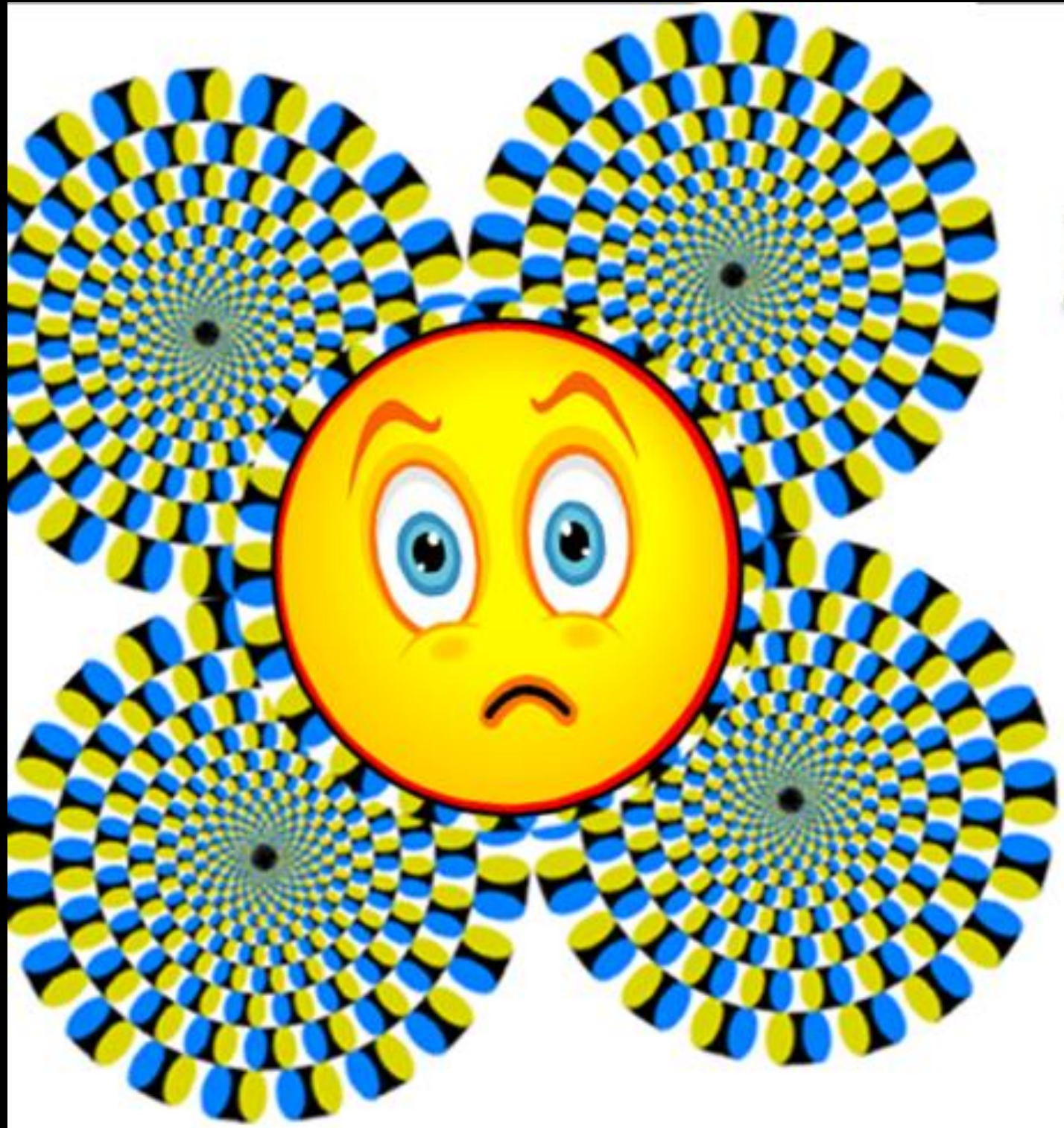


Sensory Integration Disorders:

When the World Won't Stay Still

By Maria Sargent

Content of This Unit

General Concepts

Specific Conditions (Symptoms and Solutions)

Advanced Programs and Extreme Situations

Informal Assessment

PLEASE NOTE: *The intention of this unit is to give you enough information to note possible problems and assist families in obtaining the proper medical diagnosis through a qualified professional. It is not meant to be used by educators to diagnose the student within the classroom. I KNOW you know this, but it is best to mention it directly...*

What are Sensory Integration Disorders?

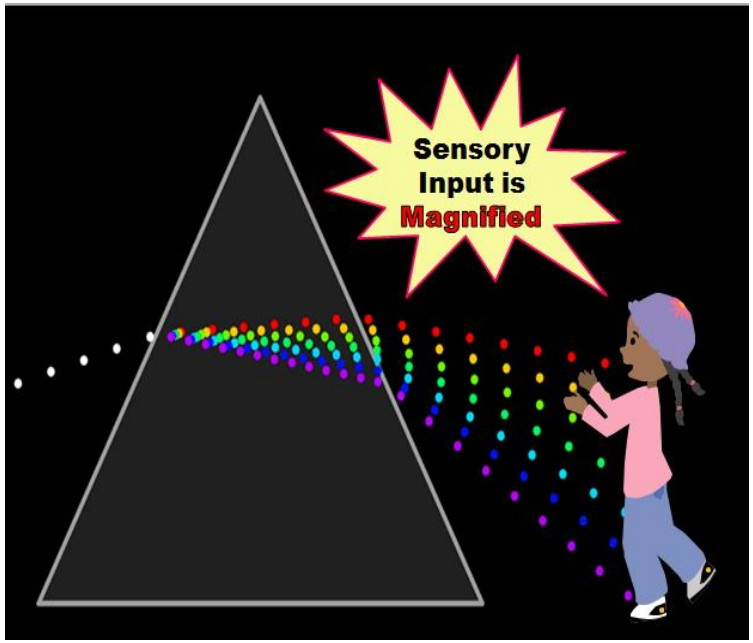
Information comes into our system constantly, and the sights, sounds, smells, and textures could easily become overwhelming if our bodies did not have a way to filter out the information we do not need.

It is very easy to underestimate how much stimuli is actually coming into our system because we have become so good at managing it all. To get a basic idea, close your eyes for three minutes and allow yourself to feel every sensation impacting your body. Take special notice of things you tend to filter out….items like the chair under your bottom, the hair against your neck, the seams of your socks, clothing on your back, etc.

As you can see, there is quite a bit of information that our brain "kicks out" so it doesn't hinder more important information. The Reticular Activating System (RAS) is so good at this process, it can even judge when a small stimulus should gain greater attention. For example, the rustling of leaves during the afternoon will barely penetrate our consciousness, but let that happen at two in the morning when we are outside and alone and see how much attention we give to it then ☺

Unfortunately, some children do not have the ability to filter all of these stimuli properly. This problem is known as Sensory Processing Disorder (also called Sensory Integration Disorder/Dysfunction--SID) and can be so severe that everyday life may be greatly affected. Sensory disorders can be global (affecting many sensory systems---vision, hearing, touch, etc.) or can be isolated to one sense only. In addition, the filtering problems can vary as well. Some children do not receive the information they should (too much is blocked) and others have too much information coming through or the stimulation is strangely amplified. Let's take a look at these variations more closely.

Hypersensitivity versus Hyposensitivity



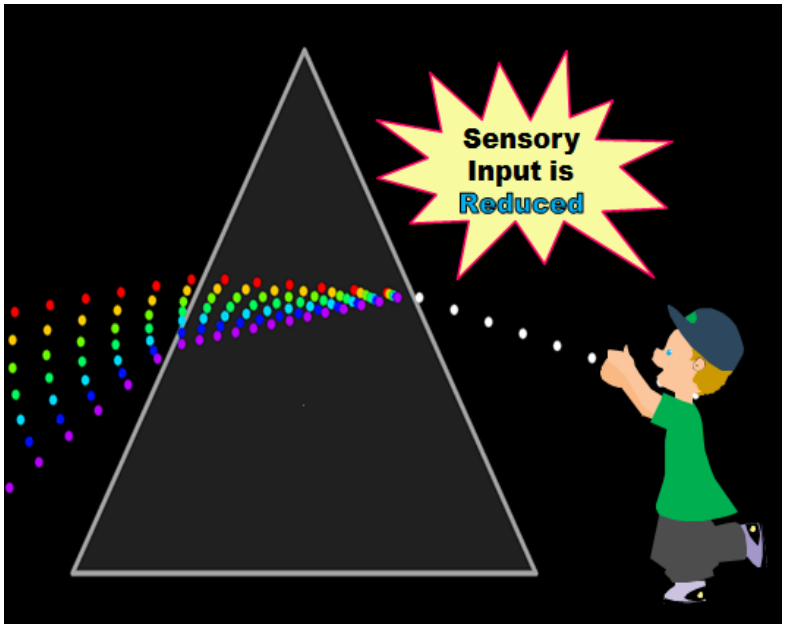
There are two general forms of sensory processing disorders.

The first category is known as **Hypersensitivity**. When children are hypersensitive, they over-respond to stimulation. This heightened response can be extreme and result in fear and even a pain-like response. It is difficult to fully understand how this can be possible, but just think about a time when you were burned or sunburned. Normally air blowing over our skin or the touch of our clothing would barely be noticeable, but let that happen when a burn has caused the nerves in your skin to become ultra-sensitive, and you WILL notice the sensation!

That is the situation most of the time for children who are hypersensitive. The sensations you and I do not notice are heightened so much that they overwhelm the child's system.

