Occupational Therapy, Sensory Processing & Trauma

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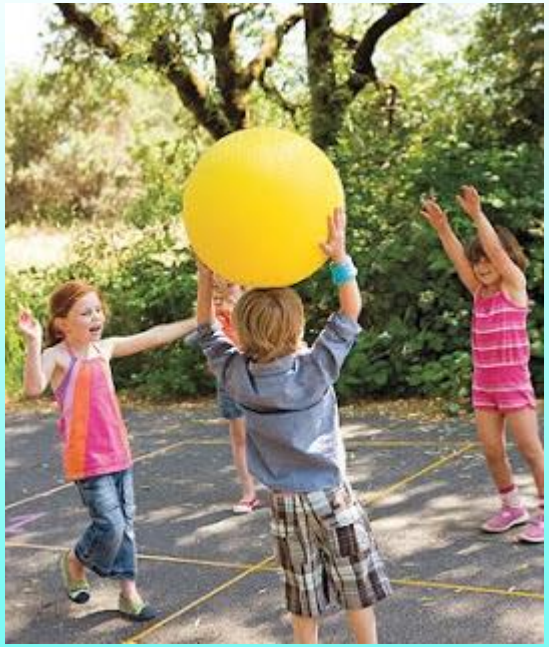
Define
Access
Articulate
Objectives
Identify
Describe
Recognize

Occupational Therapy



The Emphasis is on Occupation/Function/Activity

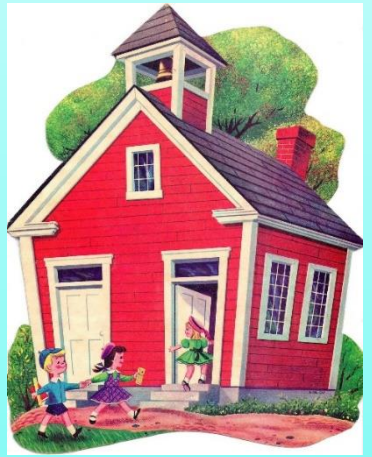
Self Care/ ADLS

Independent Living skills

Play

Social Skills

Work



School (reading, writing)

Task Analysis of a Core Childhood Occupation: Feeding

What is it so complex

- Social
- Emotional
- Physical
- Biological
- Physiological
- Cultural
- Sensory
- Spiritual

Where can the difficulties be?

- Sensory processing
- Regulation/co-regulation skills
- Social skills
- Oral Motor skills
- Dysphagia skills
- Fine motor skills
- Gross motor skills
- Working GI system

What can result if not addressed?

- Failure to Thrive/Malnutrition
- Emesis & Encopresis
- Poor Regulation/Organization of Behavior
- Poor sleep
- Aspiration
- Pneumonia
- Learning Difficulty
- Delayed motor skills
- Poor social skills
- Increase in Sensory Aversion
- Increase Risk in Allergy Development
- Increase in Parental Stress/Anxiety and Depression

Toxic Stress

Positive Stress

Terrible Stress

Toxic Stress

Intense, prolong, repeated, unaddressed

Social-Emotional Buffering, Parental Resilience

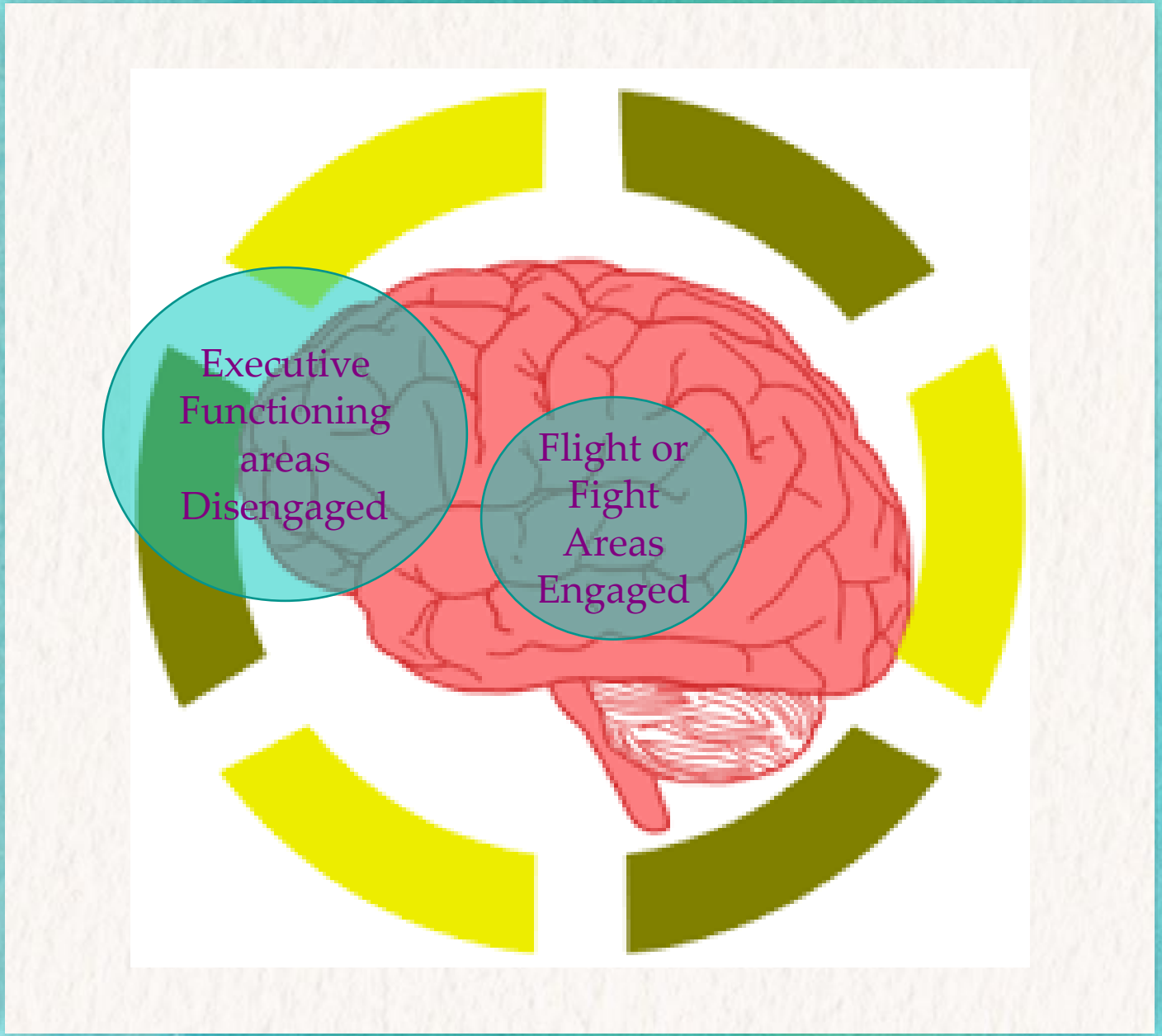
3 Realms of ACEs

Adverse childhood and community experiences (ACEs) can occur in the household, the community, or in the environment and cause toxic stress. Left unaddressed, toxic stress from ACEs harms children and families, organizations, systems and communities, and reduces the ability of individuals and entities to respond to stressful events with resiliency. Research has shown that there are many ways to reduce and heal from toxic stress and build healthy, caring communities.

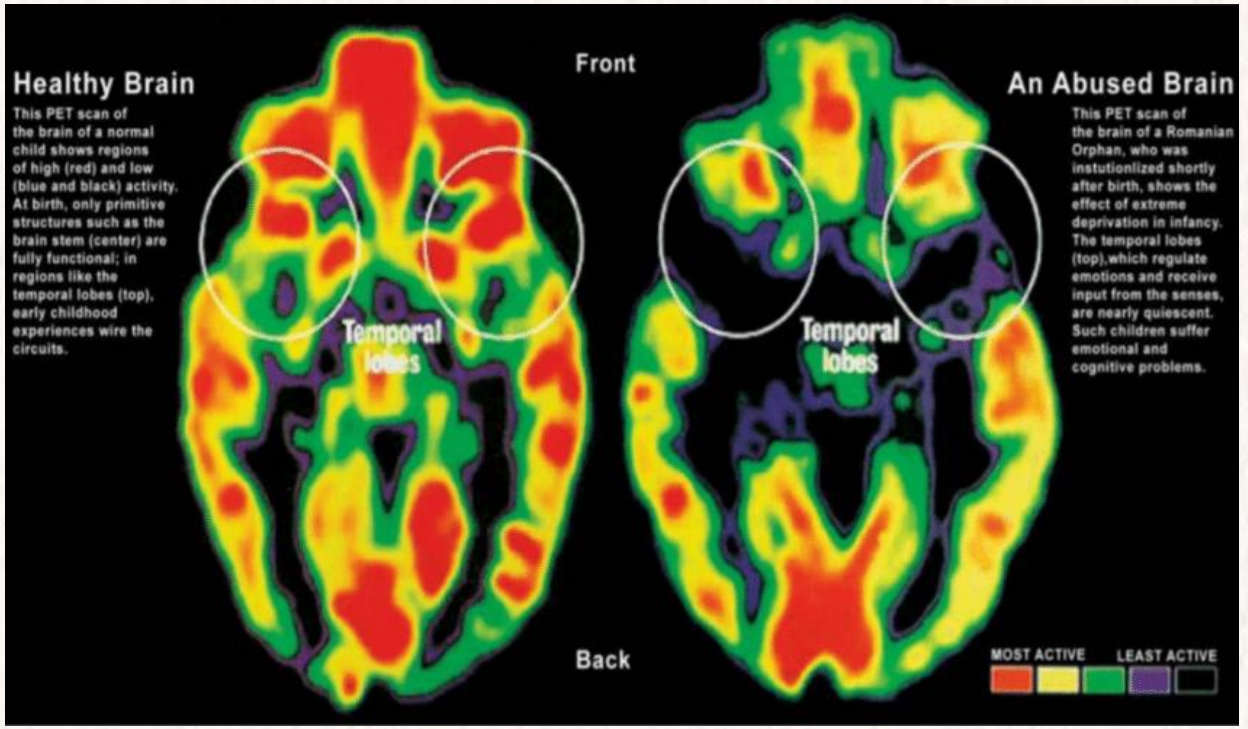
Thanks to **Building Community Resilience Collaborative and Networks** and the **International Transformational Resilience Coalition** for inspiration and guidance.
Please visit **ACEsConnection.com** to learn more about the science of ACEs and join the movement to prevent ACEs, heal trauma and build resilience.

