Sensory Strategies for Classroom Success - Secondary Students

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Sensory Strategies For All Students

- Neurotypical
- Sensory Processing Disorder
- LD
- ADD
- Autism
- ED
- DD

All Students Benefit

Consider: self regulation “I know what I need”
- Seating options
- Lighting/visual stimuli
- Noises
- Movement (wake up vs calm down)
- Calming Strategies
- Writing Tools

Classroom Sensory Strategies

Universal Design
- Aerobic
- Big Muscle
- Calming
- Alerting
- Organizing

Consider How You Are Feeling When….

- You are having difficulty paying attention or staying awake during a meeting or workshop
- You need to calm down or need to reduce your stress

What Do You Do?

- Find a quiet safe spot
- Exercise/Take a walk
- Deep breathe
- Get away from the stress
- Aromatherapy
- Massage
- Need a hug
- Talk to a friend
- Go outside/Fresh air
- Snack/Drink
Sensory Life Style

Specific activities that provide sensory input to meet the needs of the individual’s sensory system
A sensory lifestyle (diet) assists with emotional/behavioral problems
Assists with focus/adaptive behaviors/organizing

Sensory Regulation

- Each of us need a certain amount of sensation to be at our optimal level for a calm, alert, and focused state
- A normal state of arousal is necessary to support impulse control, frustration tolerance, attention to task and to assist with the balance of emotional reactions

Self Regulation

- Difficulty with self regulation may contribute to many behaviors- inability to attend, focus, poor impulse control, emotional reactions/ups and down
- We routinely provide ourselves throughout the day with sensory motor activities to assist us with self regulation
- Self Control

Interpretation of Sensory Information

Language, memory and emotional centers are involved with the interpretation process - bread baking-smells good, good memory, safe to explore
Fright/flight/fight response - Home alone
Atypical language, memory and emotional development may interfere with the interpretation of sensory information.
Sensory experiences may not be remembered or retrieved appropriately

Sensory Processing Lays The Foundation for How We Respond To The Environment

- Touch
- Vestibular
- Proprioception
- Visual
- Auditory
- Olfactory/Gustatory
- Interoreceptors

Sensory Processing

Academic Learning
Soft Dancing Behavior
Language
Visual Spatial Awareness
Impairment
Eye Hand Coordination
Precise control of eye movements
Postural Adjustment
Body Scheme
Balance
Reflex Movements
Awareness of own body
Motor Planning
Short Term Memory
Movement (baseline)
Body Awareness (pragmatic)
Central Nervous System
Sensory Processing Disorder

- Difficulty organizing sensory information
  - The senses are not delivering accurate information or once the info gets into the system the interconnections within the brain are not efficient and the info is not accurately processed
  - Inconsistencies in performance

- Difficulty with attention, arousal, motor planning, fluctuations in behavior and emotions.

Dr. Jean Ayres (1979) "When the flow of sensation is disorganized, life can be a rush hour traffic jam."

*Coordination and movement are impacted
*Self help skills are difficult
*Learning to “be a student”
*Influences behavior
*Impedes learning
*Social skills/friendships
*Impacts the child’s daily life across settings
*Estimated: 5-15% of general population
*Approx. 8 in 10 with autism have sensory processing challenges

Sensory Modulation Disorder

- Difficulty with sensory regulation and maintaining a balance
  * over-responsive
  * under-responsive
  * seeking

Sensory Motor Disorder

- Motor challenges: sensory based

- Postural Disorder: poor postural control

- Dyspraxia: motor planning problems
Sensory Discrimination Disorder

- Difficulty filtering and interpreting sensory information
- Difficulty determining the source, frequency or pitch of a sensation.
  - Examples:
    - Difficulty seeing the big picture
    - Identifying a sound
    - Difficulty identifying a color or shape
    - Taste/smells
    - Interoceptors

Touch

Our first sensory system to function
We are first nourished, calmed and become attached to others through our sense of touch

Touch Sensitivity changes as kids approach adolescence

‘Adolescents show exaggerated neural response to pleasant stimulation’

Profound effect on how they approach certain situations.