If you would like to get a sense of how much you are missing, find a friend and go take a walk outside with your eyes closed (do not open them even once---it will reset your system) for about ten minutes. Have your friend guide you to places that are shady versus sunny, pavement versus grass, close to objects versus far away, known areas versus unknown, closed in area versus open, etc. You will be shocked at how super-sensitive your other senses will become. All of a sudden, you will feel the unevenness of the grass and discern the change of temperature when you move into the shade. You have become (to a degree) hypersensitive…

So, the first category, hypersensitivity, causes too much of a response. It then makes sense that the second category results in *too little of a response*. This condition is known as **Hyposensitivity**.



Hyposensitivity is a bit more subtle that hypersensitivity. These children do not receive enough stimulation because it is either blocked or reduced in intensity. This causes the child to seek out that missing sensory information in some manner. If enough information is not obtained, it can cause unusual sensations or problems with function.

For example, a child who is lacking sufficient stimulation of their vestibular system (balance) may feel the need to move. If they are made to sit still, their skin often will begin to tingle or have a crawling sensation. The child, even when quite young, realizes that staying still does not feel good, so they move constantly. In light of this response, it is easy to see how a child who has a problem with hyposensitivity to vestibular stimuli could easily be misdiagnosed as hyperactive or ADHD.

Because most of us receive so much of our vestibular system information through our eyes, we can get a small idea of hyposensitivity by removing that sense. Set a timer for two or three minutes, and then stand away from all objects. Stretch your hands straight in front of you, and straighten your fingers. Concentrate on where the air meets your fingertips and then close your eyes. Stay that way **without moving for the full time**. Most people will begin to have a slight hyposensitive sensation after a minute and a half. They will begin to feel themselves rocking and often will feel a strong urge to move *something*…their fingers, arms, etc. Your brain is desperately trying to get some additional input to maintain your vestibular system---you have become hyposensitive!

General Signs of Possible Problems

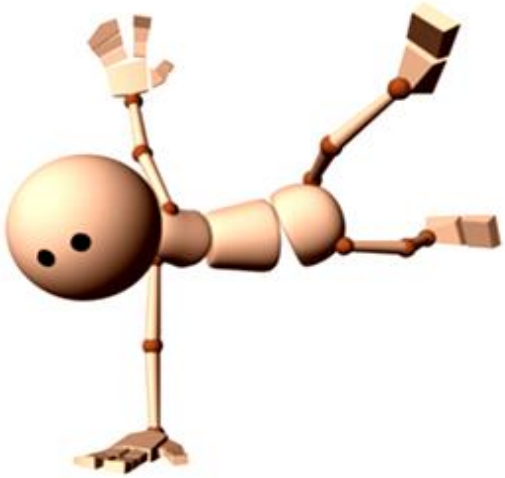
We will examine the symptoms of each type of sensory disorder later in the unit, but here are some general signs that a student may be experiencing some level of general sensory processing difficulty.

Overall, students who are hypersensitive to sensory information will show some or all of the following signs:

- unusual fears
- attention to stimuli others ignore (i.e. sniffing)
- avoiding open/hard spaces (i.e. bathrooms or gyms)
- unable to tolerate vacuums, toilets flushing, etc.
- throwing extreme tantrums
- easily distracted
- unable to enjoy typical activities
- avoidance of public places and people

Children who are hyposensitive may show some or all of the following:

- uncontrollable need to handle objects or touch people
- rough or aggressive movement
- need to move constantly
- taking chances and/or showing no fear
- inability to control actions even when inappropriate or dangerous
- reduced response to discomfort and/or pain
- difficulty resting and/or sleeping
- self-abusive behavior (e.g., cutting self with scissors)



Diagnosis

Assessment for a possible sensory disorder takes some time and usually involves several professionals. Often, there will be a screening instrument (typically a checklist) used to determine if there are enough red-flags to warrant a more formal assessment.

After this initial screening, formal assessment can involve many different tests and typically includes screen of motor skills (fine and gross), a developmental profile, parent interview, and various tests to directly assess sensory integration and function. Many initial assessments will look at how the child typically responds to stimuli and may seem to over-focus on what causes a child to tantrum or become difficult to manage. These behaviors, however, are signs and symptoms of stimuli the child cannot tolerate and are very important to the assessment process.

There are several standardized instruments that are used to assess sensory disorders. Some assessments are designed to test characteristics that do not change (discriminant tests) and others are designed to show progress over time (performance tests). Each assessment is also designed for a particular age group, population (e.g., autism versus non-autism), skill sets (e.g., can draw or follow directional commands---left, right, etc.). The professional working with you will know the appropriate test to use. Here are some of the more common tests used:

- *Sensory Integration & Praxis Tests (SIPT)*
- *Sensory Profile*
- *School Companion*
- *Sensory Processing Measure*

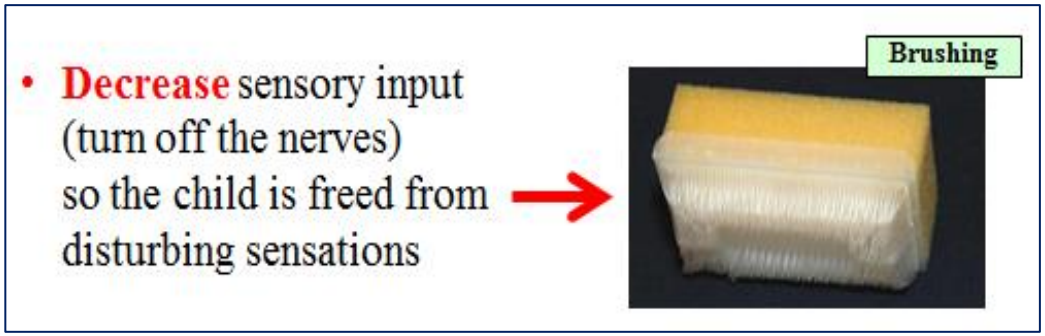
Sensory Integration and Praxis Tests

Overview of Treatment Options

The general treatment for these conditions includes systematic therapy, sensory diets, behavioral plans designed to reduce tantrums (typically used in conjunction with therapy), medications, and/or other treatments for secondary problems (e.g.,. hyperactivity, allergic reactions, etc.). The specific treatments for each condition will be covered later in this unit, but here are some general guidelines typically used to assist these students:

Treatment for children who are Hypersensitive

Children who are hypersensitive need to dampen down or reduce the information coming through their nervous system. Luckily, our nervous system does this automatically to a degree. Think about wearing a pair of sunglasses. When you first put them on, you can feel the pressure at your temples and on your nose. After a while, though, the brain realizes the constant sensory information is not important (does not signal pain or some form a trauma), so it "turns off" those nerves, and you no longer notice the glasses are even on. This is why you can forget you have glasses on your face, a watch on your arm, etc.



We can use this approach, then, to help children who have too sensitive of a nervous system. By providing more intense stimulation for a period of time, we can, in essence, turn off the nerves and obtain some relief for the child. There is a fine line, though, between providing just enough stimulation to turn off the nerves and too much, resulting in increased irritation. This is why professionals who provide this type of therapy using brushes, compression garments, etc. must be specially trained in sensory therapies.

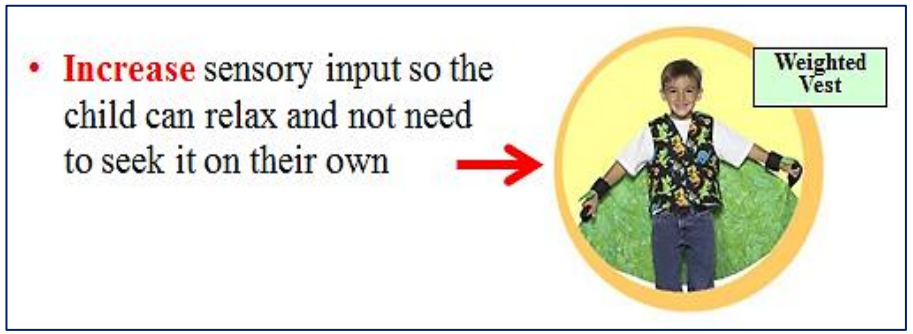
In summary, some important items to consider for this group include:

- Developing empathy and understanding of sensory issues and responses
- Creating programs to reduce fear and anxiety
- Providing gradual exposure to stimuli to increase tolerance
- Showing respect for fear responses
- Working with qualified professionals to create programs to *decrease sensory input* using brushing, compression, etc.

Treatment for Children who are Hyposensitive

Children who are hyposensitive do not respond to sensory stimulation in a typical manner. They either do not "feel" the stimulation and/or tend to seek it, sometimes in strange or injuries ways. Professionals will provide stimulation to off-set the deficit and *often will use the exact same materials seen for students who are hypersensitive* (brushing, compression, etc.), but with a different goal in mind.

Finding the right level of stimulation is complicated because it is individual and may change over time, even over the course of a day. It is easy to see why sensory integration therapists must be highly trained and very observant.

