Handout for the Therapro webinar

Mindfulness, Proprioception and Interoceptive Strategies for School Therapy

presented by John Pagano, Ph.D., OTR/L - March 5, 2024

Mindfulness, Proprioception & Interoceptive Strategies for School Therapy P. 1

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John Pagano, Ph.D., OTR
www.fabstrategies.org
Email:JLP96007@gmail.com
www.pinterest.com/FABStrategies
facebook.com/FABSTRATEGIES
www.youtube.com/@PaganoFABStrategies

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"FUNCTIONALLY ALERT BEHAVIOR"

Curriculum guiding individualized clinical reasoning addressing behavioral goals:

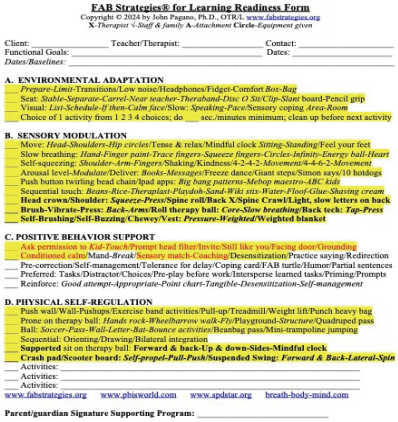
A. ENVIRONMENTAL ADAPTATIONS

B. SENSORY MODULATION

C. POSITIVE BEHAVIOR SUPPORT

D. PHYSICAL SELF-REGULATION

Develop individualized intervention by integrating the research evidence, client/family values, environmental context, benefit, and risks (Ashburner et al., 2014)



FAB Strategies® for Learning Readiness Form

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X-Therapist √-Staff & family A-Attachment **Circle***-Equipment given*

Client: _____ Teacher/Therapist: _____ Contact: _____

Functional Goals: _____ Dates: _____

Dates/Baselines: _____

A. ENVIRONMENTAL ADAPTATION

___ *Prepare-Limit*/Transitions/Low noise/Headphones/Fidget-Comfort *Box-Bag*

___ Seat: *Stable-Separate-Carrel-Near teacher-Theraband-Disc O Sit/Clip-Slant* board-Pencil grip

___ Visual: *List-Schedule-If then-Calm face/*Slow: *Speaking-Pace/*Sensory coping *Area-Room*

___ Choice of 1 activity from 1 2 3 4 choices; do ___ sec./minutes minimum; clean up before next activity

B. SENSORY MODULATION

___ Move: *Head-Shoulders-Hip circles*/Tense & relax/Mindful clock *Sitting-Standing*/Feel your feet

___ Slow breathing: *Hand-Finger paint-Trace fingers-Squeeze fingers-Circles-Infinity-Energy ball-Heart*

___ Self-squeezing: *Shoulder-Arm-Fingers*/Shaking/Kindness/4-2-4-2-*Movement*/4-4-6-2-*Movement*

___ Arousal level-*Modulate*/Deliver: *Books-Messages*/Freeze dance/Giant steps/Simon says/10 hotdogs

___ Push button twirling bead chain/Ipad apps: *Big bang patterns-Mebop maestro-ABC kids*

___ Sequential touch: *Beans-Rice-Therapiast-Playdoh-Sand-Wiki stix-Water-Floof-Glue-Shaving cream*

___ **Head crown/Shoulder: *Squeeze-Press*/Spine roll/Back X/Spine Crawl/Light, slow letters on back**

___ **Brush-Vibrate-Press: *Back-Arms*/Roll therapy ball: *Core-Slow breathing*/Back tech: *Tap-Press***

___ **Self-Brushing/Self-Buzzing/Chewey/Vest: *Pressure-Weighted*/Weighted blanket**

C. POSITIVE BEHAVIOR SUPPORT

___ Ask permission to *Kid-Track*/Prompt head filter/Invite/Still like you/Facing desist/Grounding

___ Conditioned calm/Mand-*Break*/Sensory match-Coaching/Desensitization/Practice saying/Redirection

___ Pre-correction/Self-management/Tolerance for delay/Coping card/FAB turtle/Humor/Partial sentences

___ Preferred: Tasks/Distractor/Choices/Pre-play before work/Intersperse learned tasks/Priming/Prompts

___ Reinforce: *Good attempt-Appropriate-Point chart-Tangible-Desensitization-Self-management*

D. PHYSICAL SELF-REGULATION

___ Push wall/Wall-Pushups/Exercise band activities/Pull-up/Treadmill/Weight lift/Punch heavy bag

___ Prone on therapy ball: *Hands rock-Wheelbarrow walk-Fly*/Playground-*Structure*/Quadruped pass

___ Ball: *Soccer-Pass-Wall-Letter-Bat-Bounce activities*/Beanbag pass/Mini-trampoline jumping

___ Sequential: Orienting/Drawing/Bilateral integration

___ **Supported** sit on therapy ball: **Forward & back-Up & down-Sides-Mindful clock**

___ **Crash pad/Scooter board: *Self-propel-Pull-Push*/Suspended Swing: *Forward & Back-Lateral-Spin***

___ Activities: _____

___ Activities: _____

___ Activities: _____

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Parent/guardian Signature Supporting Program: _____