ACEs Connection

Toxic Stress and the Brain



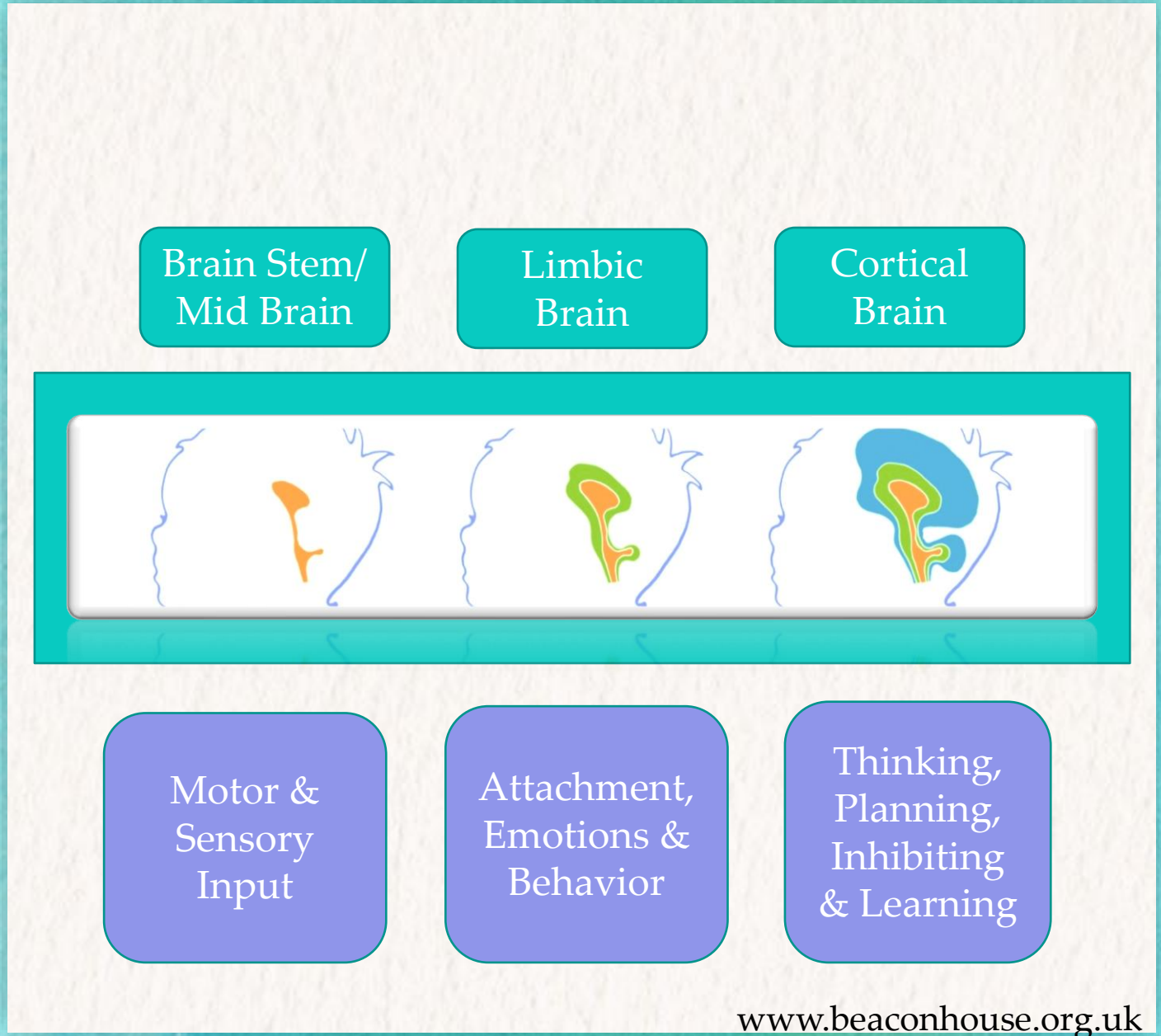
Early Childhood Trauma and the Developing Brain



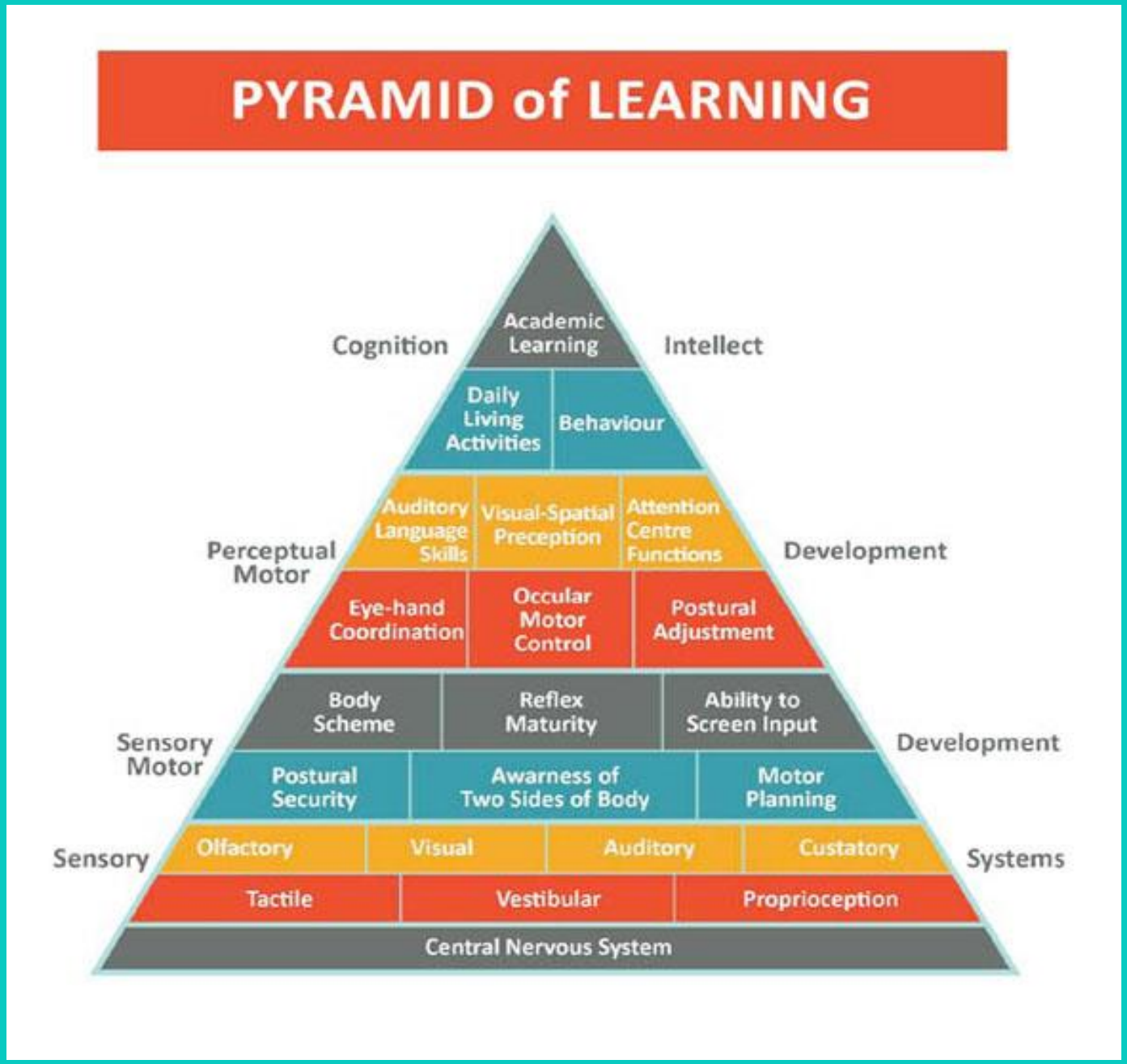
Healthy vs. Abused Brain (www.unitedway.org)

(Barlett & Steber, 2019)

Bottom Up Approach



(Hambrick, Brawner & Perry, 2019)



http://www.specialneeds.com/children-and-parents/general-special-needs/sensory-integration-building-blocks

“The growth of self regulation is a cornerstone of early childhood development that cuts across all domains of behavior.”