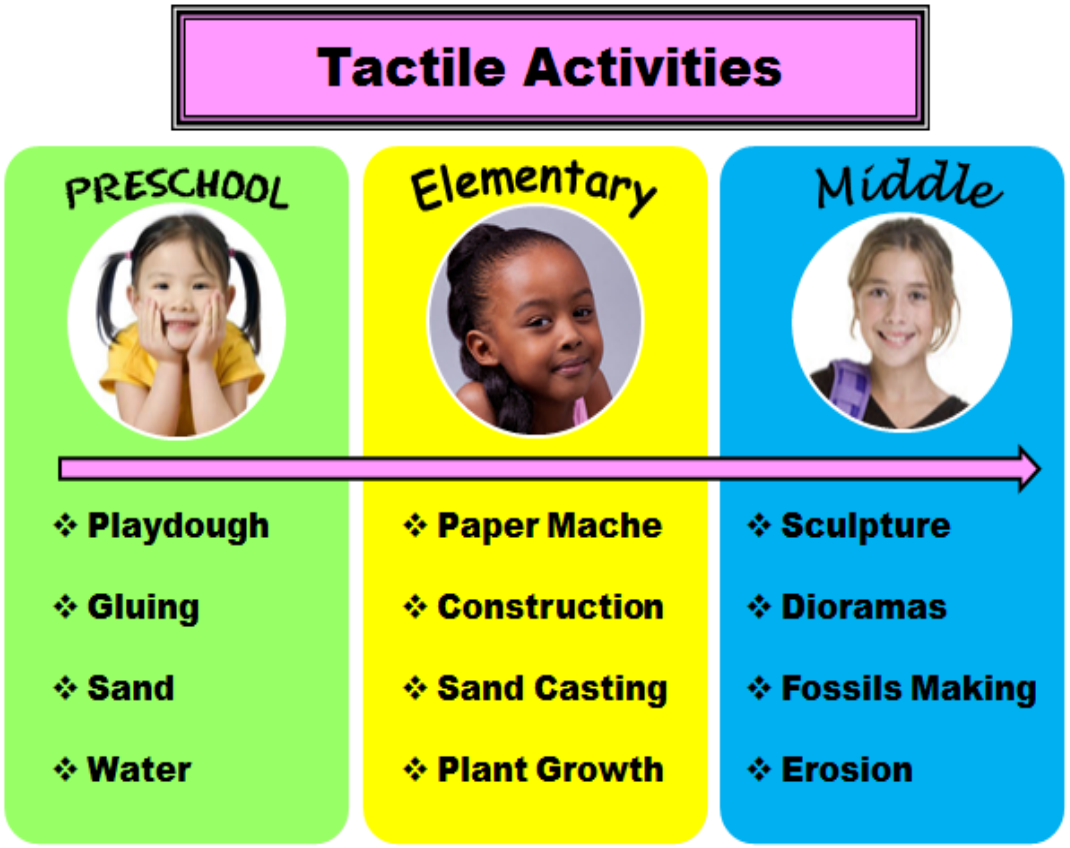


In summary, some important items to consider for this group include:

- Creating safety programs to lower risk-taking
- Providing activities and toys to provide added stimulation
- Developing social skills to reduce aggression
- Implementing programs to reduce self-injurious behavior
- Working with qualified therapists to create programs to *increase sensory input*. These may include the use of weighted blankets, heavy work (e.g., carrying heavy objects), compression garments, etc.

Classroom Activities for Typically Developing Students

The lovely thing about classroom activities to support sensory skills is the fact that they are usually easily accessible and enjoyable to young students and already available in the typical early childhood classroom.



It is a bit more challenging, though, to provide this work in the older grades but still easy if you just convert the younger activities over to a more "mature" theme. In short, you are looking for anything that will stimulate the sense of touch, sight, hearing, smelling, touch, balance, and movement. You can see some examples (image to left) that illustrate how to convert younger activities to themes more appropriate for older students.

In other words, just take the sensory materials common in a younger classroom and use them with the older students for a different purpose. Once you approach the task in that manner, ideas will come easily.

Moving forward, we will focus on "early childhood" activities in this document because they provide the widest range of examples. Those of you who teach older grades should be able to easily convert or work the sensory aspect into activities that would be more appropriate for your age group. Don't totally discount these "younger" activities on occasion, though, because older students love them too!

Tactile Problems (Sense of Touch)

Description

Children with tactile problems have difficulty processing information that is coming through their sense of touch and their skin. If they are hypersensitive, they complain of too much stimulation or avoid tactile input. Hyposensitivity causes a lack of sensation, so these students may seek additional stimulation on their own.

What you will see in the classroom

Here are the most typical signs you will see. If you note these red flags, you should discuss the issue with the family, and when appropriate, request a formal evaluation.

Possible Signs of Hypersensitivity

*Dislikes seams in socks, tags in clothing and "scratchy" materials
*Is tactile defensive (will not touch) messy items (glue, paint, shaving cream…)
*Complains of being dirty or sticky
*Will take off socks, shoes, and clothing (hats, stiff fabric like jeans…)
*Does not like to be touched or hugged
*Complains on windy days
*Problems sitting close to people or walking in crowded hallways
*If slightly bumped will complain as if they have been hit (over-reacts)
*May walk on toes when barefoot (dislikes sand, dirt, grass against bare feet)
*May complain of skin irritation that can't be seen (e.g., cuts or bites)

Possible Signs of Hyposensitivity

*May scratch, pull, or pick at skin, especially on hands
*Will spread glue, paint, and other messy items over hands and up arms
*Does not appear to be bothered by dirty or sticky hands and face
*May not respond to heat, cold, pain, and other sensations at typical levels
*Moves body rapidly and with force
*May appear destructive and aggressive with toys and materials
*Can sit on objects and not notice their presence
*Does not appear to respond to bumps and bruises
*May lose control with highly sensory activities (outside in bare feet. etc.)
*Seeks out sensory activities (water, sand, etc.)
*May begin to develop self-injurious behaviors (e.g., rubbing eraser on skin)

What you can do

Treatment for this group of students includes reducing tactile defensiveness over time if the student is hypersensitive and increasing tactile input if they are hyposensitive.

The goal is to provide as much tactile stimulation the child can tolerate or needs. This includes working with any form of putty, clay or playdough, glue, shaving cream, paint, paste, and collage materials (buttons, feathers, foam pieces, pom-poms, etc.), to mention just a few activities. Sensory activities that involve water, fabrics, vibrating objects, sand, hard objects (bean, foam peanuts or rice in sand table), soft objects (cotton balls, velvet swatches, lamb's wool), and resistive objects (Lycra swatches, thera-bands, balls with stretchy protrusions) are easily incorporated into an early childhood classroom and should be used often. If the child is having difficulty, start small, and use body parts like elbows to "touch" objects or use other objects like toys, plastic animals, cars, and pretend people to "walk through the material". This provides stimulation in a more limited way and can help the student develop tolerance over time.

Any activity that provides sensory responses or a level of resistance can also be useful. Here is just a small sampling of things you can do:

-chalk on concrete
-cutting clay or foam sheets with scissors
-rubber bands on geo-boards
-squeeze toys or bottles
-kneading bread or cookie dough
-popping bubble-wrap bubbles
-coloring over sandpaper or dried glue
-using pencils over rubbing plates
-sanding wood
-Playdough or clay
-brushing stuffed animals
-paper punches

Also, consider some of the specialized items mentioned earlier. These are designed to provide additional tactile stimulation and should be used under the direction/guidance of an Occupational Therapist (OT). Some items that might be useful include:

*__Weighted Items__:
The purpose of these items is to provide additional "weight" so the sensory information is more clearly felt. In most cases, this is accomplished by adding heavy plastic pellets to the object. If it is something like a blanket, they are added in channels so they do not shift. Look for weighted toys, stuffed animals, blankets, and lap pads or consider making your own. You can buy the pellets in bulk and can easily add them to your own items.

*__Compression Items__:
These items compress the skin and provide tactile stimulation over a wide surface area. Sometimes they are specially made, but commercial items like Lycra ballet tights, Under Armour®, etc. can also work. There are also special tunnels, gym equipment, and items like the "body sock" (pictured on right) that can be used periodically during the day to provide extra stimulation.

Systematic intervention

Students who are tactilely hyposensitive may not realize they are touching objects unless force/pressure strong enough to register the sensation through their skin is applied. This can result in students accidentally being rough with peers, destroying toys/fragile objects, crushing foam cups, breaking crayons, etc. You can assist these students by having them practice "gentle touches" in a safe situation.

For example:

<u>Shaving Cream Touch</u>: Have students “fingerpaint” with shaving cream. Activities include having them wipe the cream off of the table, their own hands, and eventually someone else’s hand. Have them concentrate on making the touch so gentle and controlled that they can wipe off a little cream at a time (shave it off). The goal is to leave enough cream that the table or skin does not show through after the first pass. You can also play this game in other variations where they pretend to frost (and smooth) cupcake “icing”, create smooth and even roads on a table, or add snow to pictures printed or drawn on cardboard, etc.

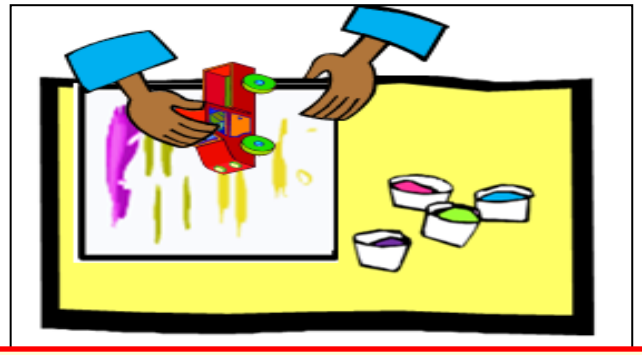
<u>Bubble Bump</u>: Have students try to catch or “bump” bubbles without breaking them. You will want to experiment with your bubble liquid because some of them produce bubbles that are so fragile they will break no matter how gently they are touched, which can obviously be discouraging to the children (and you--LOL). I have found adding extra soap and/or glycerin can really help make the bubbles sturdy enough to be used in this game. If you have to add glycerin, it is best to play this game outside since the bubbles may leave a slight, sticky residue on surfaces when they pop.