Self-Squeezing, Body Scan & Kindness P. 2

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- **Self-Squeezing-** *Shoulder-Arm-Hand-Fingers. Crossing arms hug or squeeze both shoulders diagonally in for 10 sec. then squeeze, press or massage sequentially down the back of the arm. Pick as side and do shoulder, upper arm, lower arm, then thumb, pointer, middle, index, little finger*

(Brown & Gerbarg, 2022)

- **Butterfly body scan-** Butterfly sequentially lands flowing out white relaxing and energizing light. Head, shoulders, knees feet

- **Kindness-** Unconditionally love & adore; Self; Group; Acquaintance. *May they be happy, healthy, safe, at peace.*

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Hand Breathing and Developmental Coping Strategies- Easy enough that they can do it, hard enough that they can't think of anything else **P. 3**

Mindfulness Sensory Strategies in School OT P. 4

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- Slow breathing mindfulness activities significantly reduced anxiety, depression and trauma symptoms in children and adults with psychosis, PTSD and mental health challenges (Brown & Gerbarg, 2022; Potes et al., 2018)
- Mindfulness training significantly decreased bullying behavior difficulties in elementary school students (Faraji et al., 2019)
- Feel your feet significantly improved behavior in adolescents with aggressive behaviors (Singh et al., 2016)
- Sensory coping strategies that improve anxiety and depression through neurotransmitter affects can include mindfulness, deep breathing, sensory strategies, massage, and adaptive equipment (Prat, 2022)

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Proprioception Sensory Treatment P. 5

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- **Proprioception-** Primarily unconscious sense of body position and movement through receptors in muscles (muscle spindle fibers), joints (Golgi tendon organs) as well as vestibular "movement sensors" (Tuthill & Azim, 2018). Proprioception helps with body position and alerting for attention and learning (STAR Institute, 2024 <sensoryhealth.org>).
- **Intervention-** Assess specifically if proprioceptive activities make a student more functional. Push-ups, wall pushups, pushing in swing (modulating vestibular), carrying books, deep pressure touch, theraband exercises, crash mats, mini-trampoline, mat sandwich, massage, brushing, roll therapy ball over (STAR Institute, 2024)
- **Sensory Based Interventions (SBIs)** are specific assessment based individualized sensory activities and environmental adaptations that improve behavior and learning by addressing specific sensory challenges. Helpful in school for students with ASD integrated into the class routine (Wong, 2023); while significant school mood and participation from deep pressure touch & shoulder squeeze (Bestbier & Williams, 2017).
- **SBIs** are components of PBIS (School Positive Behavioral Interventions & Supports (Second step, DECA, PATHS) and SMART ARC PTSD treatment programs (Warner et al., 2014).

Natural occupations best strategies for integrating Vestibular, Proprioception & Tactile Sensory

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Sensory Based Interventions

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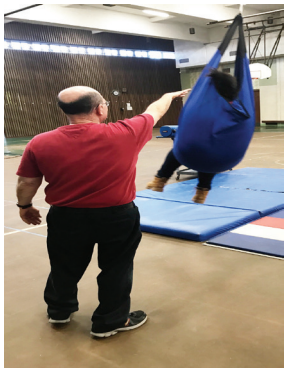
(Blaustein & Kinniburgh, 2019)



A **sensory based intervention** can involve a **requested break involving linear movement combined with proprioception** through deep pressure pushes and the cuddle swing

Interoception P. 6

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- **Interoceptive Awareness (IA)** is the ability to sense & represent our internal body state and functional skills, moderately correlates with Sensory Processing, and affects functioning e.g., "I stay away from activities where I think I could get hurt" (Brown & Dunn, 2023)
- IA & body awareness provides the foundation for our emotions and self-regulation, but is significantly worse in psychiatric and developmental disorders. (DuBois et al., 2016; Price et al., 2023)
- IA treatment enhances interoceptive awareness, improves insula functioning and decreases substance abuse & PTSD symptoms (Price et al., 2023)

Interoceptive Awareness Interventions P. 7

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- **Interoceptive Awareness School Curriculum-** Significantly increased interoceptive awareness (e.g., my muscles are tightening indicating anger so I should take a walk) in students with ASD (Mahler, 2017; Hample, 2020)
- **MINDFULNESS-** Slow deep breathing reduces anxiety and depression (Brown & Gerberg, 2023: Weng et al., 2021)
- **Body scan procedure** increased interoceptive awareness in typical adults (Fischer et al., 2017)
- **Interoceptive Self-touch** helps us identify, integrate, and apply internal body signals for self-regulation (Price & Hooven, 2017)
- **MABT (**Mindful Awareness in Body-Oriented Therapy)- Individualize preferred light touch or deep pressure touch whether applied provide distinct emotionally calming affects in the Insula (Case et al., 2021)
- **Light touch-** Cuddling light, slow, rhythmic touch on non-glabrous skin provides interoceptive input that appears to reduce depression and increase body awareness (Eggart et al., 2019)