May, Stewart, Tapert, Paulus; The effect of age on neural processing of pleasant soft touch stimuli; Frontiers in Behavioral Neuroscience, Feb 21, 2014

Touch Sensitivity

People with touch sensitivity may be either hyposensitive or hypersensitive to touch. Their brains don’t have the same ‘filtering system’ that the rest of us have.

Touch Sensitivity – why is that important?

Touch sensitivity has been linked to many of the behavior challenges we see in the classroom, including:
1. Irritation when entering classroom
2. Poor attention to task when entering classroom
3. Difficulty focusing on work
Touch Sensitivity also plays a role in academic challenges:

- Learning difficulties - a 'hovering' teacher can shut down learning
- Social challenges - group projects may be difficult due to fear of being touched
- Imagination challenges - may be limited due to less tactile exploratory experiences
- Difficulty trying new things - fear of being touched often results in inflexible behavior
- Difficulty getting started - poor self help skills

What does touch sensitivity look like in the classroom?

1. Sensitive to human touch - student may complain loudly when lightly ‘bumped’ by another student
2. Sensitive skin - Student may show increased levels of irritation at season change, when clothing changes

3. Sensitive body - Student may have trouble sitting in one place for long periods of time.
4. Sensitivity to temperature changes - Student may frequently complain that the room is too hot or too cold. (May actually shut down learning)
5. Touch sensitivity can be sensory seeking OR sensory avoiding!

And, if your student stops writing after a sentence or two….

6. Sensitive fingertips - Student may feel uncomfortable holding a pencil!

Touch Sensitivity – What Do I Do About It?

1. Consider assigned seats, with ‘touch sensitive’ student in a location where he is less likely to be touched.
2. Don’t hover over students. Lean in, but give them space.
3. Explore standing options for students

4. Allow student to choose how he completes his written work - pencil / paper, computer, or other technology
5. Include movement breaks during your class. (More about this later)
6. Be creative with first 5 minutes of class - may need quiet ‘decompressing’ time, or may need 5 minutes of activity.
Vestibular Processing
- Receptors within the inner ear
- Affects our gravitational security
- Coordinates the movement of eyes/visual, spatial, head and body position
- Maintains muscle tone

Vestibular
- Enables a student to hold his head up against gravity
- Has an effect on being able to print and write
- Strong relationship with auditory system and language

Vestibular Processing difficulties can cause:
- Excessive movement
- Restlessness and distractibility
- Risk taking activities
- Speech/ language problems
- Poor posture or muscle tone
- Excessive swinging and jumping
- Or: Fearful of physical activity
- Appear tired unmotivated/prop head
- Impact reading/writing

Tactile Strategies
* Respect the need for personal space
* Loose fitting /soft clothing/Hoodies
* Do not touch from behind (Nancy’s student)
* Fidget object
  * Gym clothes
  * Beanbag chair
  ** Weighted backpacks

Sensory Supports
* Deep pressure touch
* Weighted blanket
* Weighted lap pad
* Weighted Vest/Pressure Vest
* Spandex clothing (deep pressure)

* Universal design: offer a variety of seating options in the classroom: beanbag, rocking chair, ball seat, yoga mat, pillow, standing, floor

Vestibular
* Calming: Slow rocking, swinging, linear movement is calming
* Structured Movement
* Alerting: Fast swinging, spinning, rocking is alerting
**Vestibular Activities**

Structured movement
- Walking
- Running
- Swinging
- Rocking
- Jumping/Bouncing/
- Spinning/ Dancing/ Vestibular Wake Up

**Vestibular Activities**

- Scooter board
- Bouncing on a ball / Rolling on ball
- Jumping on a mini tramp or jumping rope
- Jumping Jacks
- Obstacle course
- Bike riding
- Skating
- Universal design: Exercise/movement
  Breaks for all students/movement seat options

**Vestibular/Movement**

- Pacing area in the back of the classroom
- Track: run/walk
- Free gym time basketball
- Student jobs: message runner
- Library jobs

**Positioning**

- Allow flexible seating options for students
- Standing desk
- Beanbag chair
- Rocking chair

**Evidenced Based Practice: Exercise**

Currently six studies have found that students who participated regularly in a structured exercise routine with a warmup and cool-down, demonstrated reduced (challenging) behaviors, increased positive behaviors, improved motor skills, and improved physical fitness.