Students who are tactilely hypersensitive may avoid certain activities. Here is one way to assist them.

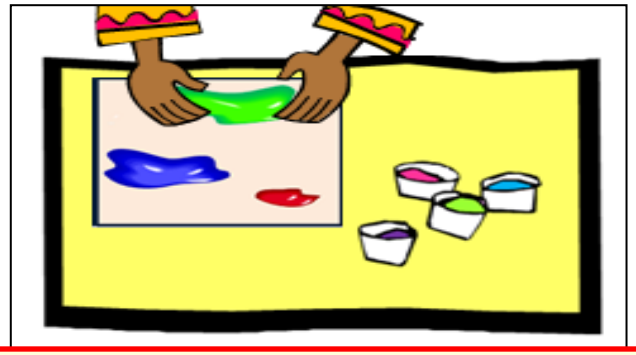
<u>Controlled Fingerpainting</u>: Fingerpainting can be a difficult activity for a child who is hypersensitive to tactile stimulation. You can make the task a bit easier by separating the student from the paint in some manner. This eventually allows them to come in contact with the paint accidently without overwhelming their system. Here is a progression to try…

Place fingerpaint inside zipped bag so student is totally removed from sensation.

Have student use an object (i.e. paintbrush, tongue depressor, etc.) to fingerpaint.



Have student use a small object (i.e. car, coin, horse) so fingers come in contact with paint.

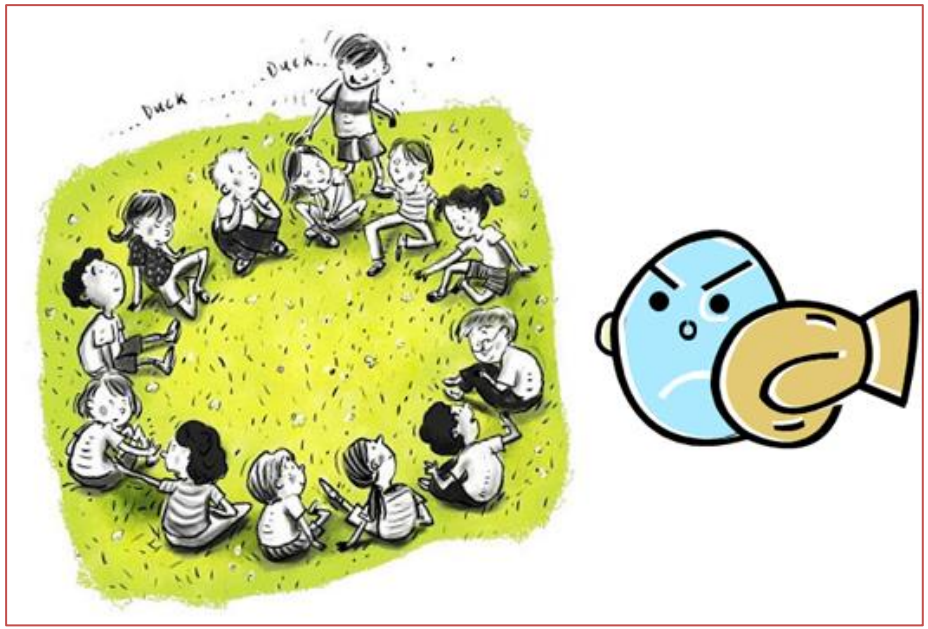


Traditional fingerpainting where hands are fully used. May want to start with only one finger!

*Proprioceptive (Position in Space)

Description

The proprioceptive system tells a person where they are in space, especially in relation to objects.



Students who are hyposensitive to proprioceptive input will not have this awareness and will need to use movement and other senses to feel in control of their bodies and/or to know their position in relation to the ground and objects. Playing a simple "touch" game like Duck-Duck-Goose can feel like a punching match since this child cannot tell where their friend's head begins and their own hand ends.

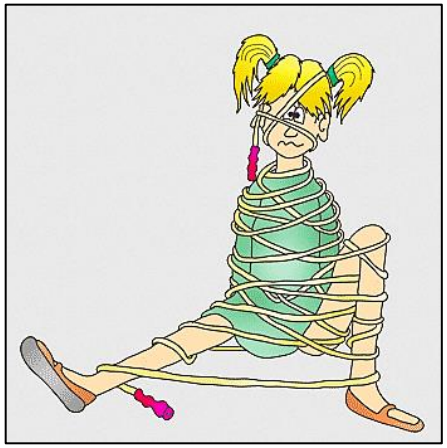
Students who are hypersensitive may also over-react to proprioceptive stimuli and/or move their bodies in a protective manner. Since they feel like they are too close or too far away from objects and are unable to control the motions they do make, they often appear clumsy, uncoordinated, and accident-prone.

What you will see in the classroom

Proprioceptive problems are a bit tricky to notice because they often have the same characteristics as vestibular, visual, and motor disorders. Many of these children are accidently identified as having attention problems (ADHD) as well. In addition, the difference between hyposensitive and hypersensitive students is often blurred since both may appear clumsy, accident-prone, and motor-challenged. With good observation, though, the difference can be seen. Here are some specific things to look for:

Children who are hyposensitive

-may have multiple accidents, move without control and appear clumsy
-usually move with force (play, walking, touching, grasping objects, etc.)
-may appear to have ADHD (constantly moving whole or part of body)
-cause harm to others by being too rough
-crave hard play, running until breathless, throwing self off objects, etc.
-often write with too much force (tears paper, writing appears dark)
-may show "nervous" motions (bite nails, chew pencils, suck clothing)
-problems imitating movements of others (learning dance or motor skills)
-like to be held tightly (wrapped in blanket to sleep, tight belt, turtle necks, buttoned to neck, etc.)
-unable to determine boundaries between self and objects/people (use too much force/go too far)



Children who are hypersensitive

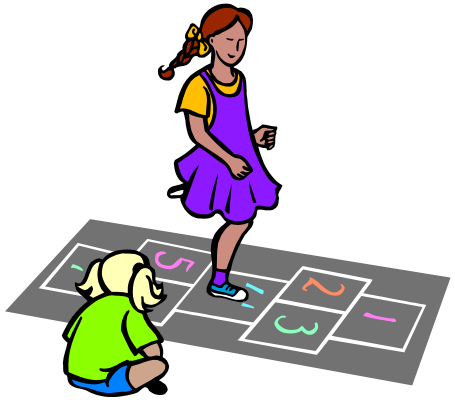
-may have multiple accidents, move without control, and appear clumsy
-cannot coordinate sides of body (jumping jacks, skip, cross midline)
-cannot fine motor plan (write cursive, cut smooth circle, ties shoes)
-fear body position changes (hesitates at stairs, sitting on a high stool)
-show poor posture (arches back, over-extends (locks) legs and arms)
-have problems balancing and shifting weight from one foot to another
-cannot gross motor plan (run to kick ball, bat, catch thrown objects)
-have trouble sensing body positions in space (asked to lay in straight line but complies incorrectly)
-may have sleep problems (i.e. body feels like it is falling or spinning when child lies down)
-have weak core muscles (i.e. slump at desk, appear tired, cannot stand straight)

What you can do

Luckily, there are many activities that can help these students, and most can be easily incorporated into the daily classroom. Many children only need a good teacher to show significant improvement. Just remember that you are trying to give the hyposensitive students extra stimulation and understanding of where their body is in space and the hypersensitive children practice in managing their movement.

Here are some general activities for the classroom:

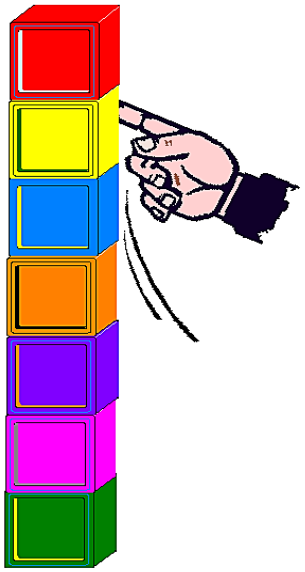
*activities that require a gentle touch (e.g., painting, weaving, building, etc.)
*games that include touching peers gently (e.g., tag, duck…goose, farmer…dell, pick-up-sticks, etc.)
*obstacles courses and other motor planning P.E. activities
*posture cues for sitting at desk (i.e. outline of feet under desk)
*anything that requires placement of objects (e.g., creating bulletin boards, making a display shelf)
*cues to check body position (e.g., "one hand length from the person in front of you in line")
*placemats, work rugs, masking tape, and other cues to determine personal work or play space
*games that require positioning (i.e. tossing ball in hoop, paper triangle football, jacks)
*games that require controlled or planned movement (kick ball, hopscotch, jumping rope, etc.)
*movement integration programs (e.g., Brain Gym, Integrative Movement games, etc.)
*anything that allows the students to move!



Please be aware that some children who are showing proprioceptive weakness really have visual and auditory processing disorders. Because of this reality, even if you feel you can help these children in your room on your own, *they really should be checked by a qualified professional* to rule out these other processing disorders and/or a proprioceptive problem that requires more intensive and systematic therapy. Please encourage the families to take this extra step…

Systematic intervention

Children with hyposensitivity can benefit from play-based interventions that systematically teach better awareness of body position in relation to objects and people. The shaving cream and bubble games described earlier can be useful. You can also try these activities as well:



Touchy Towers Build towers of blocks and have the child attempt to run their finger down the side without knocking the tower over. By varying the type of block (how heavy, how wide, etc.) and the height of the tower (shorter is easier), you can adjust this activity so the student is successful and not overly challenged.