Zero to Three, The Science of Early Childhood Development, April/May 2001

Interesting to Note:

Poor sensory modulation & poor self-regulation were reported to create more parental stress in caregivers with children with FASD and FAE then IQ and adaptive behavior.

(Jirikowic & Olson, 2007; Jirkowic, Kartin & Olson, 2008)

"As a baby's experience grows, sensory impressions become increasingly tied to feelings. It is this dual coding of experience that is key to understanding how emotions organize intellectual capacities and indeed create the sense of self."

Stanley Greenspan, MD

What is behavior?

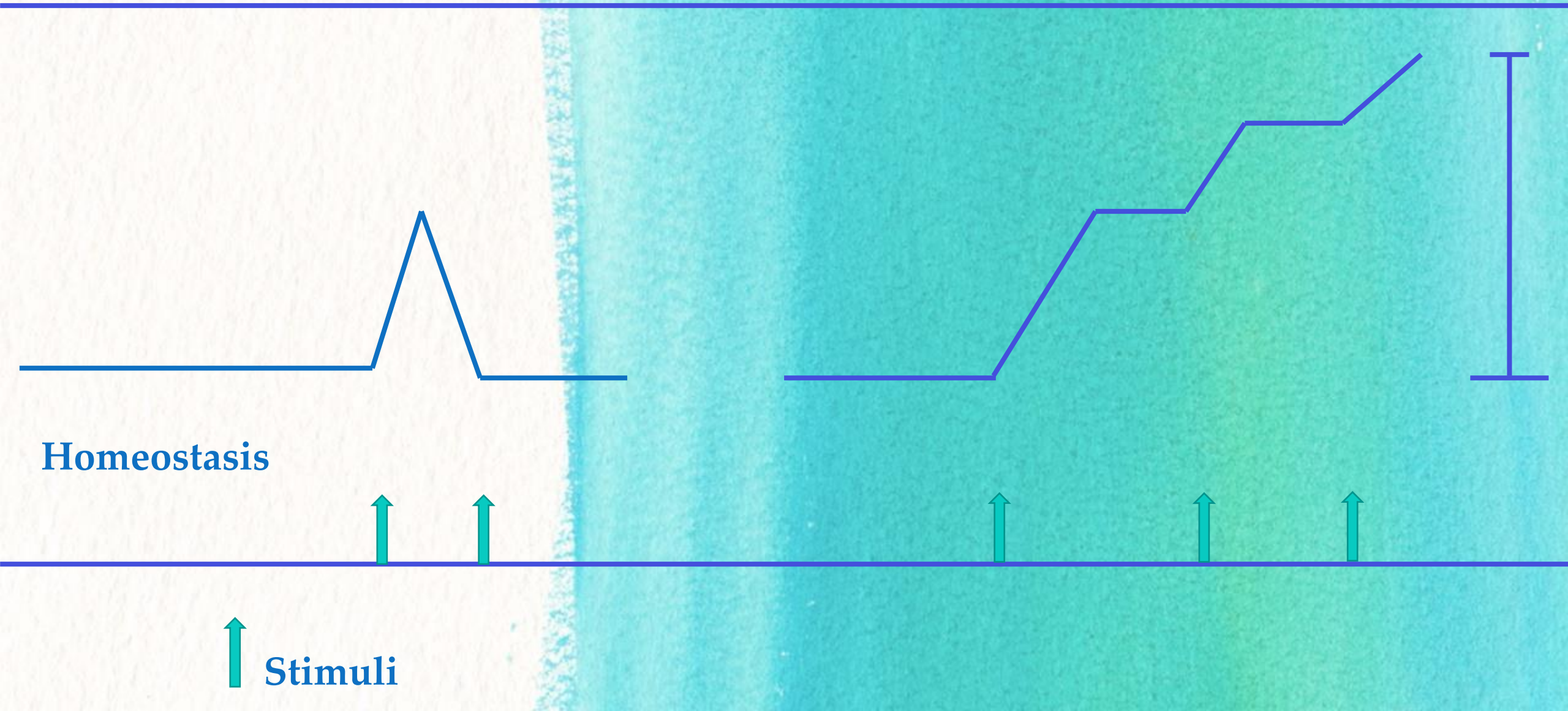
- **Observable**
- **Look beyond what is observed**
  - External manifestation of internal state
  - Can be extreme, modified, subtle
  - Reaction to stimuli
  - Response to stimuli
  - Species-specific activity, such as the startle reflex.

What is Regulation?

- A condition that customarily governs behavior
- The ability of early embryo to continue normal development after its structure has been somehow damaged or altered
- The act of bringing equilibrium

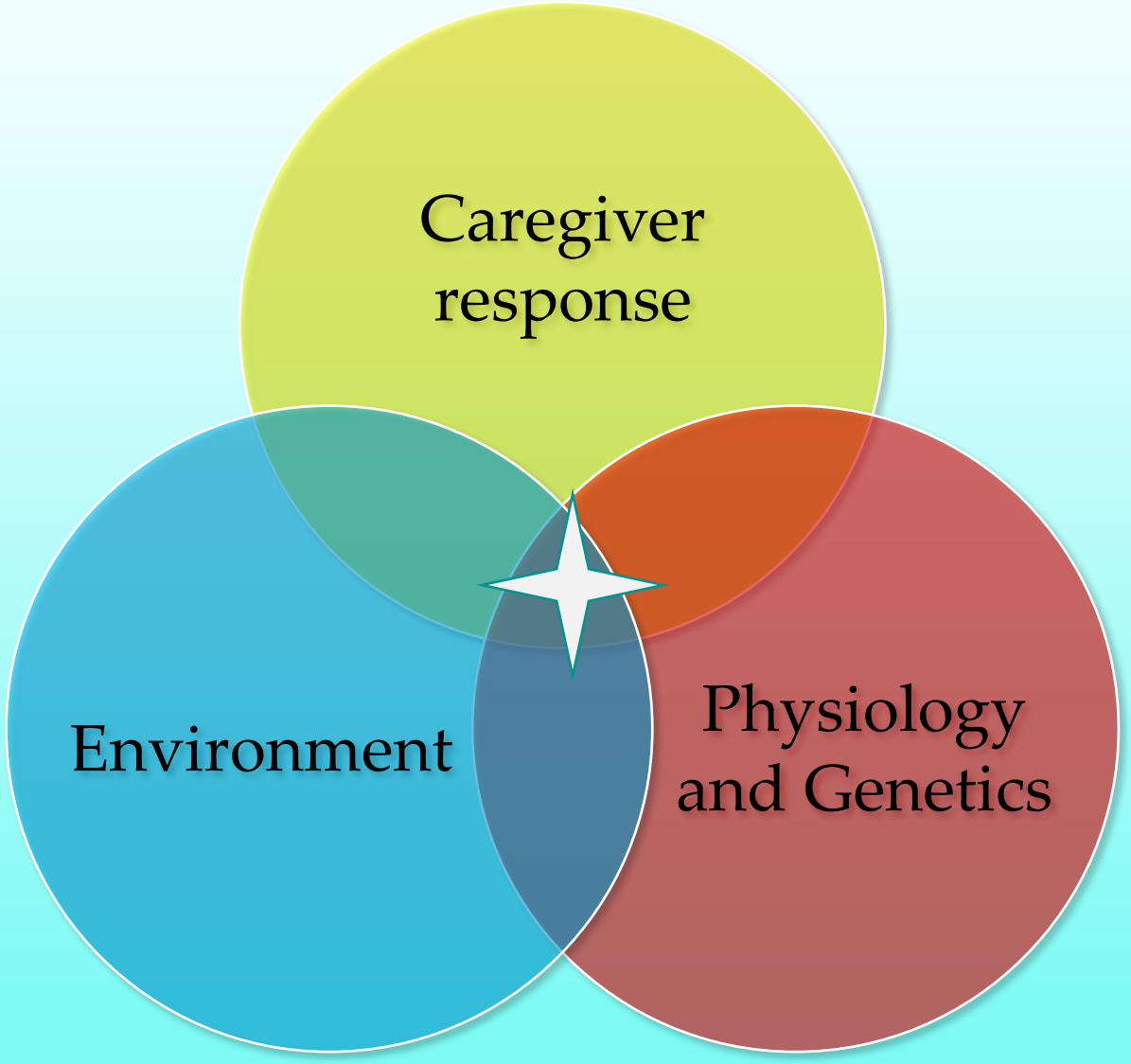
(Bundy, Lane & Murray, 1991)

Sensory-Response-Regulation-Equilibrium



How Do Regulatory Capacities Develop?

- Over the first two to three years of life, children are learning to regulate their responses to their environments and themselves.