**EBP Exercise**

- A daily program of aerobic exercise in combination with strength training and stretching was completed.
- They included a variety of exercises, including riding scooter boards, jumping on a trampoline, jogging, stretching, and arm curls with weights twice a day. [Coach Dave](https://example.com)
Move To Learn: Exercise to Support Attention, Memory, Learning, Mood and More

Aerobic Exercise
- Improves self control
- Improves behavior
- Improves attention
- Improves arousal
- Helps anxiety and mood regulation
- Reverses learned helplessness
- Combats depression
- Increases self esteem

Dr. Ratey:
"Mood, anxiety, attention, stress, aging and hormonal changes in women can all be positively affected. A staggering network of 100 billion neurons, each of which might have up to 100,000 inputs, all are stimulated to spur new growth."

“Miracle Grow For The Brain”
- Exercise increases neurotransmitter activity, improving blood flow and producing more Brain Growth Factors (“Miracle Grow for the Brain”)
- Exercise does all of this better than any other factor at the present time
- Exercise readies our nerve cells to bind more easily and stronger
Neurochemistry

Movement Based Learning
Walking 20 minutes scored 15% better

ADD- When Students began vigorous exercise every day – reduced meds and some came off completely

Attention all increased, aggression decreased

Behavior-in first four months—all kids are moving 45 min a day—discipline problems plunged by 85% in one district and 63% dropped in another district

Science/math tests-99% took test—scored number one in science and six in math

We Need to Move
The areas of the brain that are responsible for human movement are the same areas that are responsible for cognitive thought and attention span.
Humans need to move in order to learn.

Walking for Learning
- Brain before a 20 minute walk
- Brain after a 20 minute walk

Research/scan compliments of Dr. Hillman, University of Illinois

Exercise Greatly Impacts Learning

The Research is Impressive: British Journal of Sports Med

19 studies, 586 kids, teens young adults found short 10 to 40 minute bursts of exercise led to an immediate boost in concentration and mental focus, improving blood flow to the brain.

Further evidence 20 min
Before taking a test:
est scores went up
Texas Cooper Study 2,600,000

High levels of physical fitness are associated with better academic performance regardless of demographics: race, ethnicity, income or school

- Higher level of attendance
- Higher level of fitness was associated with fewer disciplinary incidents. The research looked at the number of incidences associated with drugs, violence and truancy

Research Copenhagen Denmark
Johannes Skolens

- Increased PE to 5 times per week
- 250 students
- Prior physical activity ball play
- Increased to include military boot camp training, dance, indoor rowing, spinning, aerobics
- Only healthy super foods served
- Increase of 1.5 grade improvement
- Concentration increase by 33%
- Absenteeism decreased by 38%
- Three month span

Charleston Progressive Academy
Exercise Impacts Self Control

- Public Magnet School Grades 4-8
- Program added 40 minutes of exercise in the morning-stations – gym
- Stations: basketball, dance, dance revolution, double dutch jump rope and pogo stick jumping
- Attention, behavior improved
- Test taking right after morning exercises scores increased

Exercise Boosts Reading Skills

Casper Alternative High School
March 16, 2010

- Every morning reading class goes to the gym, run, jog, move on step benches, activity to keep heart rate between 135 and 180 beats per minute for 5-20 minutes
- Short cool down return to computers for reading comprehension
- Lowest performing readers have made big gains, or some four grade levels. Students regularly made gains but exercise caused double the gains.
Naperville, Illinois

- Primary focus in P.E. class involves high-intensity interval training two days per week, and motor development and recreation/play the other three days

Use of heart rate monitors by every student to enable and ensure participation at each individual's personal optimum peak activity level

To raise heart rate to a zone between 145–185 bpm for twenty minutes to receive an A grade for that day – based on individual student heart rate target levels


Purdue University

More than 1,820 students who visit Purdue's France A. Córdova Recreational Sports Center at least 16 times a month earned a GPA of 3.10 or higher. The correlation between grades and gym use also is shown with moderate users. Students who used the gym at least seven times a month had an average GPA of 3.06.

