## **Advanced Self-Regulation: Practical Tools and Strategies for Children** and Adolescents

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## Objectives

- 1. Gain knowledge relating to the neuroscience behind self-regulation and sensory processing
- processing Summarize characteristics of sensory processing disorder, ADHD and autism and how the neurological overlap Understanding the neurological components related to diagnosis and treatment. Review primitive reflexes and the connection to function 2.
- 3.
- 4.
- 5.
- Understand the cause and effect of intervention techniques as they relate to neurological components
- Describe the evidence behind current intervention techniques 6.
- 7. Identify appropriate strategies that work for treating children with ASD, SPD and  $\ensuremath{\mathsf{ADHD}}$
- 8. Introduce the Self-Regulation and Mindfulness program 9.
- Explore the implementation of the ACTION from Trauma program

# Diagnoses and the DSM-V

• ADHD

- ASD
- Trauma
- Sensory Processing Disorder

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### Insular Cortex

- Fifth lobe of brain; Sensory, Emotional, and Cognitive Integration "hub"
- Vagus nerve termination: Correlation to the ANS
   Research revealing dysfunction in Dxs including Anxiety disorder, addiction, Autism

















## Sensory Based Motor Disorders:

Postural challenge Information Organized Incorrectly=> Disorganized output



(Miller, Anzalone, Lane, Cermak, & Osten, 2007)

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Brainstem/ RAS Connection!!!

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### Reflexes to Assess and What to Look for

- Moro reflex
- Tonic Labyrinthine reflex
- Palmar reflex
- Asymmetrical tonic neck reflex
- Symmetrical tonic neck reflex
- Spinal Galant Reflex
- Landau Reflex

# Primitive Reflexes

Primitive Reflex *Brainstem Level	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Asymmetrical Tonic	Extension of one side of the body and flexion of the other to assist	Poor balance; difficulty
Neck (ATNR)	in the birthing process and later with reaching, eye-hand	with coordinated eye
Appears 18 weeks in utero, disappears around 6 months	<ul> <li>Have the child get on all fours</li> <li>Gently turn their head or have them turn it to the side and hold for 5 seconds</li> <li>Look to see if they can maintain the position or if they fall to the side opposite of the head being turned</li> </ul>	reading and writing; challenges in crossing midline of the body and separating the upper body and lower body movements

Primitive Reflex	Pattern of Movement and How it is Elicited	Interference
*Brainstem Level	(Parts retrieve from Gibbs, 2017)	
Symmetrical Tonic Neck	Assists in preparation for crawling; when the child is on hands and	Difficulty crawling on al
(STNR)	knees, a flexed head results in legs extending; when the head is	fours; poor balance;
Appears 4–6 months, disappears around 8–12 months	extended, the opposite occurs, with arms extending and legs flexing - Have the child get on all fours - Gently move or have the child move their head up and down and hold for 5 seconds in each position Look to see if they can maintain the position, if they have excessive movement in their trunk, or if they are sitting back on their legs	clumsiness, difficulty with midline activities; poor sitting position— "W" sitting



Primitive Reflex	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Moro Appears in utero, disappears around 6 months	Occurs during the first breath of life; continues as a startle reflex in response to an unexpected stimulus or threat; the involuntary response is protective, as the infant is unable to distinguish threats; extension of the body (fall reaction), followed by full flexion (protective position), occurs spontaneously. Can be triggered by any sensory stimuli! - Have the child stand with both feet on the ground and tilt their head back to look at the ceiling - You can also ask the child stand on one foot with their arms out to the side Look for loss of balance and excessive movement	Hypervigilant; overactive fight-or-flight reactions; sensitivity to light, sound touch; poor emotional regulation; hyperactivity; poor attention to task; frequent illness due to a stressed immune system; fatigue

Primitive Reflex	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Spinal Galant Appears 20 weeks in utero, disappears around 9 months	Activates when either side of the spine of an infant is stroked; neck extension, hip rotation, and body flexion occur; assists with hip movement and rotation, specifically in utero and during the birthing process, as well as in the development of crawling. - Have the child get on all fours - Gently stroke the left and right sides of their spine Look to see if they can maintain the position, if they have excessive movement in their trunk, or sitting back on their legs	Difficulty maintaining a seated position; constant fidgeting; bed-wetting and bladder accidents; sensitivity to touch and certain textures (clothing); challenges in following directions and with short-term memory

