

Using Sensory Integration to Address the Needs and Behaviors of Children with Disabilities



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Purpose of this Session

1. Understand the function of the sensory input systems in the development of coordinated movement.
2. Recognize behaviors of children with Sensory Integration delays in a physical education setting. What's it look like in the gym?
3. Understand how selecting exercises and activities which target Sensory Integration can help improve students' **Proprioceptive, vestibular, and tactile** awareness. Activity Ideas
4. Help physical educators to understand student behavior in the context of sensory processing disorders, and assist them to select activities to proactively improve behavior and engagement

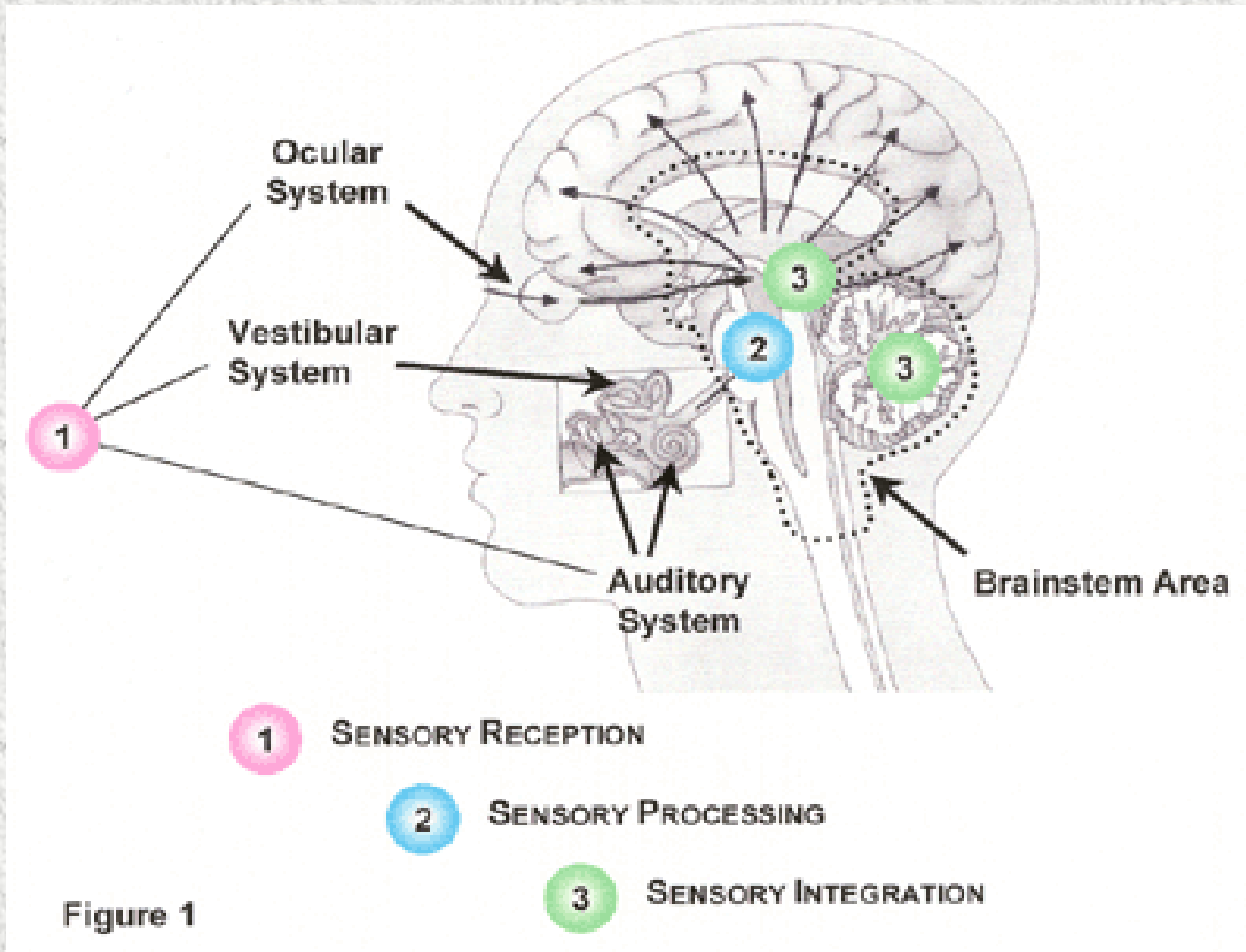
Why Sensory Integration?

- As physical educators we are seeing more and more students with Sensory Integration (SI) processing delays
- Physical Education Teacher Education programs have historically included motor development coursework however information specific to sensory integration theory is not always a part of this coursework.
- The need to understand SI and dysfunctions associated with the sensory system is essential to addressing individual needs of children with disabilities.

Purpose of this Session

1. Understand the function of the sensory input systems in the development of coordinated movement.
2. Recognize behaviors of children with Sensory Integration delays in a physical activity setting.
3. Understand how using activities which target Sensory Integration can help improve students' **kinesthetic, vestibular, and tactile** awareness.
4. Understand the role of the **gross motor assessment team (GMAT)** towards addressing the needs of children who demonstrate sensory integration delays.