Sensory Overload

Sensory Overload

“It’s like when your computer freezes because there are too many tasks open or a task is stuck. And your brain hits ‘Ctrl-Alt-Del’ automatically. In my case, this means sudden fatigue, balance problems, speaking problems, disorientation.” — Zahra Khan

Proprioception

*Housed along muscle fibers and tendons that connect muscle to bone

*Gives us our awareness of body position

*Automatic adjustments of body position

*Postural stability

*Motor Planning—allows us to move without thinking about what our body is doing

Proprioception Overresponsivity

*May not like firm touch and may not like activities that provide input to joints

*Does not feel good to run, jump, climb or hop

*Fight/flight for non preferred activities

*Therefore may not seek out movement based activities

*PE/physical sports may be more challenging

Proprioceptive Underresponsivity

*Feels like a shot of Novocain: may have difficulty sensing or feeling their muscle or joints

*Poor motor planning and recall of motor sequence, lack automatic movement


Clumsy

*Accident Prone

* Memories of familiar acts may not develop
**Proprioception/ Big Muscle Activity**

- Activities to support all sensory needs are most effective when they include structured movement with heavy work activity.
- Heavy work /Big muscle activity is extremely important because of the effect it has on giving the student feedback of where his body is in space as well as calming and internal organization to his nervous system.
- Big muscle activity stays in the nervous system 1 1/2-2 hours.

**Big Muscle Activities**
**Push Pull Lift Carry**
- Return a stack of books to the library
- Wipe off tables in the cafeteria/chairs in library
- Push the trash containers/move boxes
- Work at the blackboard/wipe off blackboard
- Universal Design: Class wall push ups in the hall, jumping jacks, school jobs for all, boot camp

**Visual Processing**

- *How we process visual information in relationship to light/dark*
- *Detail*
- *Visual Perception: figure ground, memory, spatial, discrimination*
- *Ocular Motor*
- *Visual Motor*

**Visual Processing Over Responsive**

- See very fine details that others don't notice
- Sensitivity to bright colors and lights
- Attention to detail (Needle in a haystack)
- Difficulty reading non-verbal cues
- Difficulty visually viewing the big picture

**Visual Underresponsivity**

- Frequently the student may not be able to find what he is searching for though it may be right in front of him
- May not notice or respond to visual cues
- May have difficulty recognizing sights that should be familiar

**Visual Craving**

- Appears to enjoy intense visual input
- Drawn to bright light and visual movement
- Cannot always tell the difference in detail when they are looking at different items.
- May have challenges with the alphabet, reading and writing.
Visual Processing Difficulties can cause:

- Trouble with visual tracking
- Sensitivity to bright colors and lights
- Difficulty with depth perception
- Learning disabilities
- Difficulty reading non-verbal cues
- Seeing the big picture

Sensory Overload

“It feels like being trapped on a merry-go-round. All the lights and sounds come and go so quickly you can’t make sense of any of it. You’re up and then you’re down. No matter what you can’t get off. You have to wait for the ride to be over.” — Hailey Remigio

What do Visual Processing Challenges look like in middle or high school?

1. Student may skip lines and leave empty spaces on worksheets.
2. Student may do poorly on ‘crowded’ worksheets
3. Student may skip lines when he reads
4. Student may have trouble remembering what he just read.
5. Student may be inattentive during videos
6. Student may write over his own writing.
7. Student may have trouble writing within the lines or margins
8. Student may have trouble copying things from the board
9. Student may leave words out of sentences when he writes.

Visual Sensitivity - What can I do about it in the classroom?

Reduce amount of fluorescent lighting - try table lamps or natural lighting

Try less words and bigger print on worksheets

Allow student to write his answers on same paper as questions

Watch for ‘bleed through’ on books.