Primitive Reflex	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Palmar Appears 18 weeks in utero, disappear s around 6 months	Assists in sucking, as the hands contract as the baby sucks; stimulation of the palms results in flexion or a grasp reflex; activation also leads to the mouth opening and jaw movement - Have the child stand with straight arms and ask them to wiggle their fingers - You can also have the child face their palms toward the ceiling; stroke the hand from the thumb toward the palm Look for excessive wrist movement and movement in the mouth and/or tongue	Mouth movement as the child performs cutting, writing, or coloring activities; chewing on objects such as pencils; biting people; difficulty with grasp and speech due to tension in hands and mouth



Primitive Reflex	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Rooting Appears at birth, disappears around 4–6 months	Assists with feeding: baby will respond to stimulation of the check by turning toward the stroked side and opening mouth Gently stroke the cheeks and the above the upper lip of the child approximately 3-5 times. Look for head movement towards the direction of the stroke and mouth opening and movement.	Sensitivity in the mouth; challenges with food textures; messy eating; poor speech articulation

Primitive Reflex	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Tonic	Assists baby through the birthing canal;	Difficulty coordinating body
Labyrinthine	Forward: As head is flexed, the arms and legs curl	movement and eye
Appears in utero, disappears around 4–6 months "Backward may extend into 3 years of age	<ul> <li>Ask the child to get into the above position—on their belly extending their neck, lifting to the floor, with arms extended behind and legs straighten and elevated Look to see if the feet turn upward with flexed knees</li> </ul>	ischens; poor balance and posture; poor timing and sequencing (dyspraxia)



Primitive Reflex	Pattern of Movement and How it is Elicited (Parts retrieve from Gibbs, 2017)	Interference
Landau Appears 3 months, disappe ars around 12 months	Head, legs, and spine extend when baby is held in the air horizontally; assists with muscle tone - Ask the child to get on their belly, extending their neck, lifting chest slightly off the floor, with arms extended toward the front of the body and legs straightern and maintained on the floor - Remind the child to lift their chest but keep their feet on the floor Look to see if they are able to lift legs from the floor or remain grounded	Challenges with motor activities; high muscle tone (hypertonia) and difficulty learning; toe walking and lack of coordination; possible difficulty sitting against chair back; absence of the reflex during infant years indicates hypotonia and possible intellectual disability



Breaking Up Patterns with Functional Movement...

For Now Let's Do the XYZ!



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#### ACE Questionnaire

While you wer	e growing up, during your first 18 years of life:
Did you live wi	th anyone who was depressed, mentally ill, or suicidal?
Yes	_ No
Did you live wi	th anyone who was a problem drinker or alcoholic?
Yes	_ No
Did you live wi	th anyone who used illegal street drugs or who abused prescription medications?
Yes	No
Did you live wi	th anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?
Yes	_ No
Were your par	ents separated or divorced?
Yes	No
Did your paren	ts or other adults in your home often or very often slap, hit, kick, punch or beat each other up?
Yes	No
Did a parent or so hard that yo	<ul> <li>other adults in your home often or very often hit, beat, kick, or physically hurt you in any way? Ever hit you whad marks or were injured? (Do not include spanking.)</li> </ul>
Yes	No
Did a parent or	adult in your home often or very often swear at you, insult you, or put you down?
Yes	No
Did an adult or	person at least five years older than you ever touch you sexually?
Yes	_ No
Did an adult or	person at least five years older than you ever try to make you touch their body sexually?
Yes	_ No
Did an adult or	person at least five years older than you ever force you to have sex?
Yes	No







## Trauma Risk Factors Checklist

- "Minority" status. Those from underrepresented racial and ethnic groups are more likely to experience trauma.
- Acute stress. Exposure to ongoing stressful events and crisis may diminish the ability to cope in the
   presence of trauma.
- presented of adversity. Living in an improgrighed or violent community. Childhood adversity. Living in an improgrighed or violent community, mental thicks proceeding stress, and parental substance abuse than all result in a child experiencency trauma.
- Physiological characteristics. Certain biomarkers, such as low heart rate variability and low cortisol levels have been found to correlate with the ability to cope in the presence of trauma. Chronic or life-threatening health conditions (experienced by the client or a loved one). A such as cancer, progressive heurological are stressful life crisis which are also traumate.
- Low socioeconomic status. Poverty leads to chronic stress, exposure to violent unhealth environments, lack of access to healthcare, impacts the ability of parents to property care for their children, and can curtail growth and development. Lack of education. As a social determinant of health, education has a direct correlation to health outcomes, socioeconomic status, and nice expectancy. These factors align with the trauma risk factors
- mentioned above.
  Genetics and family trauma. Some people are predisposed to trauma and have difficulty coping secondary to intergenerational trauma. There is a genetic connection in the DNA passed along to offspring from the biological parent.
  History of trauma. Having prior exposure to trauma may increase the likelihood of future exposure. This is due to a possible accumulation of stress and resultacing of symptoms from traumatic events.
- This is use to a possible accumulation of stress and resuffacing of symptoms from traumatic events. Domestic violence, Physical and environment harm results in a stress, any civil, fear, and threatens one safety. The chronic and persistent threat has long term effects for the victim and those witnessing the abuse.