"How Close" Game Set up a target of some type (can use anything…a block, toy, etc.) and have the children slide another object so it comes close to the target *without hitting it*. Help the students adjust their level of force in order to be successful. You can vary the surface (carpet versus tile), object (heavy versus light) and other dimensions (size and distance of target, weight and size of object slid) to make the task easier or harder.

Children with hyposensitivity or hypersensitivity may also require work with an occupational/physical therapist skilled in sensory integration. They will determine the amount of stimulation, how long or frequently the therapy activities and the materials to use. Some common activities include:

Heavy Work: *Wearing, holding or carrying heavy objects*

-ankle weights
-backpacks w/ heavy objects
-weighted lap pads (over legs)
-weighted blankets
-weighted vests/clothing
-weighted toys or supplies (pencils)

Core Stimulation: *Stimulation of internal core muscles*

-round seat cushions filled with air or liquid
-standing on unstable surfaces

Tactile Stimulation: *Compression parts of body*

-Body socks or tubes
-rolling up in a heavy blanket
-crawl tunnels
-bean bag chairs
-hammocks
-old fashioned sling swings

Movement Stimulation: *Activity that provides intense movement*

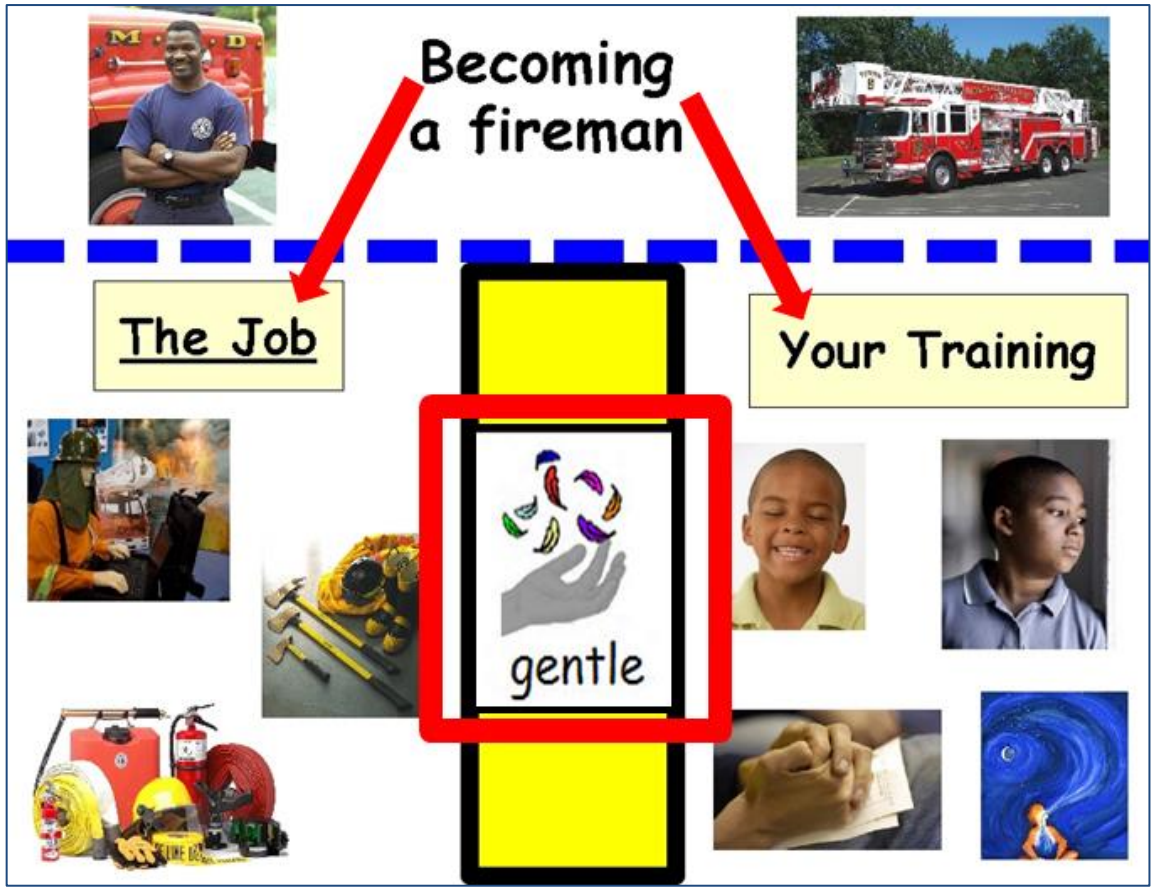
-pogo stick
-trampoline
-moon/spring shoes
-ball pits
-monkey bars
-etc., etc., etc.

NOTE: As mentioned earlier, many of these students will get in trouble for being rough, and some incidents may be severe enough to result in behavioral consequences. This causes the students to be upset and confused because they do not understand what they are doing wrong.

If these "rough" episodes have become purposeful or a habitual, <u>you may need to put in place behavioral support **in addition** to the sensory interventions</u>.

It is best to consider how you can teach the missing skill using the child's interest.

For example, the chart to the right was used to help a student learn to use gentle hands. He was told he needed this skill because "when he is a fireman" he will be using sharp and dangerous equipment and electronics that can break easily.



This explanation made TOTAL sense to him, and he really worked hard to develop better control. Putting a skill into this type of "personal value code" (something the child values) can really increase motivation! Please see the manual titled, *Value Code Shifting: Reaching the Hard-to-Reach Student*, on the Neuro-Teach website under the BEHAVIOR tab for a full explanation of value-code shifting and ideas on how to implement this critical component.

Vestibular (Balance)

Description

The vestibular system allows a person to remain balanced in space. It is controlled by movement and head position, and essential components of the system are located in the inner ear.

Many children have difficulty with balance-related skills, but you should also especially pay attention to children who have chronic ear infections, have suffered head injuries, are diagnosed with Central Auditory Processing Disorder (CAPD), and/or who have some level of hearing disability. The disruption to the inner ear associated with these other conditions, the center of vestibular function, may also impact balance to a degree.

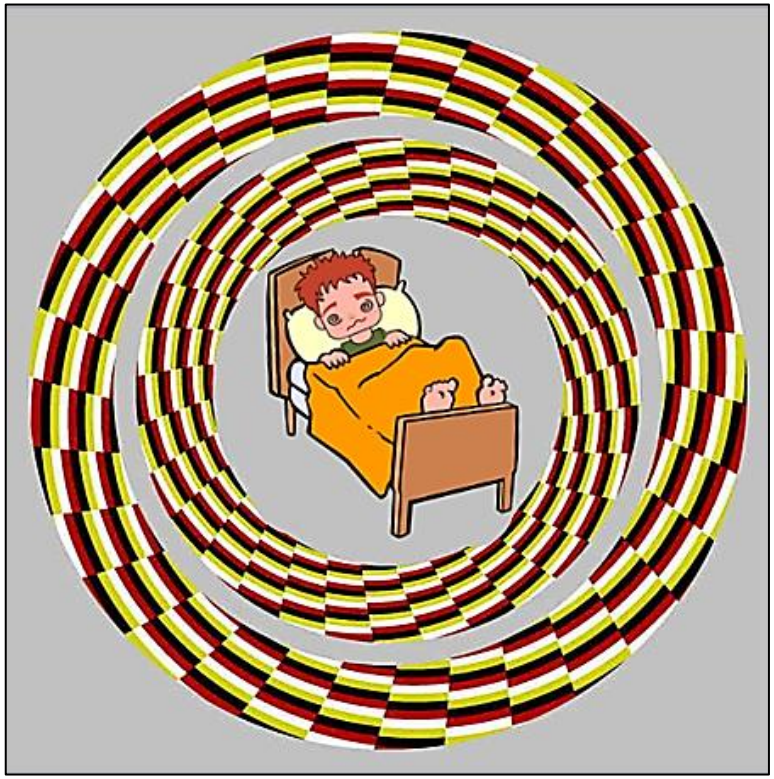
What you will see in the classroom

Children who are hyposensitive to vestibular information will require constant movement in order to maintain a comfortable body. Even when "sitting still", you will see them scratching, moving their feet, rubbing their skin or clothing, twirling their hair, or strongly chomping on their gum. If you ask them to be still, you will see them weight shifting on their feet or changing position in their chair. In other words, being still for any length of time is simply not possible for this group.

These children are often mistakenly identified as being ADHD, so please watch out for this group! There are way too many children being mistakenly diagnosed as being hyperactive instead of the sensory disorder that is truly causing the issue.

Children who are hypersensitive do not feel comfortable or in balance so they avoid quick movement, climbing, balance beams, riding bikes, high stools, and may even walk by sliding their feet rather than lifting them. You will especially notice deficits when these children have to close their eyes and balance. Needless to say, this group often appears clumsy and uncoordinated.

You can run a quick screen for possible issues by having the students try to balance for a period of time with their eyes closed and their arms straight out in front of them. Refer back to page 6 for the exact directions on that screen.