Examples of Dysregulation

- **Easily over stimulated during typical events**
- **Excessive irritability and fussiness**
- **Hyper alert state of arousal or excessive lethargy**
- **Feeding problems**
- **Intolerance for change**
- **May be slow to respond**
- May dislike lying on stomach
- Difficulty stabilizing eyes on person's face

(Schaaf & Smith Roley, 2005)

Consequences of Dysregulation

- Difficulty forming attachment
- Feeding and nutrition problems
- Delayed play and environmental exploration
- Increases in impulsivity, lack of attention
- Impairment of learning and memory, executive functioning
- Socialization and communication delays
- Poor self-soothing
- Difficulty with mood regulation
- Difficulties with arousal level
- Physiological regulation (digesting and breathing)

- Caregiver feeling of incompetence due to unresponsiveness or excessive irritability of infant
- Increase in caregiver stress
- Sleep deprivation interferes with daytime functioning (for both caregiver and child)
- Restricts lifestyle of caregiver

(Jean Ayres, 2005)

The Emphasis is on Occupation/Function/Activity

Self Care/ ADLS

Independent Living skills

Play

Social Skills

Work

School (reading, writing)

OT Profile of an Early Childhood Trauma Survivor

Noted areas of concern between 0-3 years of age:

"Soft Signs"
- Quality and level of engagement
- Alertness
- On task attention
- Bright eyed
- Lack social boundaries
- Quality of the movement
- Poor Feeder
- Poor Sleep

Motor development
Language development
Development of Self-Help Skills
Organization of behavior, regulation
Praxis and motor planning
Encopresis and enuresis
Poor social skills and attachment

Sensory Processing Concerns
- Tactile
- Auditory
- Visual
- Proprioceptive
- Vestibular
- Olfactory/Gustatory

(Davidson, 1994; Howard, 1986; Salamat & et al, 2015)

Noted areas of concern between 3-6 years of age:

- Cognitive Development
- Motor planning, ideation and praxis skill delay
- Poor self-help skills and Poor school performance
- Poor visual motor skills
  - Difficulty with visual attention
  - Difficulty coping from the board
  - Ball handling skills
  - Eye-hand coordination
- Poor Complex fine motor development
  - In hand manipulation
  - Handwriting
  - Scissors Skills
  - Manipulatives
  - Lacing and tying

- Feeding Concern
- Speech delay
- Poor social skills
- Difficulty with sleep
- Encopresis and enuresis
- Low tone, poor postural control and stability
- Maladaptive behavior and poor regulation

- Sensory modulation
  - Auditory *
  - Tactile *
  - Visual *
  - Vestibular*
  - Proprioceptive*
  - Olfactory and Gustatory

Splinter skills can be present due to self reliance and survival

(Davidson, 1994; Howard, 1986; Salamat & et al, 2015, Henry, Slone & Black-Pond, 2007)

Populations Commonly Affected

- **Attention Deficit Disorders**
- **At-Risk/Traumatized Infants & Children**
- Autistic Spectrum Disorders
- Developmental Delays
- **Environmentally deprived individuals**
- Genetic Disorders
- Learning Disabilities
- Regulatory Disorders
- **Traumatic Brain Injury**
- **Fetal Alcohol Spectrum Disorder**

(Schaff & Smith Roley, 2006)

Important Definitions

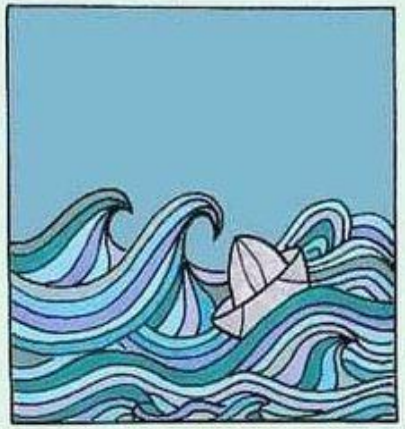
- Sensory Integration
- Sensory Registration
  - Habituation
- Orientation
- Interpretation
- Organization of Response
- Execution of Response

(Abele-Webster, Magill-Evans & Pei, 2012)

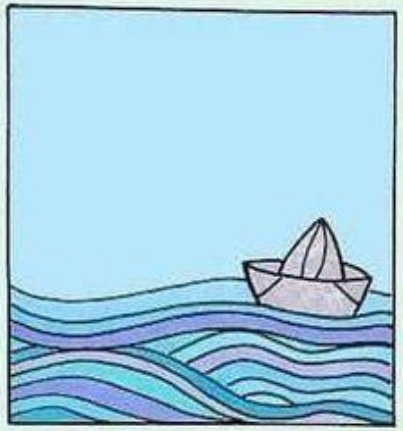
Why is Sensory Integration & Sensory Attachment So Important?

What is Self-regulation and Co-regulation?

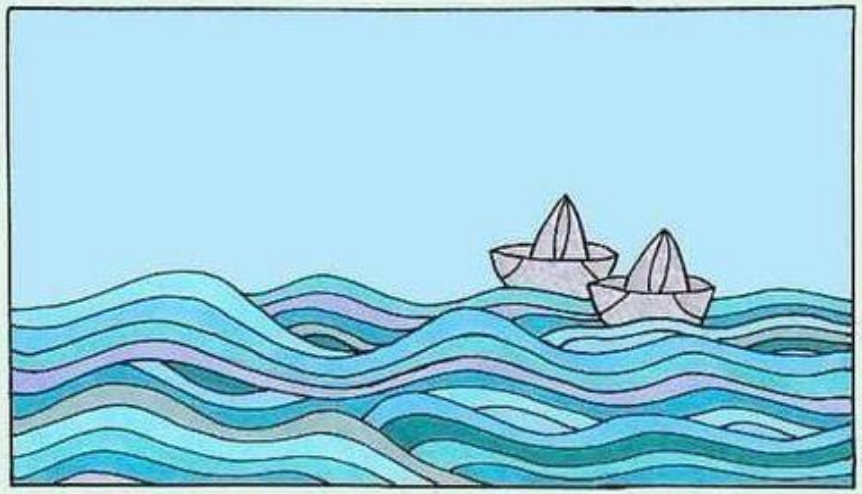
WHEN THEIR STORM



MEETS OUR CALM



CO - REGULATION OCCURS



@kwiens62

Types of Regulatory Disorders

- Type I: Hypersensitive/Hyperreactive
- Type II: Under-reactive/Hyporeactive
- Type III: Motorically-Disorganized, Impulsive… “Crasher” or Seeker”
- Type VI: Mixed pattern/Modulation disorder

HYPERREACTIVE: "too hot"

- Child will react quickly and could avoid stimuli (fearful);
- OR, can seek the stimulation that excites him/her (aggressive);

Observable

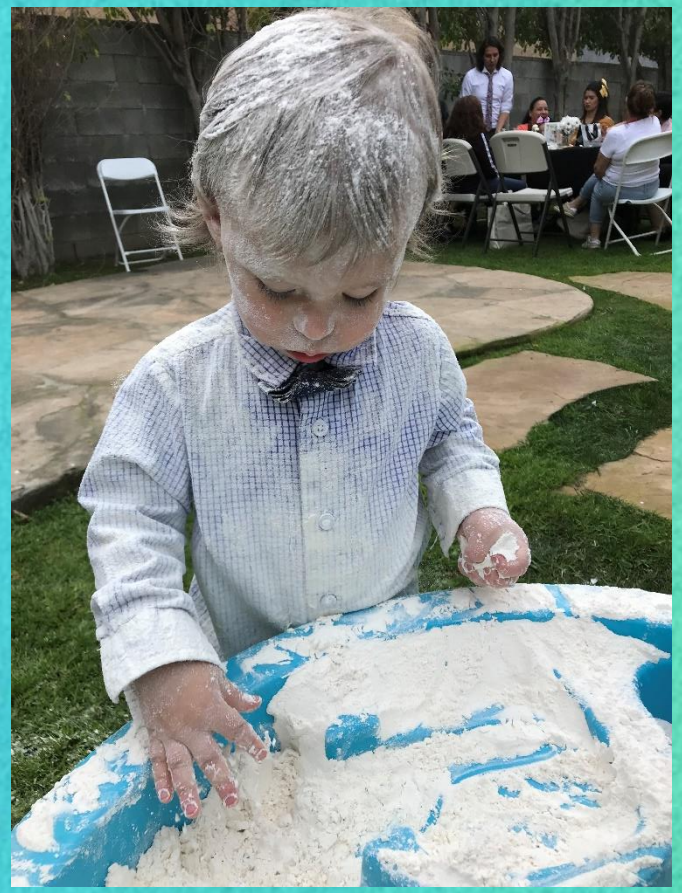
- High arousal;
- Inability to focus attention;
- Defensive behavior;
- Withdrawn, clingy

  or negative/defiant

HYPOREACTIVE: "too cold"

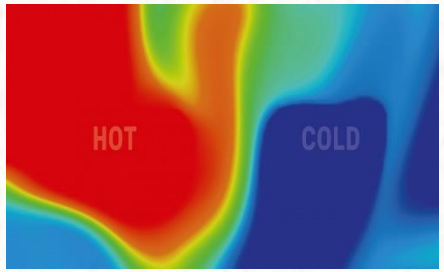
- Child requires a lot of sensory input to achieve arousal and activity
- The nervous system's bias is towards "too cold"
- May not learn from environment because child has not noticed it

- State of arousal is low;
- Affect flat until stimulated;
- May be sensory seekers (crashers) to gain maximal input.