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Categories of Trauma and Their Impact				
Categorization of Traumatic Experiences	Early Childhood and School Age	Adolescence	Adulthood and Older Adulthood	
Expected (e.g., passing of a loved one who was ill)	An expected trauma may lead to significant complex trauma. For example, a child who is tiving in foster care and who is returned to their biological family as planend may respond with maladaptive behaviors, such as challenges with learning, skeping, toileting, and engaging with others.	In adolescence, the passing of a loved one who was ill may lead to changes in personality, challenges at school, and difficulty engaging or socializing with others.	Expected trauma may greatly impact anyone regardless of their age. For example, a person with Type I Dahetes Mellitus may be aware of a prognosis requiring a lower limb amputation. Such an event can change how they socialize, challenge their ability to work, and impact their others.	
Unexpected (e.g., sudden departure of a family member)	The unexpected passing or departure of a loved one due to incarceration can lead to maladaptive behaviors, such as detachment, aggression, and challenges in academics.	The unexpected move from their childhood community secondary to parental divorce can lead to maladaptive behaviors, such as detachment, leaving home, aggression, and challenges in academics.	Unexpected traumatic events may greatly affect well- being. For example, the sudden loss of employment can lead to anxietly, depression, substance use, aggression, and a poor outlook on life.	

Isolated (e.g., single incident, such as a sexual assault)	Depending on developmental stage, an isolated traumatic event, such as a car accident, could lead to changes in personality or behavior requiring intervention. <b>Physical</b> intervention. <b>Physical</b> intervention. <b>Physical</b> hypersensitivity, even if the effects are temporary.	An isolated traumatic event, such as a sexual assault could lead to changes in personality or behavior requiring intervention. <b>Physical</b> <b>trauma</b> nay result, such a hypersensitivity, even if temporary.	An isolated traumatic event, such as a home invasion for an older adult living alone, could lead to changes in personality or behavior requiring intervention. Physical trauma may result, such as hypersensitivity, even if temporary.
Pervasive (c.g., ongoing, such as repeated physical abuse or homelessness)	Pervasive trauma can have significant implications on development. For example, a child hiving in poverty or experiencing ongoing abuse may have structural trauma as a result, leading to complex trauma.	This may be a form of <b>complex trauma</b> that has significant implications on an adolescent's outlook on life. For example, orgoing abuse or sex traffickang may result in <b>structural</b> <b>trauma</b> and lead to challenges with establishing future goals.	Adults may experience <b>complex</b> <b>trauma</b> in the form of ongoing domestic violence, which can have cause <b>structura</b> <b>I trauma</b> and interfere with their ability to establish future goals.



Intentional (e.g., neglect from a parent, physical or sexual assault)	Intentional trauma, such as the neglect from a parent, may lead to social-emotional issues, such as lack of trust in others, and detachment from others. Structural frauma may lead trauma may lead to physical and complex trau ma.	Adolescents who experience bullying by their peers may exhibit social emotional issues, such as lack of trust, and risk- taking behaviors. Structural trauma may lead to physical and complex trauma.	Spousal abuse or caregiver abuse of an older adult may lead to social-emotional issues that manifest as acute anxiety, distorted expectations, and depochament fram others. Structural trauma may lead to physical and complex trauma.
Unintentional (e.g., naturul disaster or pandemic)	Certain unintentional traumatic events represent a form of social or cultural trauma, such as pandemics or natural disasters, which can be very frightening to children due to a sense of loss of socurity. Feelings of helplessness and uncertainty becomes anxiety and stress. Acute stress can lead to PTSD if unaddressed. Children may display aggression, have problems sleeping, and difficulty concentrating.	Adolescents who experience unimitational forms of traumatic events, such as pandemics or natural disasters, can experience accite stress in response to the event. The effects of the event. The effects of the system of social or cultural trauma may be evented in changes in personality and behaviors such as detachment, avoidance, and aggression.	Systematic and organizational culture and policies can result in re- traumatization. This may be revealed in changes in personality and behaviors. Adults may also experience feelings of insecurity, guilt, and shame in response to this <b>social or cultural trauma</b> .