In addition, both groups of children may experience strange sensations when they stop moving. You may also suspect this problem when a child is exhibiting sleep problems. Some specific behaviors to look for include:

-having difficulty sleeping
-getting out of bed to sleep on the floor
-feeling like they are falling when laying down
-feeling like they are spinning when laying down, especially when they close their eyes
-waking up with hair in snarls due to twisting in bed
-feeling prickles, tingles, or shivers when standing still
-having muscle twitches when trying to keep body still

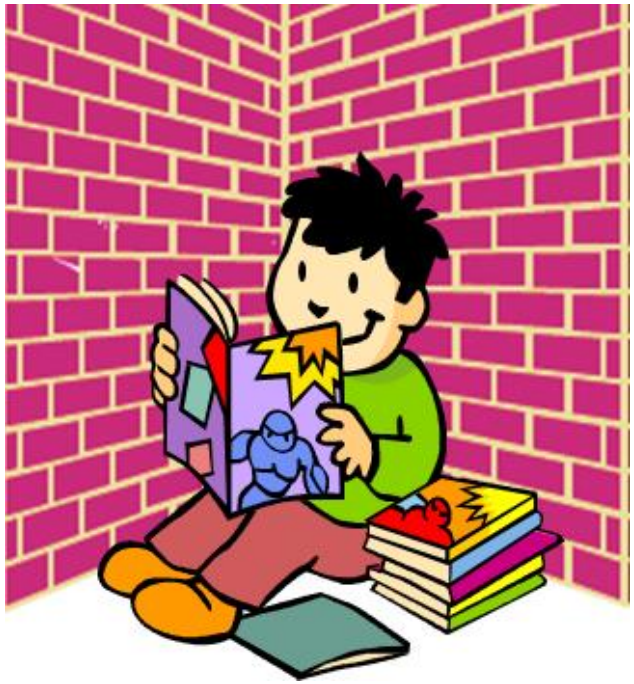
Things you can do

This group is fairly easy to help since you can use the basic materials and movement concepts provided for proprioceptive problems. If you have been jumping around in this document, know that you can find those suggestions beginning on page 19. The only difference in approach is your target skill. Just keep the focus on finding and establishing balance, and beyond that, just about anything will work.

Systematic intervention

In addition, consider some of these small suggestions for children who are fearful:

-warn students when a change in position is coming (e.g., "make sure to step down") and/or purposely hesitate when that student reaches staircase (maybe stop line and give directions to class to hide the pause)



-sit the student in a corner when seated on floor to increase their sense of security or use a backrest as a support

-avoid high stools and other seats without a back when possible

-use weighted lap pad when seated (will make student feel secure)

-use weighted blanket when sleeping

-have student hold onto shirt edge or own pants so they feel centered and balanced when standing in line

-teach student to use “physical memory” to control balance (e.g., I KNOW I can stand up…my muscles do it automatically, so I can use that feeling to help me keep my balance)

-keep sticky backed fur circles on door jamb or wall for student to stick to pants and feel while walking in places that are open or where there is no wall to touch (e.g., crowded hall). Feeling the fur on their clothing/legs gives them a sense of where they are in space. It sounds strange, but it really does help many students.

Carrying objects can also provide some assistance, especially if they are held against the chest while the student walks.

-use a “bed tent” when sleeping to increase sense of security. Just knowing that they cannot fall out of bed can help the child even if the spinning/falling sensation is not fully under control. I typically suggest using this type of bed tent or cover along with a weighted blanket and/or swaddling (wrapping child tight in covers) for the best results.

-and, of course, <u>work with an occupational or physical therapist to develop balance and other skills as needed.</u>

Taste and Smell

Description

Children who have sensory integration disorders related to taste and smell are rather difficult to pick out unless the child has an extreme reaction. If they are hypersensitive, they will have strong likes and dislikes to foods, perfumes, body orders, etc. They may also show extreme responses such as vomiting when exposed to items they dislike. Children who are hyposensitive will not notice smells (e.g., something burning, smell of flowers, etc.). They may also not notice their own body odor if older and thus have poor hygiene for their age. In addition, they may be poor eaters since the sense of smell informs taste.

What you will see in the classroom

These are some of the signs that a student may be unusually sensitive (hypersensitive) to taste and smell:

-refuses to eat many foods
-complains of things being too sweet, salty, hot, cold, etc. when other students are fine
-notices small changes in brands of foods (e.g., a new type of American cheese)
-dislikes people because of the way they smell
-has aversions to bathrooms, gyms and other locations where odors are more noticeable
-may dislike brushing their teeth
-may have secondary problems with food textures, mixed foods (i.e., stew or soups), etc.
-may scrape food off utensils with teeth or insist on using fingers
-may have trouble swallowing or need to drink after food is chewed
-may press hands against lips or inside of mouth (i.e., to stop tingling)

…and signs that a student may be unusually unresponsive (hyposensitive) to taste and smell:

-refuses to eat many foods because they “don’t taste good” or “have no taste”
-prefers very spicy, sweet or strongly flavored foods
-may gag or choke easily (i.e., do not feel or taste the food in their mouth)
-does not notice strong odors (e.g., skunk, burning items, perfume, etc.)
-may mouth objects (e.g., chew pencils, suck shirt or thumb) and/or drool, even though older
-does not notice when something is uncomfortably hot or cold
-does not notice own body odor or other unpleasant environmental smells noticed by others

Things you can do

These children need as many opportunities to taste and smell objects/foods as possible. Since this is often difficult to fully accomplish in the classroom, much of this therapy occurs formally. Please note that many children with this difficulty may also have speech problems since tongue movement may be hindered.

Systematic intervention

Children who suffer from taste and smell problems and/or secondary tactile problems in their mouths may work with a number of people. At times, an occupational therapist will be involved, but often the children will be working with a speech and language pathologist who is also familiar with sensory issues.

Interventions for children with hypersensitivity may include desensitization, a process in which the child is slowly taught to tolerate stimuli and feeding therapies. In some cases, the problem may be so severe that the child is at risk for “failure to thrive” and may need nutritional support (formal medical intervention) in the form of supplements and non-traditional feeding.

Sound

Description

Children who are hypersensitive to sound may have extreme reactions to normal stimuli like people talking loudly. Often, this over-response is due to Central Auditory Processing (CAPD). This is a condition where normal environmental sounds are processed at a higher rate/speed than speech. It causes students to be unable to hear people speaking when environmental sound is present (e.g., fan on, sound from a road outside, etc.). It can also be a sign of autism or other developmental disorders.

Students who are hyposensitive typically have related hearing problems, though there have been cases where children are simply non-responsive to sound, especially speech. Because sound-related sensory integration problems typically mask other conditions, including autism or related spectrum disorders, professional involvement is essential.

What you will see in the classroom

You will see an over- or under-response to sound volume. Some hypersensitive responses may be extreme, and the student will tantrum or appear to be in pain.

Things you can do

While you can attempt to keep sound changes to a minimum, there is only so much that can be done in the classroom to assist these students. A therapist will guide you for your particular case.

Systematic intervention

Therapy for this condition is very specialized for the individual and will be guided for you by a qualified professional.

Vision

Description

Children who are hypersensitive or hyposensitive to visual stimuli will show unusual responses to everyday activities. They may tend to dislike certain settings (e.g., sun or certain types of lighting) and may often have secondary issues like serious disabilities (e.g., autism), other processing disorders (e.g., visual processing problems like Irlen Syndrome), or learning disabilities, especially related to reading.

What you will see in the classroom

You will see an over- or under-response to lighting, colors, black and white objects, etc. Some hypersensitive responses may be extreme, and the student will tantrum or appear to be in pain. Students may also complain of flashing lights, colors switching (i.e., black print on white paper changing to white print on black paper) and image retention (i.e., still see the print they were reading when they look at a blank wall (rare form of Irlen Syndrome). In some cases, print will appear to move, swirl away, separate, sway, or do other strange things (general Irlen Syndrome)

Things you can do

Some have found the use of colored overlays (clear colored sheets, especially in amber or blue colors) helpful for Irlen Syndrome. These are often called “Irlen Filters”. Regardless, because of the nature of this condition and its relation to other issues, a therapist or medical professional should guide you for your particular case.

Systematic intervention

Therapy for this condition is very specialized for the individual and will be guided for you by a qualified professional.

Sensory Diets

Sensory diets are a way to systematically provided the sensory therapies and interventions a student needs during the school day. A sensory diet allows you to provide this assistance on a schedule so the student is less likely to experience behavior problems or failure due to sensory needs. This therapy can include brushing sessions where the students skin is stimulated (e.g., Wilbarger Brushing Protocol) and other sensory therapies.

In some case, these sessions will occur once a day with a therapist, and in other situations, will occur periodically through the day, often under the direct supervision of the teacher. In either case, a sensory diet should be developed with a qualified profession and/or therapist and used consistently, even at home.

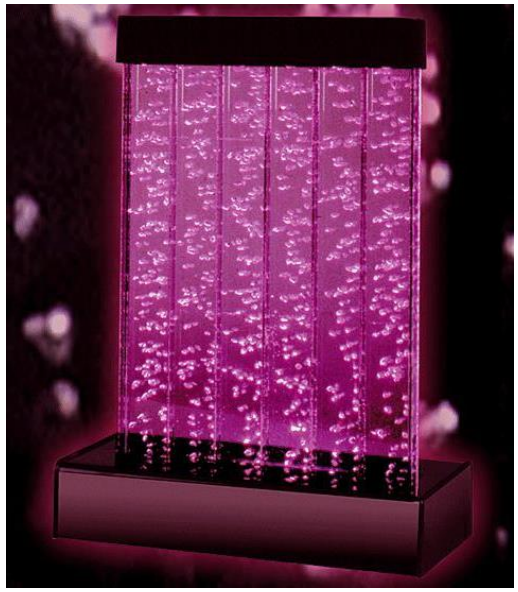
Here is an example of one student's choice chart for "sensory breaks" (pictured at right). The student was given a ten minute break twice in the morning and twice in the afternoon. These breaks assisted the student by allowing her to play/interact with sensory materials that provided the extra stimulation she needed (she was hyposensitive for all senses).