Motorically Disorganized, Impulsive

- Appear aggressive and fearless
- Poor control of behavior
- High activity
- Seeking contact through deep pressure, may lead to breaking objects, being intrusive, unprovoked hitting and bumping into others
- Misinterpreted as aggression instead of excitability; commonly linked with “ADD/ADHD” diagnosis



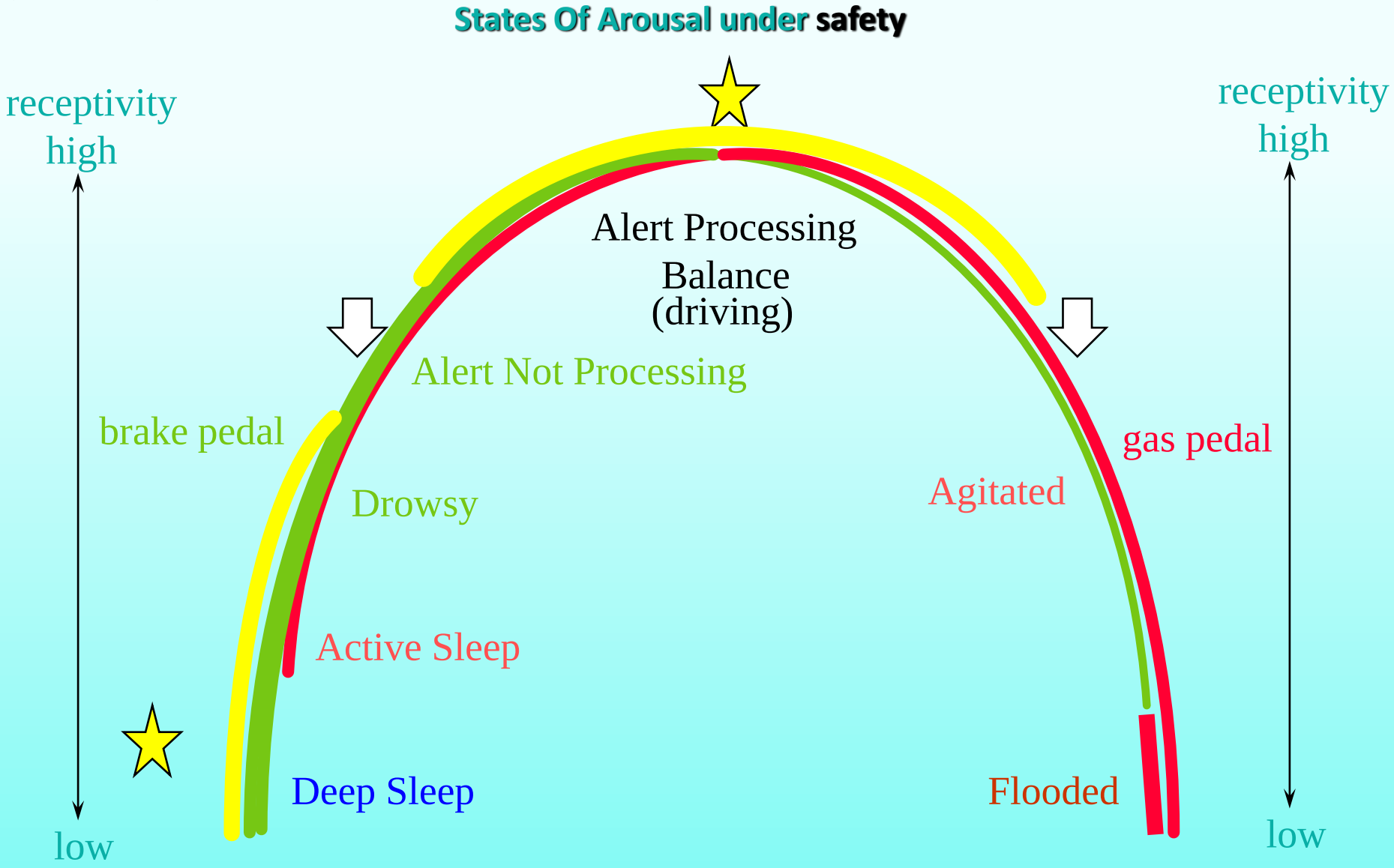
MIXED PATTERNS: too hot and too cold

- May oscillate between extremes; may combine
- Child may be hypersensitive to certain stimulation and hyporesponsive to other types of stimulation;
- Variability of a response can be linked to shifting states of arousal, attention, previous sensory experiences, and the environmental context
- Agitated depression/ withdrawn hypervigilance are combinations
- “Bi-polar” is an oscillation of extremes

Examples of Dysregulation

- **Arousal Level:** difficulty staying calm, alert, poor sleep
- **Sensory Sensitivity:** over or under reactive to sensations, poor modulation
- **Motor:** uncoordinated, fearful, appears only coordinated during challenging tasks
- **Emotions:** labile, flat, inconsolable
- **Cognition:** poor memory, behavioral inhibition, impulse control, inattention
- **Social Capacities:** shy, withdrawn, uninhibited, lack of regard for others.

(Lillas, 1999)



States of Arousal During Sleep-Awake Cycles

Trauma in the Classroom

1. Classrooms are Designed for Regulated Kids
2. 1/3 of kids have trauma
3. Can't teach kids in dysregulated state
4. Kids can't reflect on their behaviors until they are regulated

https://legislature.vermont.gov/Documents/2018/WorkGroups/House%20Education/Bills/S.261/S.261~Martha%20Straus,%20Ph.D.~Powerpoint%20-%20ACES,%20Toxic%20Stress,%20and%20the%20Developing%20Brain~4-19-2018.pdf

What are your Senses?

The Seven Sensory Systems

- Environmental Senses
  - Visual/*Sight*
  - Auditory/*Sound*
  - Olfactory/*Smell*
  - Gustatory/*Taste*

- Body Senses/ Kinesthetics
  - Tactile/*Touch*
  - Vestibular/*Movement in Space*
  - Proprioception/*Awareness of Body (deep pressure, joint compression)*

(see handout for definitions and quick sensory strategy tools, note that the quick strategy tools is **not** providing sensory integration therapy.)

Schaaf, R. and Smith Roley, S. (2005)

Tactile/*Touch Processing*

- *Tactile* (touch) information is not only necessary for many facets of learning, such as concepts of size, shape, texture, etc., but also provides a meaningful basis for the development of a body scheme (where one is in relation to the external world).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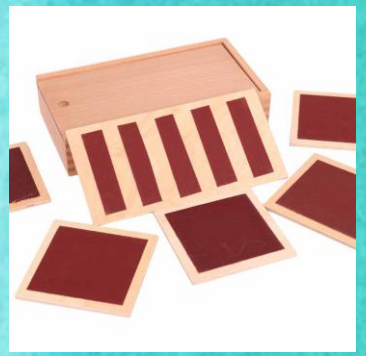


Vestibular/*Movement in Space*

- Vestibular processing is involved in the perception of movement and gravity, as well as the development of balance, equilibrium, postural control, and muscle tone.
- It is also considered to be an important center for the development of bilateral coordination and integration.

Vestibular/*Movement in Space*

- The vestibular system is linked to the limbic system.
- Affects Language
- Supports the breathing system
- Increases in eye contact
- Organizes the brain for attending to structured tasks, socialization, eye-contact, etc.

Types of Vestibular Movement

- Linear Rhythmical Movement

- Rotary Movement

Proprioception/*Awareness of Body (deep pressure, joint compression)*

- Proprioception is the information that is provided by receptors in the muscles, joints, and tendons, and provides one with conscious and unconscious awareness of posture and the direction and force of movements.

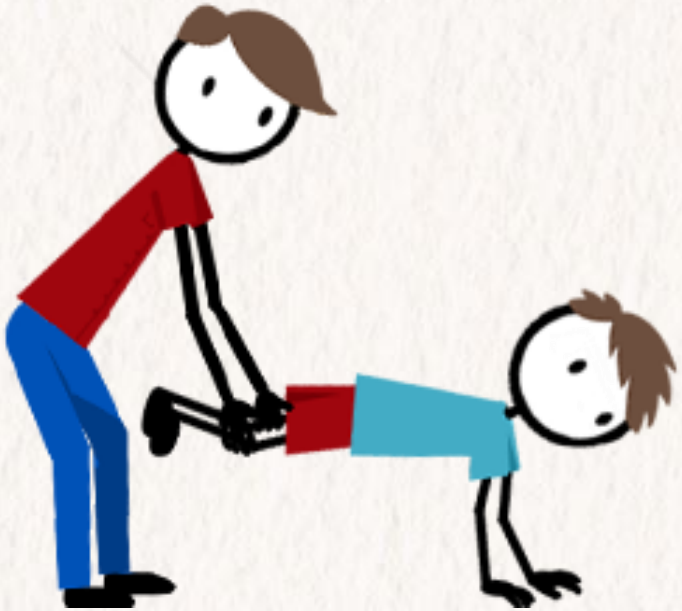
Proprioception the "Deep Sense"

- Someone who exhibits difficulty with registering proprioceptive input displays difficulty with:
  - Motor planning
  - Difficulty executing planned movements
  - Knowing how much pressure is needed to complete a task
  - Difficulty with postural control

Proprioceptive Seeking

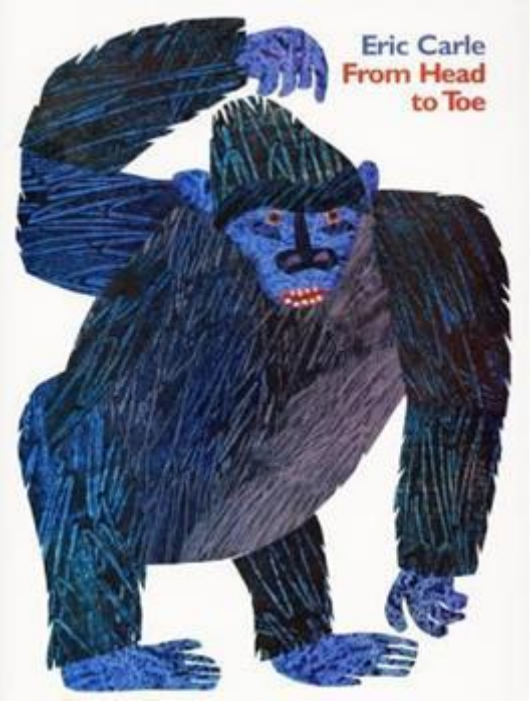
Seeking input to feel grounded in one's body.