Directly experienced	Directly experiencing abuse,	In adolescence, the direct	There are
(e.g., poverty due to loss of employment)	neglect, or exposure to a traumatic event has very strong implications of impacting	experience of trauma such as living in unsafe environments,	several implications of directly experiencing trauma, such as abuse,
	development. It can impact typical brain development,	experiencing abuse and neglect, or exposure to a	loss, illness, isolated events, and poverty. Adults
	affect emotional regulation, and lead to dysfunction in sensory processing.	traumatic event can negatively impact development	may have challenges with their activities of daily living, self-care, properly
		and the establishment of future goals. The adolescent may isolate	caring for others, and social interaction.
		themselves, be aggressive, and have difficulty with academics.	
Indirectly experienced	Vicarious trauma can be a form	Intergenerational,	Intergenerational,
(e.g., shared experienced of a parent or observing the impact of injustices, such as unjustified	of intergenerational trauma, such as living with a parent who experienced sexual	trauma can impact an adolescent based on how their caregiver	or vicarious trauma, can impact one's experiences and interactions with the
killings)	abusa bu a familu mambar For		
	example, the parent may reveal	interacts with them. For example, a parent may	world. For example, adults may
	aggressive and overprotective behaviors as a result of fear their child would	interacts with them. For example, a parent may reveal strict and aggressive behaviors towards the child secondary to their	world. For example, adults may reveal certain fears ground ed in stories or norms set by their family, which
	acuse by a raim netrice. For example, the parent may reveal aggressive and overprotective behaviors as a result of fear their child would experience the same abuse. These behaviors are based on the caregiver's	interacts with them. For example, a parent may reveal strict and aggressive behaviors towards the child secondary to their personal struggles with systemic racism and a history of violent attacks	world. For example, adults may reveal certain fears ground ed in stories or norms set by their family, which are based on historical events. Family members can pass on a lack of trust,
	addee of a failing includer for example, the parent may reveal aggressive and overprotective behaviors as a result of fear their child would experience the same abuse. These behaviors are based on the caregiver's personal experiences and views.	interacts with them. For example, a parent may reveal strict and aggressive behaviors towards the child secondary to their personal struggles with systemic racism and a history of violent attacks on family members. These behaviors are based on the	world. For example, adults may reveal certain fears ground ed in stories or norms set by their family, which are based on historical events. Family members can pass on a lack of trust, shame, and anxiety to their offspring.
*There is the possibility of	addee of a faining includer for example, the partent may reveal aggressive and overprotective behaviors as a result of fear their child would experience the same abuse. These behaviors are based on the caregiver's personal experiences and views.	interacts with them. For example, a parent may reveal strict and aggressive behaviors towards the child secondary to their personal struggles with systemic racism and a history of violent attacks on family members. These behaviors are based on the caregiver's personal	world. For example, adults may reveal certain fears ground ed in stories or norms set by their family, which are based on historical events. Family members can pass on a lack of trust, shame, and anxiety to their offspring.

Examples of Distress	Examples of Eustress
Francisla storssors Work file incluance Illness or death Dovoce Abuse/neglect	Work to complete a desired degree Marings/vocding planning Birth Carna for a loved one Creating such as working on a desired project
Add your personal examples (consider both internal and external factors):	Add your personal examples (consider both internal and externa factors):











#### **ACTION Need Assessment Worksheet**

**Objective:** To acknowledge trauma and identify areas of need and resources to support treatment planning

**Directions:** The first step toward growth is not instant healing. It is acknowledging where the person and family are in the given moment. Are they able to acknowledge their trauma? Do they focus through a trauma lens impeding their ability to acknowledge areas of strength and resilience? Are their necessary supports and resources you can assist in obtaining? Upon re-assessment, return to this worksheet to determine growth.

Acknowledgment of strength, resilience, support, and available resources	Acknowledgment of the trauma List all types and categories of trauma, as well as what support is needed	Interdisciplinary Team Who is needed to move toward balance?