Prior to this simple schedule, the student was in constant trouble due to outbursts, tantrums, and other behavioral issues with both teachers and students, even though she was of average intelligence. After this program was implemented, though, the behavior problems dropped 90+%. If you find the right mix, you really can improve behavior in many students who need this type of sensory support.

Snoezelen Therapy and Sensory Gyms

Snoezelen is a form of sensory stimulation that was developed in the Netherlands back in the 1970's. It has since spread to all parts of the world, including the United States.

The Snoezelen approach provides a high level of sensory stimulation using fiber optics, sound, wind, tactile stimulation, and other sensory products. The rooms can be very simple or amazingly complex.



Some facilities who work with students (or geriatric patients) who require this therapy regularly will actually outfit separate rooms to be used for this purpose. Others provide the therapies by brining portable kits of materials into the room. In either case, the results can be quite amazing for students with highly intensive needs.

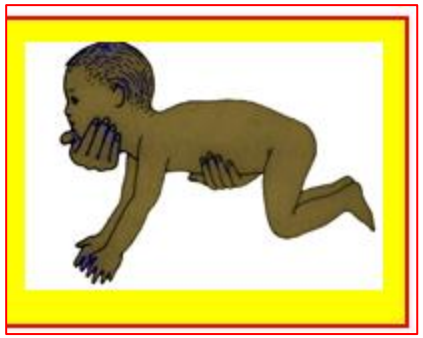
If you work with students who have intensive needs or are just interested in this approach, please see the website http://www.snoezeleninfo.com/ or http://www.flaghouse.com/what_AL.asp for additional information. It also helps to actually see the approach for yourself. These three videos give a wonderful overview of the techniques used: http://www.youtube.com/watch?v=G1fUz5u99gA , http://www.youtube.com/watch?v=xtVcRjlQ1Rk or http://www.youtube.com/watch?v=7NKuqCURPuQ , and many more can be found with a simple search.

Reflex Integration Therapies (Residual Reflexes)

Most children lose their infant-related reflexes as their sensory system matures. In some students, though, their neurological system remains immature and the normal infancy reflexes do not drop out.

For example, the Asymmetric Tonic Neck Reflex (ATNR) often known as the "fencing reflex" is seen in newborns. If you turn the child's head one direction, the opposite arm will bend upward and the arm facing in the same direction as the fence will straighten, almost like someone fencing with a sword (see left).

In typical children, this reflex drops out around six months. In students with sensory immaturity, though, the reflex lingers. We can actually see this if we have the student kneel on all fours and then turn their head (do it for them, have them relax). When this happens in a student that has retained the reflex, they will actually bend or shift their whole body away from the direction you turn their head. Simply amazing to see!



What does this mean for the classroom? This means if a student with this problem turns their head to look at a board or a teacher on one side of the room, their body will slump away from the way they turn. So, you will see this student slumped over desks and tables, unable to throw or catch balls when their head is turned, etc. In other words, it really can affect a great deal of their day-to-day function.

This whole area of research and intervention has been in place for some time in other countries and is now rapidly growing in the United States. You can find some of your best resources at these two sites:

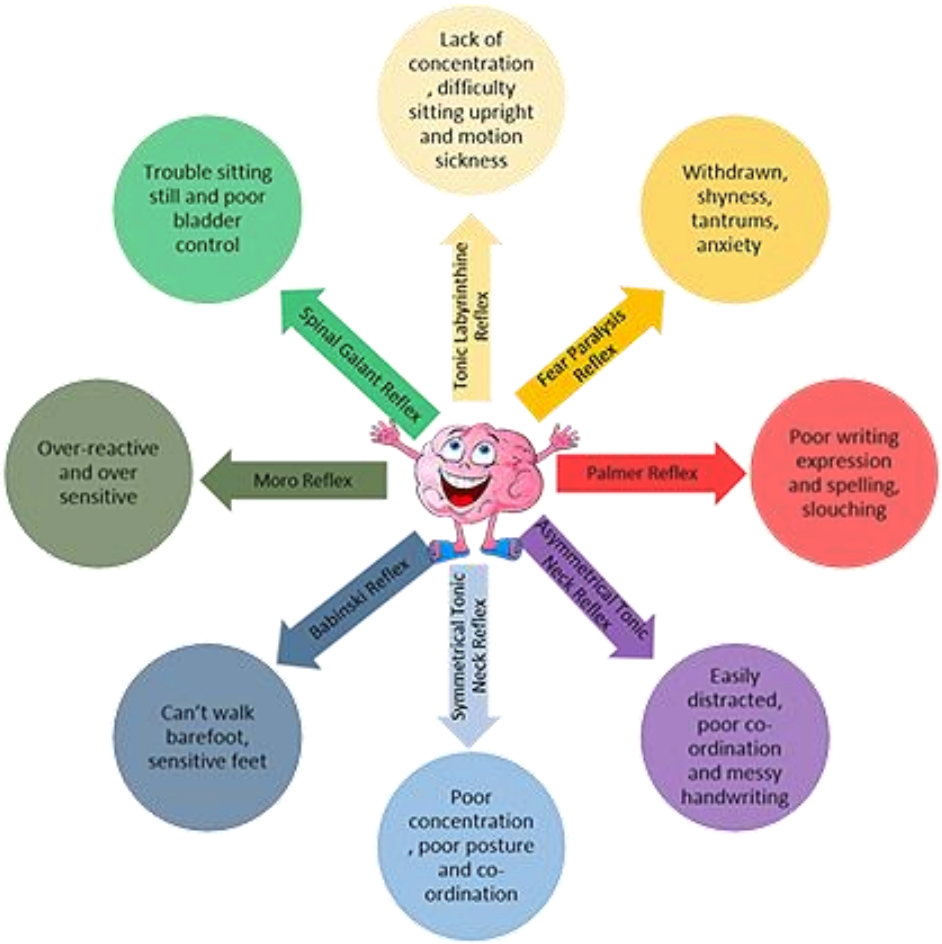
http://masgutovamethod.com/

(Originated in Poland)

https://rhythmicmovement.org/
(originated in Australia)

Rhythmic Movement
Training International

It also helps to see this work in progress, so here is a very short video showing one of the reflexes in a newborn (Moro) http://www.youtube.com/watch?v=PTz-iVI2mf4 and an integration therapy designed to improve a child's integration or maturity for this reflex http://www.youtube.com/watch?v=K5OxpfFL_CI or http://www.youtube.com/watch?v=zXi9AGgVHvE



Because this area of therapeutic specialization should be fully guided by a professional, I will provide some base information on the general reflexes, possible solutions, and some resources that are current as of this writing.

It is important to know that this type of work can be very high quality, and unfortunately, also somewhat questionable in design. This is why you should work closely with professionals who are familiar with the student's case and the school's support team to establish the type of assistance that is needed and a valid location for its provision.

It is important to also realize that information may vary widely on this topic (purpose of the reflex, when it is first observed before birth, when it should be integrated after birth, the impact of non-integration on development, etc.). It is still an emerging field, and like all else associated with child development, the range of opinions is vast. Regardless, it is rather interesting information and definitely something to consider. I have seen it truly help SOME students, and do so in a remarkable way.

Here is some basic information to get you started! Please also note that the links and pictures provided illustrate general concepts (not method or vendor endorsements). If a link is broken, just search for the item by name, and you should find it easily.

Moro Reflex

*In utero around 28-32 weeks

*Integrates after 3-4 months

*Sudden tipping of body backwards causes the arms to fling outward and eyes to open wide

Moro Reflex

Purpose:

*Stimulation for developing muscle tone in the womb
*Stimulation of vestibular system in the womb
*Assists birthing process (inhibits limb movement so baby can corkscrew through birthing canal
*Helps with eye-hand coordination after birth

Signs of Non-Integration:

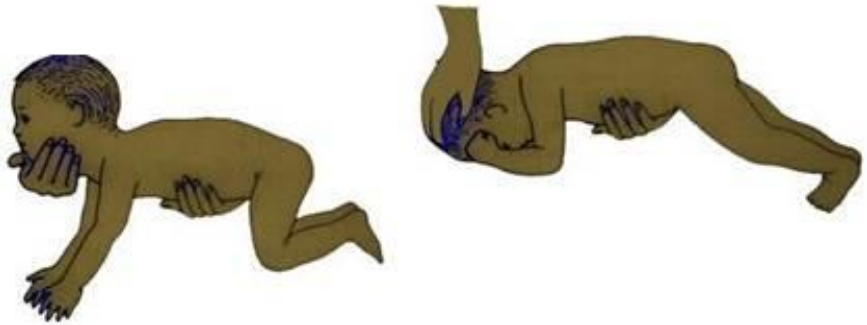
*Poor handwriting/tight muscle grip and eye-hand coordination
*Poor sense of direction, motor control, and balance
*Difficulty with visual tracking /double vision(lose place while reading)
*Poor short term memory and ability to listen, attend, and follow directions
*Difficulty crossing midline and managing bilateral tasks
*Impulsive and often emotionally immature for age
*Poor sense of direction and sense of space

Moro Integration Therapies

Many resources, but some cost money or make unproven claims. Be wise about what you choose, especially since so many resources are available without charge!

