<p>Blues, greens, and browns Linear lineups Looking up Rhythmic side to side eye movement focal/midline concentration Moving into a room with brighter light Wearing a ball cap (a "blinder" for horses)</p>	<p>Yellows, reds, and oranges Circular or chaotic lineups Peripheral stimulation</p>
Auditory	<ul style="list-style-type: none"> • Music is multi-sensory as it pulls in vibration (proprioception) • Fluid from frequent ear infections can cause hearing processing issues • Different frequencies are heard differently • Sound vibrations can adjust the heart rate and therefore alert status • Sound can be very culturally relevant • Singing and speaking are processed in different brain regions • Sound can be conducted via bones • Music can be a simple external influence 	<p>50-70 BPM like early Mozart Familiar melodies Habituated sounds Patterned humming Rhythmic drumming</p>	<p>90-120 BPM like Lady Gaga Unfamiliar melodies <u>Irrhythmic</u> patterned sounds <u>Irrhythmic</u> drumming</p>

<h1>Taste</h1>	<ul style="list-style-type: none"> • Food is one of our first biological needs and is met in our first caregiver relationships • For many, food = love, acceptance, safety, needs met • To deny food is to deny life • Food is highly relational • Adverse childhood events can influence oral motor abilities (tongue might not move correctly and the child feels like they are choking easily) • Caregiver guilt when a child rejects food • food /nutrition influence cell structure • Dehydration causes electrolyte imbalance - literal brain chemistry • Food is a large influence of culture and familial structure • Taste and smell are heavily connected. If you freeze food, it doesn't smell. Some children are more likely to eat food without an overpowering smell. 	<p>Sweet Chewy (proprioception) sucking/midline pulling like straws, biting nails, and smoking Warm foods Culturally comforting foods</p>	<p>spicy/peppermint Foods that scatter in the mouth Licking Cold new/unfamiliar foods</p>
<h1>Smell</h1>	<ul style="list-style-type: none"> • Assists with taste • Very primitive • Direct access to the emotion centers • Often alerts the fight/flight/freeze response • Forms strong neural connections to memories • Cultural and familial ties 	<p>Vanilla Cinnamon Sugar Flour Pleasing (individual preference) smells Familial smells lavender</p>	<p>Smoke Musk Onion Floral Peppermint A smell associated with a traumatic experience or event</p>

Of note: Freezing a food decreases the smell. Thus, it will taste and “feel” different.