More classroom strategies for Visual Processing challenges

**Provide copy of class notes from peer or teacher
**Write directions in different color
*Highlight important text / keywords
*Allow student to record lectures
Auditory

Touch may have the biggest impact on social development, but hearing is the most difficult sense to deal with.

Auditory problems, not only limit communication, but are almost impossible to avoid. A person can avoid looking, touching and feeling, but sounds are everywhere.

Why do you think I had so much trouble paying attention in class. I hear everything that goes on in the building. The phone ringing in the principal’s office. The principal talking on the phone. An 18 wheeler down shifting on the highway 3 blocks away. I HEAR EVERYTHING. I can hear people talking outside the building and I can understand their conversations. There are so many noises in my head. I can’t focus, I can’t pay attention. I try so hard. I JUST CAN’T DO IT!

What do Auditory Processing challenges look like in the classroom?
1. Student may have poor memory and sequencing skills
2. Student may have trouble following directions
3. Student may have trouble paying attention

What does Auditory Over-Responsivity look like in the classroom?
1. Student may actually hold their ears!
2. Behavior issues in rooms with an echo – like the gym, cafeteria, or the school atrium.
3. Agitation or withdrawal from people who talk loud, fast, or talk constantly.
4. Unusual responses or actions, responding to noises you can’t hear. Watching the fluorescent lights!

What about Auditory Underresponsivity?
*Student may always be the last one to hear his name called
*Student may always appear to be bored or tuned out
*Student may appear oblivious to what is happening around him
* Student may OFTEN misunderstand the directions
And what about the students who crave Auditory stimuli?

* Loud talker
* Loud noise maker
* Enjoys loud, constant noise
* Needs TV or music on when doing homework

**Auditory Sensitivity in the Classroom – What do I do?**

1. Use visual supports. Talk less. Use more pictures. Use printed lists of instructions.
2. Use a quiet voice. Don’t yell. Find other ways to get students’ attention.
3. Use short, direct sentences. Just tell the student what to do. Don’t explain the reasons.
4. Do not immediately repeat – allow processing time.

Auditory sensitivity – What do I do, continued…

4. Limit background noise as much as possible. Close doors and windows if there is noise outside.
5. Provide a quiet place where student can work when the room is too noisy
6. Keep a close watch on the big three: the cafeteria, the gym, and the playground. These are high noise areas. Sensitivity to noise may be the trigger for some major behavior issues. Consider headphones in these areas.

**More Auditory Strategies**

- Tennis balls on bottom of chair legs
- Calming music/Alerting music
- Ear buds/headphones
- Microphone
- Join convocations last
- Prepare for field trips
- Check for understanding

**Interoception**

- *Heart Beat
- *Breathing
- *Hunger
- *Thirst
- *Bladder/bowel
- *Sexual Arousal
- *Emotions

**Interoception Overresponsivness**

- *May over feel their internal states
- *Causing stress anxiety, decreased attention
- *Frequent trips to the nurse’s office at school
- *Little aches and pains may feel monumental
- *Needing frequent trips to the bathroom
Sleep Supports for All

*Deep pressure touch
*Warm bath or shower
*Massage
*Sleeping bag
*Calming music

-Body Pillow
*Water/Snack at bedside table
*Remove all electronics at least at least 2 hours before sleep- Melatonin depleted

Interoception Discrimination Difficulty

*Has difficulty identifying the exact feeling they are having in an area.
*Sensation in stomach may be perceived as hunger but may be a need to use the bathroom

Under Responsive to Taste

*Very picky eaters
*Food may taste bland/uninteresting
*Many tend to prefer very spicy and strong sour if they are under responsive
*70-90% of children with autism have feeding challenges

Olfactory/Gustatory

• Our sense of smell and taste
• Sense of smell and the limbic system/memories
• Under responsive/over responsive
• Sense of taste
• Under responsive/over responsive