Sensory Integration: Overview



Sensory Integration: Quick Review!

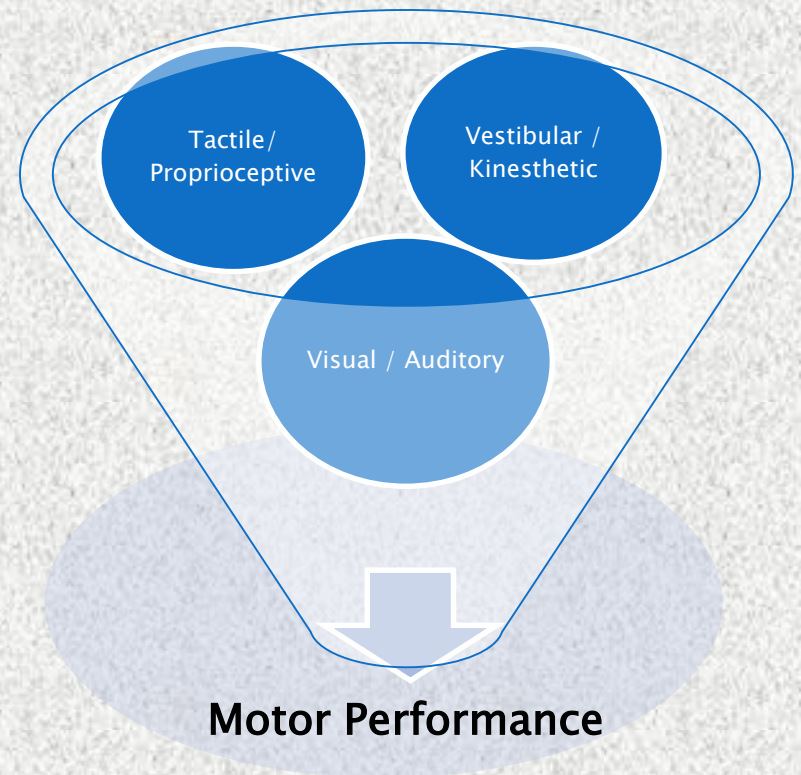
INTRA–Sensory Integration – integration within one sensory modality

INTER–Sensory Integration – simultaneous integration between two or more sensory modalities

Refinement of **BOTH** *Intra*–sensory and *Inter*–sensory integration occurs ***SIMULTANEOUSLY, SPONTANEOUSLY, and GRADUALLY*** all based on the individual learner.

Importance of SI in PE

- SI is critical to ALL movement
- Integration of all available input is channeled into a Sensory Matrix.
- This Matrix is used to:
 - Anticipate
 - Interpret
 - Adapt / Change
 - Learn



SENSORY INTEGRATION

Sometimes individuals have difficulty *processing* sensory input from sensory receptors. Results in two common conditions:

- HYPO – RESPONSIVITY
- HYPER – RESPONSIVITY

SENSORY MODULATION DISORDER

When individuals
have difficulty

Adjusting
their responses to

MATCH the needs of

a situation

What is Sensory Integration Dysfunction (DSI)?

- Dysfunction in sensory integration is the "inability to modulate, discriminate, coordinate or organize sensation appropriately" (Lane, Miller, Hanft, 2000, p. 2).



Case Study: Andrew

Andrew is in the second grade and has been diagnosed with Autism. He is challenged by sensory experiences that most of us take for granted. He still has the bitter taste of the new orange juice in his mouth that his Mom made him try for breakfast. He hates the hat and gloves he is wearing but he knows he can't go out for recess later in the day if he is not wearing them or have them with him. The tag on his new shirt feels as if it is digging into his neck and to make matters worse, his backpack weighs almost as much he does! He knows that the school bus ride is noisy, crazy with excitement, and the perfume the driver wears makes him hold his breath. Andrew gets on the bus and finds his way to an open window seat, dives in and presses his face against the cold glass! However, by the time Andrew get's to school, the noise from the radio, the noxious fumes on the bus, and the barrage of kids laughing, yelling and screaming are too much. He fights his way to the bus door kicking, shoving and dragging his back pack along the way. Needless to say, Andrew is written up yet again and finds himself in the principals office.

OK – Let's Play!



**Signs of Sensory Integration
Difficulty**

Tactile Integration Delays

Tactile System:

Used to discriminate between pressure, texture, and size. Tells us where our body ends and space begins.