# <text><text><list-item><list-item><text>





What Impacts the RAS?		
Light	Light and the Pineal Gland (Melatonin)	
Sound	Sound and Movement the Semi-circular Canals (Vestibular and Auditory Systems)	
Touch	Touch, Deep Pressure, and the alertness (Tactile and Proprioception)	





- Arousal could be high secondary to sensory overload











"BEHAVIOR IS THE MANIFESTATION





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# Teaching Younger Children About Their Brain

- There is a part of our brain that is really smart and playful, kind of like a small dog.
- Sometimes, things happen that make that part of our brain angry, mad, sad, or afraid. It has trouble listening, playing, or learning. We do not feel like ourselves. That little dog starts to get really loud and active.
- That part of your brain tries to get happy and will run around, bark, or jump—whatever it takes to get happy! It loves feeling good!
- Like having a small dog as a pet, you have control. Not only can you train that part of your brain to feel good, but you can feel good too! You have a leash and other training tools we will share.













## **Emotional Reactions**

Anxiety

- Emotional outbursts (anger, sadness, fear, etc.)
- Challenges trusting others
- Fear of being apart from family members
- Distortions (unexplained or warranted fear)
- Challenges making goals for the future

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## Social Reactions

Isolating oneself

- Lack of interaction or engagement
- Attention seeking
- Outbursts and disagreements with others
- Regression (earlier stage of development)
- Challenges with change

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## **Physical Interventions**

- Diaphragmatic Breathing
  Powerful Iliopsoas Stretches
- Ear and Eyelid massage
- Eye Yoga
- Acupressure Tapping
  Valsava Maneuvers
- Inversion
- Rhythmic Activity

(Gibbs, 2017; Greeson, Juberg, Maytan, James & Rogers, 2014; Shearer, Hunt, Chowdhury & Nicol, 2016; Cresswell, 2017)





Intellectual Interventions

 Schedules
 Routine
 Assistive Technology (apps)

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## Social Interventions

- Virtual lunch hours
- Social meetups
- Check in and Check out (in person or virtually)
- Peer Check-ins (for staff & parents; peer buddies for students)
- Physical Distancing Meetups

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#### Innervation OrgansPulmonary Plexus Muscles · Cricothyroid muscle: Tensor muscle of Esophageal Plexus pharynx for phonation Levator veli palatini muscle: Elevates soft palate to prevent food in pharynx Cardiac Stomach Gall Bladder Salpingopharyngeus muscle • Pancreas Palatoglossus muscle: Muscle of the tongue; not Hypoglossal but Vagus nerve Small Intestine Palatopharyngeus muscle: Pull up pharynx to cover food while eating External Far Part of the brain meninges Superior, middle and inferior pharyngeal constrictors Connection to extraocular motor muscles via connection to the trigeminal nerve; oculocardiac reflex Muscles of the larynx: ;Speech (Dutschmann, Bautist, Mörschel, & Dick, 2014)

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## Self-Regulation Through PNS Activation !!!

- Valsalva Maneuver
- Oculocardiac Reflex
- Outer Ear Stimulation
- Cold
- Diving Reflex
- Inversion
- Neck Extension Exercises
- And massage (Proprioception)
- Gargling, Singing, and 'Om' !!!!

(Fanselow, 2013)





## Progressive Muscle Relaxation

#### Age Range: Children

Objective: To decrease stress and pain within the body

Directions: In this exercise, clients will practice tensing and relaxing various parts of their body as they work from their head down to their feet. You can use the following script to guide clients through the exercise or have them complete the steps on their own. Use precautions for any injuries. Do not perform if contraindicated. 1.Have the child get into a comfortable position, such as lying down. 2.Place a soft stuffed toy on their belly. Ask them to take a slow, deep breaths—as if they were going to smell a cupcake with a candle on top. Then have them "blow out" the candle. Do this a couple of times to start. 3.Provider Script

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#### Inversion!!!

- Stimulate glands, lymphatic drainage, and digestion
- -> Improved immune system
- Blood flow and oxygen to the brain
- Input to the spine
- Decreases SNS Response
- Activates Vagus nerve
- Increase relaxation and muscle release
- Improved sleep



# Case Study

Some activities are preparatory for occupation-based activity!

• Two videos

• Cole: "Trumpet" blowing and belly breathing

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## How to Make A Smell Sac

#### Items needed:

- Items needed: A small organza bags Essential oils (lavender and wood smells to calm, citrus smells to alert) Dry rice Coffee beans
- Directions:

- Directions:
   Place the dry rice inside the organza bag.
   Sprinkle a few drops of the essential oils inside.
   Be selective with the scents you choose based on the child's arousal level and threshold.
   You can use multiple bags to explore the child's preferences.
   Have the child smell coffee beans in between smelling the various oil-scented bags.



























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Case Example: Appraise your Knowledge

Does the child have sensory dysfunction? Explain

Does the context/environment support his needs or challenge him? How?



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