Gustatory Craving

*Seeks out very strong flavors
*Eating frequently and tends to over eat

Over Responsive

*Many foods do not taste good, unpleasant
*Very picky eaters
*Taste: sweet, sour, salty, spicy
*Texture: soft, chewy, crunchy, hard
*Visual appearance of food
Oral Sensory Craving
*Seeks Chewing on non food items
*Mouths or Licks on non food items

Feeding Strategies
* OT or SLP
* Respect differences
* Feeding is a positive experience
* Introduce and be exposed to a food at least 20 opportunities
* Consider similar foods to branch out from
* Opportunities to be part of the food prep

Taste sensitivity – why is this important?
Chewing can be calming - both deep pressure effect AND amygdala stimulation for pleasure
Consider occasional pretzel treats for whole class

Oral Sensory Strategies for Self Regulation for All
* Water bottles
* Sugarless gum
* Chewy snacks: carrot sticks, raisins, dried fruit, pretzels, apples, fruit roll up, beef jerky
* Chew on a straw
* Ice chips
* Pencil toppers
* Chewys/Electric toothbrush

Olfactory Over Responsivity
* May not tolerate smells that most people enjoy
* They are overwhelmed as well as distracted by these odors.
* May change mood and motivation
* Block learning
Smell Sensitivity (how can that possibly affect a student’s learning????)

Smell is the sense most likely to be overlooked by people working with individuals with autism. A little brain research: When we smell, the molecules of odor are absorbed directly through the nasal cavity to the receptor cells of the olfactory nerves. These contain the body’s most exposed neurons. Messages from these neurons are sent straight to the limbic system of the brain.

Why is this important?
The limbic system controls many things, but especially:
• Memory
• Emotions
• The regulation of aggressive behavior!!!!!

Smell sensitivity can affect behavior!

Smells which are undetectable to most of us can overwhelm the limbic system of a person with ASD:

Some triggers in the school environment:
Foods, perfumes, soaps, toothpaste, hand lotion, leather, deodorant, shampoo, mouthwash, paint, room deodorizers, body gas, cleaning supplies, bubble gum, animals, after-shave lotion, firewood, cut grass, flowers..

Indications of Smell Sensitivity

* fingers in nostrils, covering nose and mouth with hand, constantly waving their hand in front of their nose
* Agitation in any environment that has a noticeable odor.
* Refusal to work with certain people. (Check for odor…..or perfume)

Olfactory/Smell

- Smells can be positive or negative
- Remember our sense of smell goes directly to our emotional center
- Calming and organizing: lavender, basil, chamomile, marjoram
- Concentration: rosemary, lemon, orange eucalyptus

Smell Sensitivity: What can I do about it?

1. Before you concentrate on the behavior, concentrate on the environment. Sniff! What can you smell?
2. Wear less perfume. Remember, many lotions smell stronger than perfume. Don’t use scented air fresheners in your classroom.
3. Use scent free products when cleaning desks, etc.
4. Keep your radar on high alert. If your student is avoiding certain people, check for odor issues.
Calming/Tactile Strategies for All

- Take a walk
- Exercise prior to testing
- Deep pressure touch/hands
- Reduce light
- Use of a bean bag chair
- Slow rocking
- Quiet music/Soft voice
- Increase visuals/decrease talk
- Yoga- www.yogayears.com
- Rolling over a large ball
- Deep breathing/Relaxation Techniques

Mindfulness/Yoga

Tools to help calm, sustain attention and focus, learning, decrease stress and anxiety, depression

Belly Breathing For All

- One hand on belly
- One hand on chest
- Take a deep breath in, belly gets big 1-2-3-4
- Chest little movement
- Blow out, slowly 1-2-3-4 belly gets small
- “Breathe in blue skies blow out gray skies”

Stress/Fidget Objects

- Basket of fidgets
- Koosh balls
- Squeeze ball
- Piece of Velcro under desk
- Soft piece of material
- Therapy putty
- Keychain fidget
- Stretchy band on leg of desk
- Universal offer a class basket

Brain Gym

- Designed to help the brain function better during the learning process
- Helps blood flow to the brain to help the brain stay alert during the learning process and to keep energy high
- Brain buttons
- Cross crawl
- Hook Ups

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