Touch

- Dislikes touch of any kind/using hands in play
 - Cooperative Group games (holding hands)
 - Tag games
 - Stunts with other students
 - Tug of war
 - Somersaults, log rolls
- Sometimes self abusive (pick at skin, bite, or bang)
- Arches back if held
- Prefers to touch but not be touched (can be interpreted as being aggressive)
- Often excessively ticklish
- Difficulty in Motor Planning – planning non-habitual, purposeful movement

Tactile delays

- **Implications for Physical Education**
 - Motor skills (catching, throwing, etc)
 - Cooperative games (hand holding, team building)
 - Self help/self care skills
 - Easily over stimulated in Physical Education environment
 - Sensory overload results in outburst of (non compliant) behavior

Activity Ideas and Games – Tactile

Activities the teacher can do

- Activities that require “heavy work” pushing with hands/feet
 - Pushing a landing mat or wedge against resistance
- Substitute children holding hands with holding lengths of course rope, newspaper baton or hula hoop
- Relay races and group activities that use a variety of textures (e.g. bubble wrap, newspaper , noodles)
- Obstacle course where children must squeeze through small/tight places (tunnel) and pass through hanging textures (strips of rope, tube, string, etc)

Activity Ideas and Games – Tactile

[See Video](#)

- **Activities the child can initiate**
 - Rub/squeeze (basketball, sensory ball)
 - Lay under a “weighted blanket”
 - Walk on bubble wrap
 - Sand box play
 - Make “Pigs in a Blanket” –Roll themselves a blanket/ assorted cloths of various textures (silk, burlap, net, terry)
 - Make a mat sandwich

Vestibular Integration Delays

Vestibular System:

- Helps to maintain static and dynamic balance
- Important in maintaining muscle tone, posture, locomotion, AND contributes to graceful, coordinated movement.

Movement:

- Poor posture
- Wide gait while walking or running
- Spins and/or rocks excessively
- Overall poor balance/coordination/planning
- Body position/hands/arms in unusual positions
- Trips/falls and runs into objects or people
- General fear of “big” movement (swinging, spinning, twirling) activities
- Does not like head is lower than the center of gravity

Vestibular delays

- Implications for Physical Education
 - Motor skills (leaping, jumping, running)
 - Balance/coordination
 - Fear of “Big” movements
 - Body posture/position
 - Attention



Activity Ideas and Games – Vestibular

- **Activities the teacher can do**
 - Rolling/crawling
 - Spooner board – www.spoonerboards.com
 - Scooter activities
 - Animal walks and positions where the head is lower than the hips
 - Obstacle course involving walking on different surfaces: foam, crumpled newspaper, rope, wedge mats; stepping over objects: hula hoops, floor spots, etc

Activity Ideas and Games – Vestibular

- **Activities the child can initiate**
 - Jump on a exercise jogger
 - Spin or rock on a Spooner Board
 - Spin self while sitting or lying on a scooter
 - Sit and bounce on an exercise ball
 - Falling down practice
- See Video

Kinesthetic Delays

Kinesthetic Awareness:

Allows us to know (a) the position of the body and its parts in space, (b) whether or not we are moving, and (c) qualities of the movements (time, space, force, flow)

Critical in developing body and spatial awareness

Movement:

- Difficulty moving/touching body parts on command
- Inability/difficulty imitating body positions
- Inaccurate response to spatial directions
- General motor awkwardness

Kinesthetic delays

- **Implications for Physical Education**
 - Motor planning (moving in space)
 - Coordination/modeling skills
 - Behavioral concerns
 - Difficulty with cooperative activities



Activity Ideas and Games – Kinesthetic

- **Activities the teacher can do**

- Scooter activities where child propels themselves
- Activities that require crossing the midline
- Activities that require “heavy work” pushing with hands/feet
- Simon Says” using with verbal cues only
- “It Rocks” activities
- Dancing/Marching
- Obstacle course involving crawling through tunnels, hoops, etc.
- Balance bean bags on and hiding under different body parts
- Animal walks moving forwards, backwards, sideways.
- Locomotor skills reinforcing spatial concepts: moving **between** objects, **over/under** ropes, **in/out** of hoops and **around** bolsters, etc.

Activity Ideas and Games – Kinesthetic

Activities the child can initiate

- Jump rope with a hula hoop
- Climb on playground equipment
- Pull self along an anchored rope while lying on a scooter
- Step through ladder on the floor

Intervention

Gross Motor Assessment Team

- Involves the OT, PT, and the Adapted Physical Educator.
- Purpose is to align interventions so that SI therapy can be conducted
- The OT, PT, and APE teacher will often use similar activities to promote integration of senses.
- Reactions to various stimuli are tracked and a “sensory diet” is designed around the child’s perceptions to different sensations.

GMAT Evaluation:

Includes several areas:

- **Sensory** – the responses in each sensory system (e.g., movement, touch, taste, etc.)
- **Task** – the need for more or less complexity and structure in completing activities
- **Environment** – the responses to "enriched" and "simple" surroundings
- **Predictability** – the preference for "old" or new experiences
- **Self-Monitoring** – the ability to preview and adjust responses before acting
- **Interactions** – the need for less or more intense interactions with others

Some final points

- Incorporating Sensory Integration activities into the physical education curriculum benefits ***all* children!**
- **More is not always better....** It is important to be aware of what and how much the child can tolerate.
- **Understanding behaviors** of children with Sensory Integration delays and how to use Sensory Integration activities is important for today's physical educator.

To Read More ...

Physical Activities for Improving Children's Learning and Behavior

A Guide to Sensory Motor Development



**Billye Ann Cheatum
Allison A. Hammond**

Cheatum, B. & Hammond, A.
(2000). Human Kinetics

Thank you!

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