Receiving proprioceptive input can be arousing and very regulating. It can help with attention, toleration of other inputs, emotional regulation, social participation, etc.



Under responsive to Proprioceptive Input (Sensory Seeking)

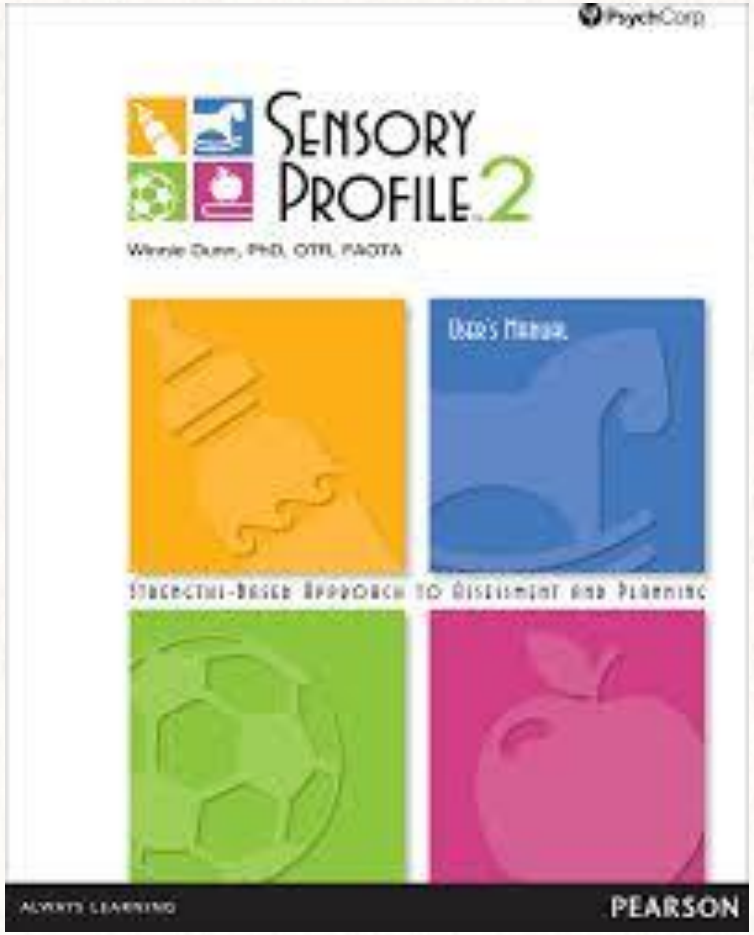
- Walk too hard, push too hard, bang too hard, write with too much pressure, play with object too forcefully
- Typically, the loud ones, rough ones, crashers, movers, shakers, runners, jumpers and bouncers (an insatiable amount of energy)
- Shake legs or constantly bang the feet on the floor/chair while sitting
- Play too rough, jump off of, or crash into anything
- Crack knuckles, chew on fingers, bite nails, chew on pens, gum pencils, clothing collars, etc.


Eric Carle
From Head
to Toe


twinkl.com

https://cosmickids.com/

The Assessment



https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Behavior/Attention-ADHD/Sensory-Profile-/p/100000566.html

https://www.wpspublish.com/spm-sensory-processing-measure?utm_term=&utm_campaign=Search+%7C+Occupational+Therapy+%26+Sensory+Processing&utm_source=adwords&utm_medium=ppc&hsa_net=adwords&hsa_tgt=dsa-437115340933&hsa_ad=420852472745&hsa_acc=6243382947&hsa_grp=88861386955&hsa_mt=b&hsa_cam=1687564793&hsa_kw=&hsa_ver=3&hsa_src=g&gclid=Cj0KCQiA0-6ABhDMARIsAFVdQv_vJ5Y7OcNCAoK0b8ygx1BghYp2o1WoBCdq3aAZdlN9Oq3TulOzUN4aAm70EALw_wcB

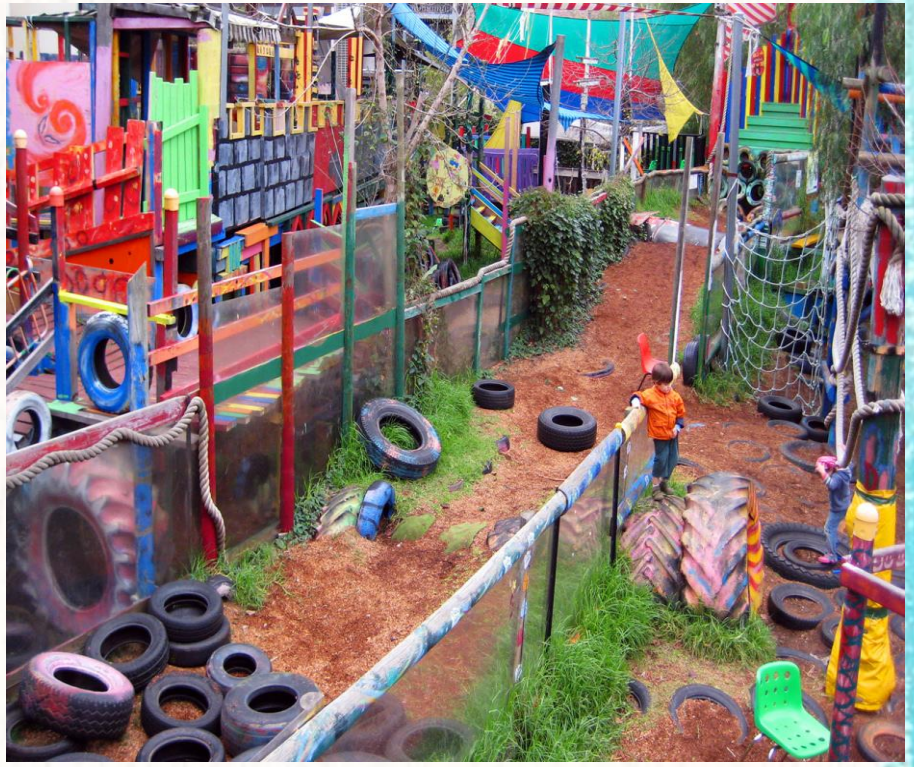
Focus of Assessment

- Child's self-regulation of arousal states
- Child's responses to various sensations (sensory modulation and discrimination)
- Goodness-of-fit between the caregiver and child, or the environment and child
- Child's ability to utilize the affordances of the physical environment (praxis)
- Assess development, function, etc.
- Assess the patterns of the day, what activities provoke certain behaviors or difficulties with regulation

Clinical Observations

- Sensory reactivity
- Motor, cognitive, language functions
- Relationship to caregivers, peers, teachers, etc. (emotional)
- Autonomic signs
  - prior to
  - during
  - and after assessment