Kelly-Mahler.com breath-body-mind.com cmbaware.org

BACK X & SPINE CRAWL P. 8

X MARKS THE SPOT *X slow, light, rhythmic on back*
WITH A DOT DOT DOT *3 dots with your fist*
AND A LINE LINE LINE *3 horizontal lines*
AND A QUESTION MARK *? on entire back*
"CRACK AN EGG ON YOUR HEAD *Place fist on head and tap it with hand*
LET THE YOKE RUN DOWN" *fingers down both sides of head simultaneously* **(2 X)**
CREEPY CRAWLIES UP YOUR SPINE
spine crawl with index knuckles up both sides spine
CREEPY CRAWLIES DOWN
palms press slide firmly down both sides of spine

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Integrated Behavioral & Sensory Strategies

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- Visual list, Visual schedule, "Road map"
- Alternate seated and movement
- Alternate challenging with easy
- Organize the environment
- Scaffolded demands to shape behavior
- Redirection to minimize conflicts
- Deep pressure
- Very deep pressure to prevent aggression

Self Brushing & Buzzing P. 9

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- **Self-brushing-** Back of your hand from fingertips to shoulder. Teacher demonstrates on dominant arm then has students match on their non-dominant hand initially. Can help decrease touch defensiveness and increase body awareness

- **Self-buzzing:** Vibrating bath brush from back of fingertips to shoulder; vibration can help in forming neurological map for body awareness. Can touch and have name different body areas

(Burpee, 2019; Koester, 2016)

PRESSURE TOUCH Functional Activities

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MINDFUL CLOCK SITTING P. 10

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(Greenland, 2015)

★MINDFUL CLOCK SITTING
TIC *SWAY FORWARD* **TOC** *SWAY BACK*
LIKE A *SWAY FORWARD* ***CLOCK*** *SWAY BACK*
'TIL WE *SWAY FORWARD* ***FIND OUR*** *SWAY BACK*
CENTER *MOVE CENTER*

TIC SWAY LEFT (leader right) *do a righting reaction (head and trunk flex uphill)*
TOC SWAY RIGHT *do a righting reaction (head and trunk flex uphill)*
LIKE A (Sway Left) *do a righting reaction (head and trunk flex uphill)*
CLOCK (Sway Right) *do a righting reaction (head and trunk flex uphill*
'Till WE (Sway Left) *do a righting reaction (head and trunk flex uphill)*
FIND OUR (Sway Right) *do a righting reaction (head and trunk flex uphill)*
CENTER (Center)

MINDFUL CLOCK STANDING P. 11

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(Greenland, 2015)

MINDFUL CLOCK STANDING
TIC *SWAY FORWARD* ***TOC*** *SWAY BACK*
LIKE A *SWAY FORWARD* ***CLOCK*** *SWAY BACK*
'TIL WE *SWAY FORWARD* ***FIND OUR*** *SWAY BACK*
CENTER *MOVE CENTER*

TIC-*SQUAT DOWN*
TOC-*STAND ON TOES*
LIKE A-*SQUAT DOWN*
CLOCK-*STAND ON TOES*
'Till WE-*SQUAT DOWN*
FIND OUR-*STAND ON TOES*
CENTER-*(CENTER)*

TIC ***SWAY LEFT "Leader right" do a righting reaction (head and trunk flex right)***
TOC ***SWAY RIGHT*** *do a righting reaction (head and trunk flex left)*
LIKE A ***SWAY LEFT*** *do a righting reaction (head and trunk flex right)*
CLOCK ***SWAY RIGHT*** *do a righting reaction (head and trunk flex left)*
'Till WE ***SWAY LEFT*** *do a righting reaction (head and trunk flex right)*
FIND OUR ***SWAY RIGHT*** *do a righting reaction (head and trunk flex left)*
CENTER *(Center)*

♣ Sticker chart system rewarding specific desired behavior P. 12

Differential reinforcement can reward students for avoiding inappropriate, self-injurious, or aggressive behavior. Children who work with multiple staff can construct and use a Coping card- a laminated index card listing their behavior goal, reinforcement plan, and pictures of their preferred character and coping strategies.

Group reinforcement opportunities for the class to earn special privileges through appropriate behavior.

Additional positive behavioral support activities, mindfulness games, exercise, movement, and music breaks (e.g., Giant steps, Simon says, Mindful clock, Lean on me song & dance, Hot cross buns activity, Pushups) can be earned by the class for safe behaviors during break activities and returning to class work immediately after breaks.

Reference: Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children, 31*(3), 351-3.

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