Environment

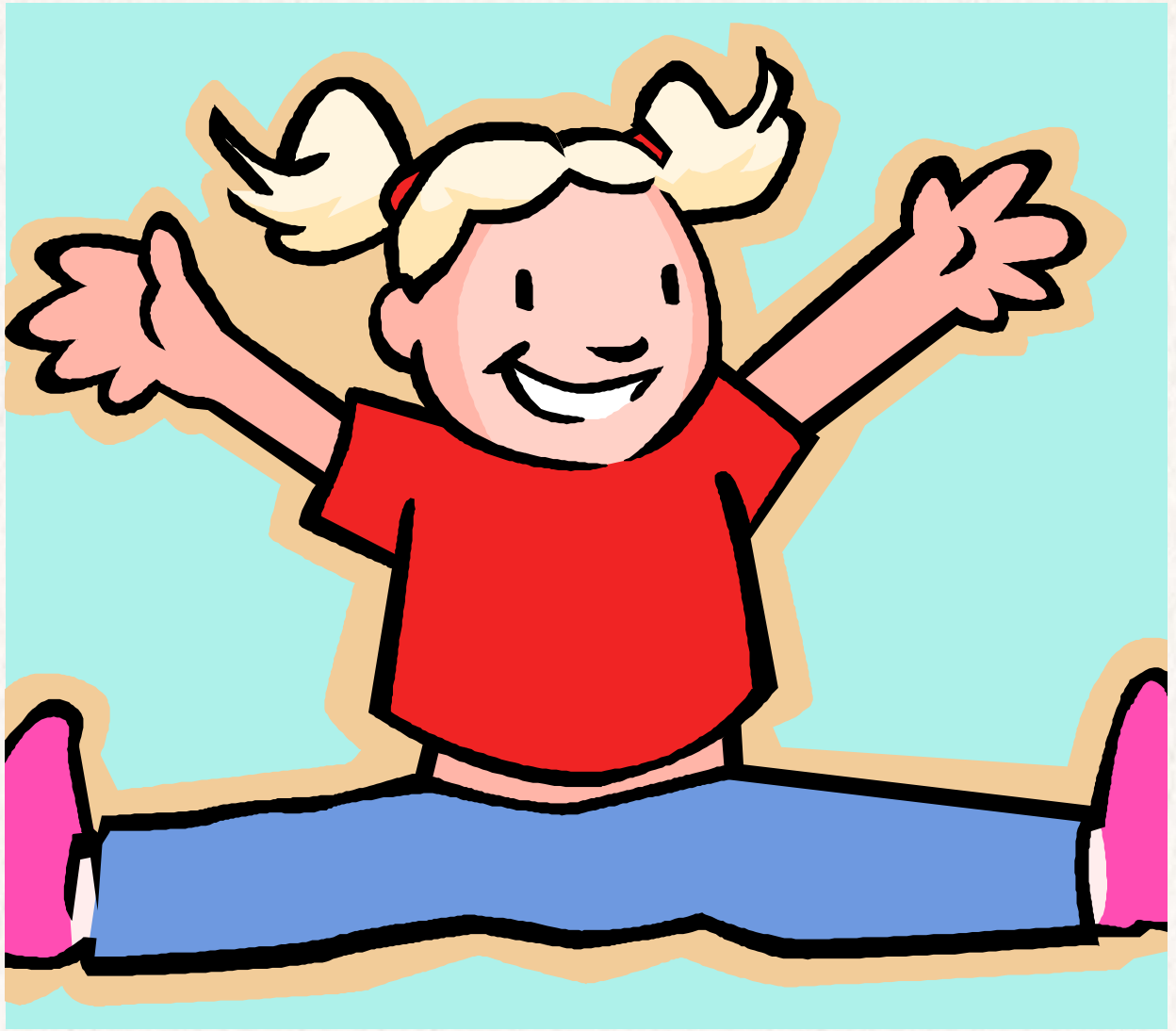


- To the body: Is there space to move around comfortably?
- To the ears: What is the noise level? What are the acoustics like in the room?
- To the eyes: Is the room calming or stimulating? Is there too much to look at?
- To the other senses? Smells? Things to touch?

Where to access OT?

- Regional Center 0-3 years old; however…
- CCS (California Children's Services)
- School District (IEP and 504plan)
- DMH (a few DMH funding sensory integration/OT clinics do exist)
- Private Insurance/MediCal
- Out of Pocket private practice

Quick Tools To Help



Disclaimer :

*SEEK OUT an Occupational Therapy referral or at minimum consult with an OT in order to provide best practice and target the foundational skills that are impacted by the toxic stress and trauma.

You are provided with sensory based strategies to add to your intervention toolbox to be able to assist a child's regulation during your treatments. However, to maximize the benefits of a sensory integration approach and to learn more on how to help the child and her caregiver an OT should be a considered on the child's care team.

Providing sensory strategies is not providing sensory integration targeting the child sensory processing and sensory profile.

You are the environment, too.

- How do you help children stay on their best behavior even while having fun?
- Consider: your voice, your touch, your movement.

Remember!

- You are the greatest source of sensory input
- Ask yourself
  - Do I use a calm voice?
  - Do I give gentle looks?
  - Is my body posture supportive?
  - Are my actions non-intrusive?
  - Is my touch the right type? Soft, firm, or deep touch pressure
  - Do I know the child's favorite movement, touch, sounds, smells, tastes, sights?
    - Adapted from Stanley Greenspan, MD

Put <u>your</u> oxygen mask on first. Then help your child

1. Change state of arousal to safely

- If flat and tuned out, engage with increased movement and emotions, movement and activity should be provided in a structured and goal directed manner
- If nervous or agitated or crying, calm by slowing everything down and find the one sensation that soothes
- Prioritize improving the sleep at night and staying calm when awake (may need to speak to families)
- Find safety for the child in relationships and in the environment
- Slow down all transitions

2. Become a sensory detective

- Notice what sensations calm and what sensations overwhelm, irritate, or shut down the child
- Notice the rate, rhythm, and timing of transitions. Transitions are typically very dysregulating
- Interview the caregiver to provide more information about the child's sensory system and regulation/arousal system
- Interview the parent to learn more about their sensory system and what preferences they have and what they use to regulate, etc.

3. Give the right "dose" of input according to stress response

- Respect the fear response
- Provide sensory stimuli safely and in an organized way
- Child directed and child-led, in context of play
- Over time, allow for sensory input that are overwhelming to be present in the same room
- Allow for distance and a very gradual capacity to tolerate closer contact with input that sets off a stress response
- Alternate fear with sensory & relational safety

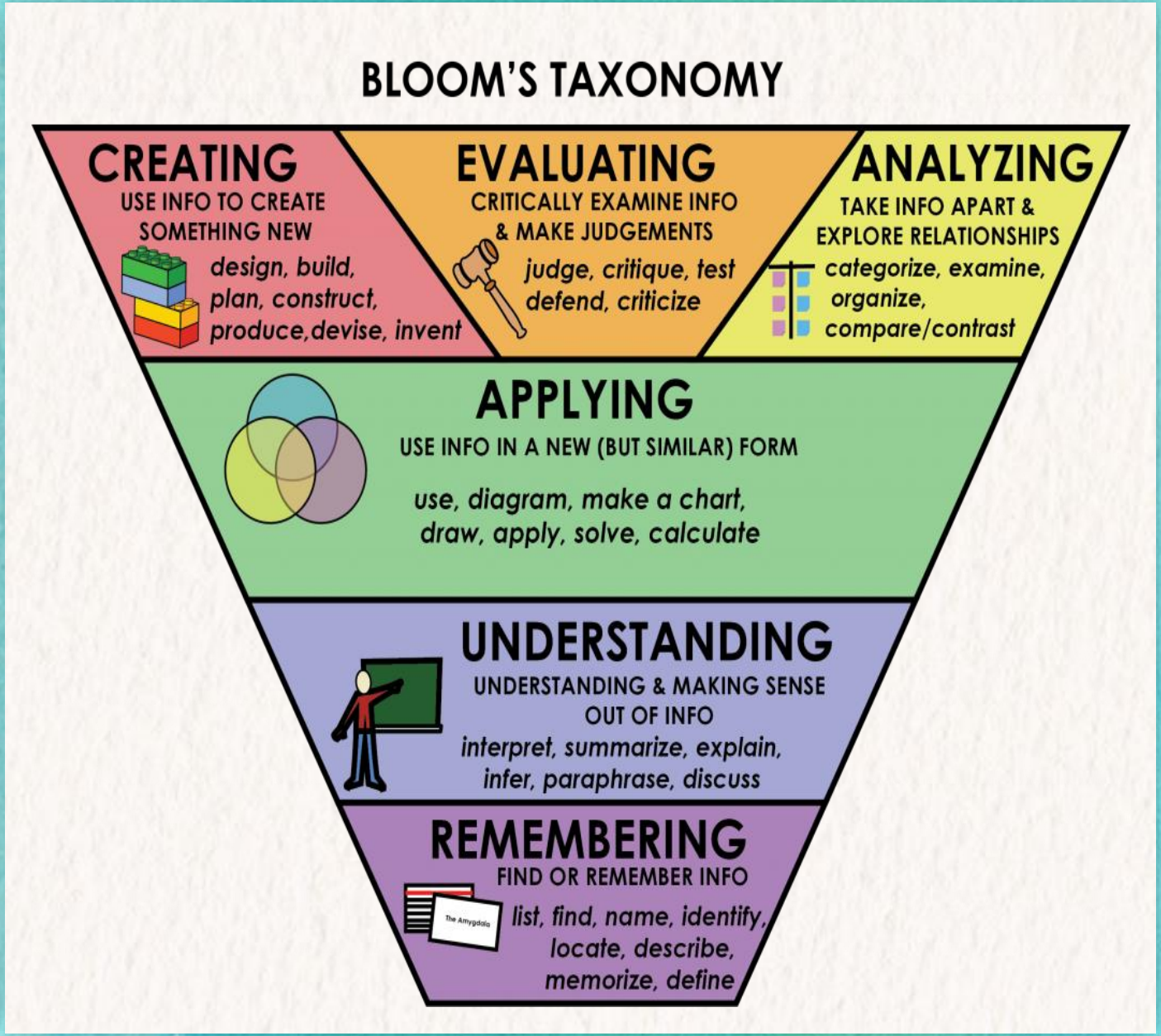
4. Provide sensory comfort

- Surround infant and child with sensory avenues of comfort that cross multiple inputs: sounds, taste, movement, touch pressure, sights, touch
- Pace, and let the child lead when they are facing challenges
- Healing is non-linear

Children who have experienced trauma, and toxic stress may need periodic modifications to input to compensate for their state of arousal because of their difficulty and impaired habituation to sensory processing.

(Abele-Webster, Magill-Evans & Pei, 2012)

Strategies for the Moment



Strategies in the Moment

Oversensitive to touch

1. Approach child from front
2. Firm pressure on shoulders
3. Verbally prep child, count out loud, sing
4. Have child do a physical activity before being touched or touched by something they are sensitive to
5. Read the cues for mix modulation with tactile stimuli
6. Give children something to hold to transition with when walking in a line (can be imaginary). Be mindful of the task being requested

Tactile Strategies-to use for the avoider and the seeker

Sensory Seeking

Proprioceptive & Vestibular Strategies

Proprioception

-

Vestibular

Visual Strategies

- Look out for visual distractions
- Use visual timers and cues versus auditory or use a combination
- Change environmental lightening
- Work on feedback and feedforward response
- Have developmental ophthalmologist assess
- Bubbles

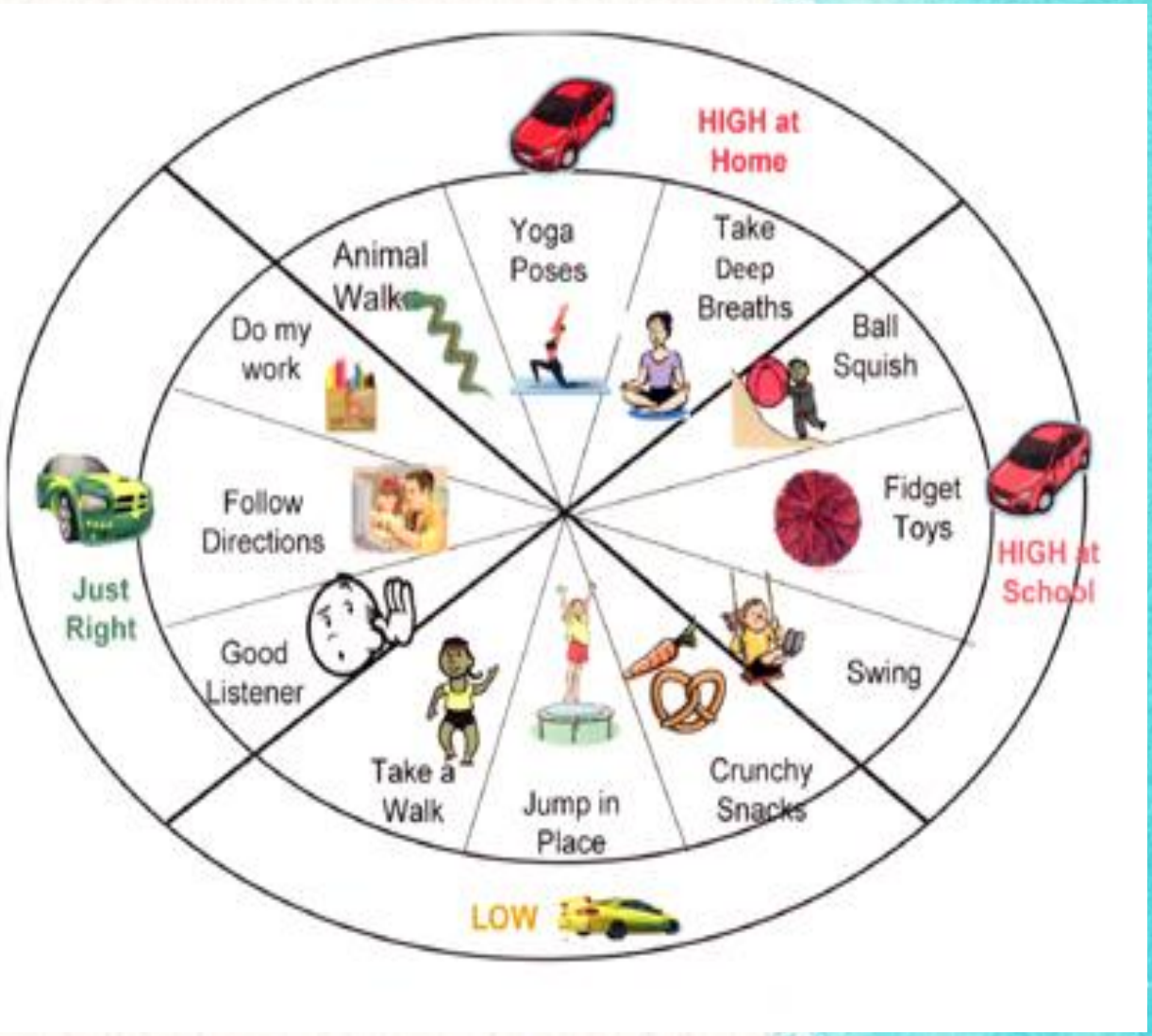
Visual Strategies

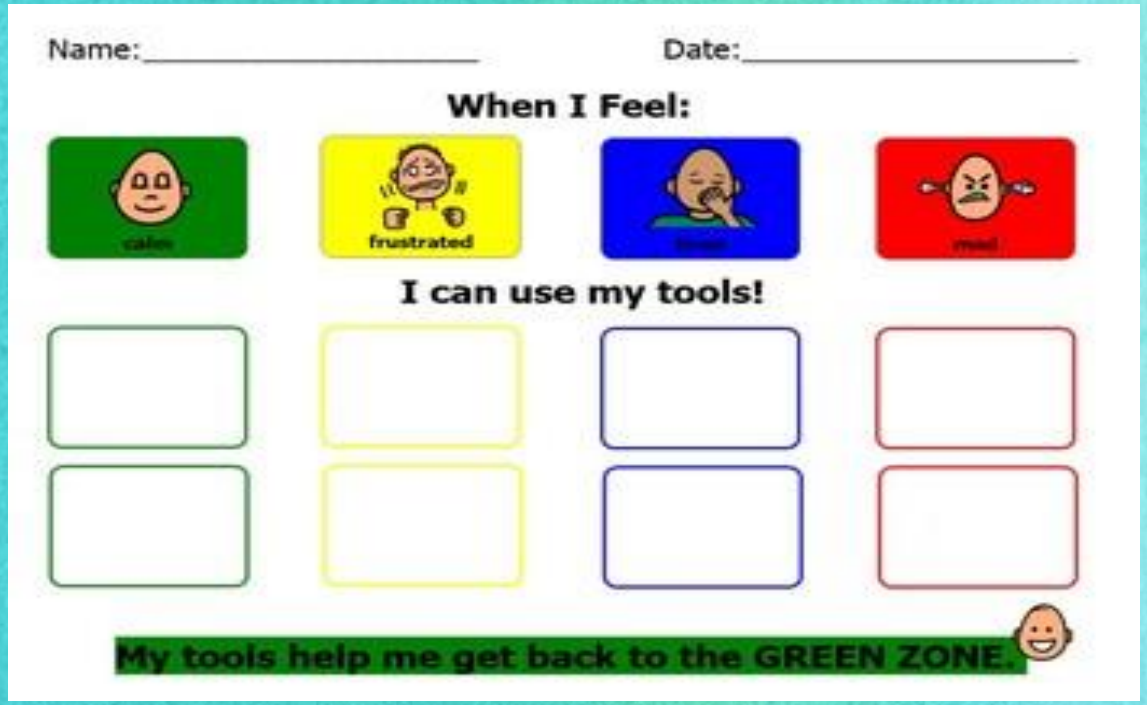

KITTEN

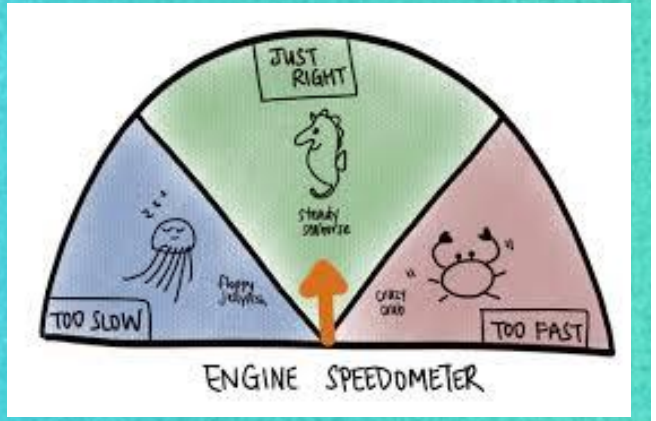
Auditory Strategies

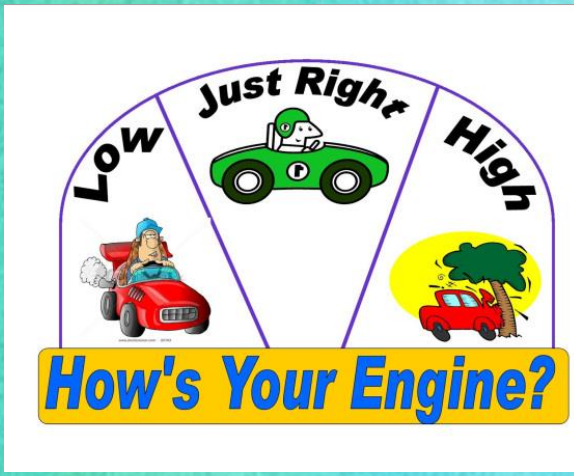
Oral Strategies

Alert Program









Co-regulation

- **Bouncing on a therapy ball together**
- Gardening
- Counting
- Singing a song
- **Stretching together**
- Rearrange the furniture
- Create a fort
- **Make a fidget toy together (rice sock)**
- Yoga
- Whisper
- Running an obstacle course together
- **Rocking**
- Walking outside
- Art (sidewalk chalk, coloring, painting)
- **Blowing bubbles**
- **Infant/child massage**
- Preparing a meal together
- Dancing
- Listening to music
- **Breathing**
- Swinging together
- Bike riding
- "Heartbeat Hug"

(S. Yoshida, Y. Kawahara, T. Sasatani, K. Kiyono, Yo Kobayashi & H. Funato, 2020)

ANY QUESTIONS

Thank You!

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