Symmetrical Tonic Neck Reflex / STNR

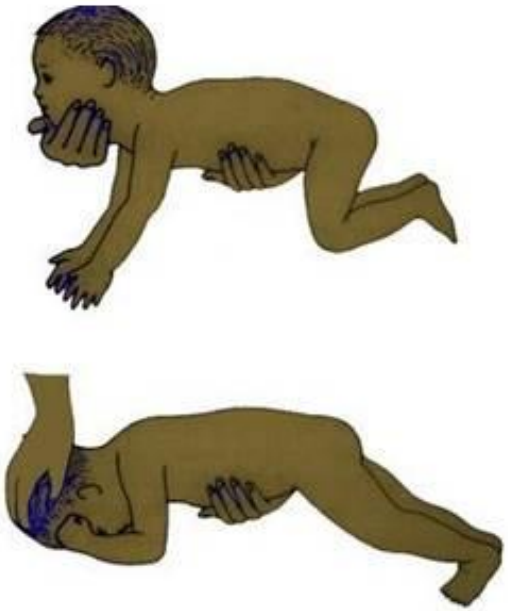
*After birth (6-9 months)



*Integrates by 9-11 months

*When head tilted down towards chest, legs straighten & arms bend, and when it is tilted back, legs bend & arms straighten

Symmetrical Tonic Neck Reflex / STNR



Purpose:

*Stimulation for developing muscle tone in the womb
*Stimulation of vestibular system in the womb
*Assists birthing process (inhibits limb movement so baby can corkscrew through birthing canal
*Helps with eye-hand coordination after birth

Signs of Non-Integration:

*Poor handwriting/tight muscle grip and eye-hand coordination
*Poor sense of direction, motor control, and balance
*Difficulty with visual tracking /double vision(lose place while reading)
*Poor short term memory and ability to listen, attend, and follow directions
*Difficulty crossing midline and managing bilateral tasks
*Impulsive and often emotionally immature for age
*Poor sense of direction and sense of space

STNR Integration Therapies

Reflex Integration-spinal galant and ATNR

Pinterest

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Privacy

Sensory Motor | Sensory Diet | Pedi

Specific techniques &tips to integrate primitive...

SPECIFIC TECHNIQUES&TIPS TO INTEGRATEPRIMITIVE...

Pediatric Occupational Therapy | Pedi

The Moro Reflex: "Bridges"

The Moro reflex is an involuntary response to threat. If it is...

Brain and Sensory Foundations Course

<u>Always</u> search: Pinterest, YouTube, and General Search Engine!

YouTube

STNR Integration Therapies

SIGN IN

OT Rex - ATNR versus STNR - Reflex breakdown

18K views • 1 year ago

OT Rex

I don't know about you guys but I had such a hard time visualizing **STNR** when I was studying it. It didn't occur to me until I saw the ...

Symmetrical Tonic Neck Reflex(STNR) | Assessment & Integration Exercise | Primitive Reflexes

2.5K views • 10 months ago

Easy Therapeutics

Key words : Reflex **Integration** Exercises, Primitive Reflex, Symmetrical Tonic Neck Reflex, Primitive Reflexes, Kids exercises, ...

Primitive Reflex integration Exercises

65K views • 2 years ago

Kidz Skillz

Integration exercise videos to help with retained primitive reflexes. These are a great way to have your child or a whole class work ...

STNR Integration Therapies

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Color: All

Size: All | S | M | L

Type: All | Photo | GIF | Face | Portrait | Clipart | Line Drawing

Asymmetrical Tonic Neck Reflex / ATNR

*In utero at around 18 weeks

*Integrates after age 3-6 months

*Turning head one direction causes arm and leg on that side to extend, and the opposite arm and leg to flex

Asymmetrical Tonic Neck Reflex / ATNR

Purpose:

*Stimulation for developing muscle tone in the womb
*Stimulation of vestibular system in the womb
*Assists birthing process (inhibits limb movement so baby can corkscrew through birthing canal
*Helps with eye-hand coordination after birth

Signs of Non-Integration:

*Poor handwriting/tight muscle grip and eye-hand coordination
*Poor sense of direction, motor control, and balance
*Difficulty with visual tracking /double vision(lose place while reading)
*Poor short term memory and ability to listen, attend, and follow directions
*Difficulty crossing midline and managing bilateral tasks
*Impulsive and often emotionally immature for age
*Poor sense of direction and sense of space

ATNR Integration Therapies

Solve Learning Disabilities
Unlock Brilliance!

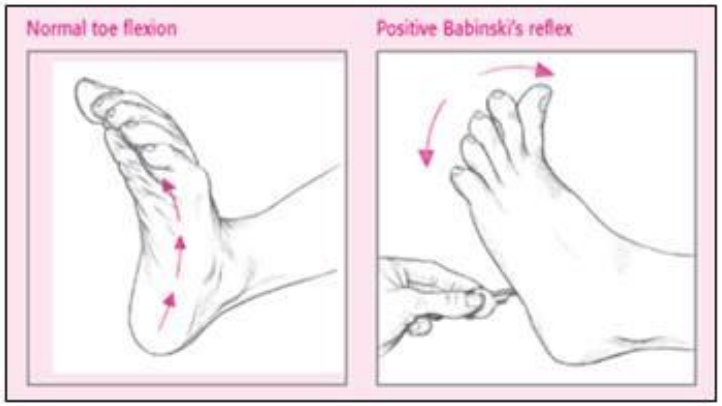
https://www.solvelearningdisabilities.com/

ATNR #2
Look Both Ways
Crawling

Pediatric Therapy Associates

https://www.youtube.com/watch?v=9sx50LFBmRs

Babinski Reflex

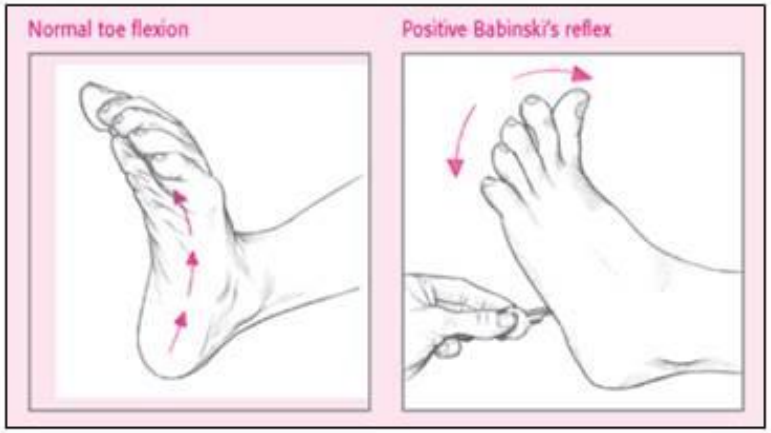


*In utero at around 11 weeks

*Integrates after age 2

*Stroking bottom of the foot from heels to toes causes the toes to flare outwards

Babinski Reflex (Plantar Reflex)



Purpose:

*Assist with later standing, lower body muscle tone and control, and overall balance

Signs of Non-Integration:

NOTE: This is the one reflex that can be OVER-integrated. Over-integration will result in as many problems and a non-integrated (under-integrated) reflex.

*If the reflex is still present, the toes will flare outward, and often jumping or flexing of whole leg up to hip is seen. If fully integrated (negative), the toes will curl downward.

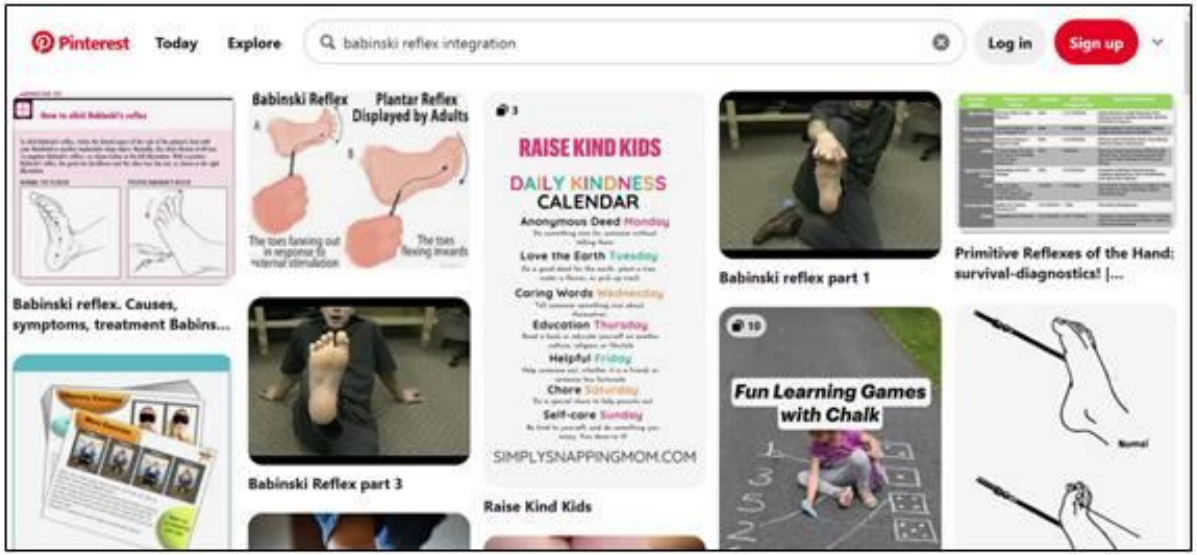
*Flat footed and typically trips often and/or appears clumsy and has frequent accidents such as sprained ankles

*May walk on toes or sides of foot

*Foot sensitivity (ticklish, dislikes touch, avoids socks/shoes, dislikes walking barefoot in grass, sand, or uneven surfaces)

*Runs awkwardly and may avoid movement (appears lazy or sluggish)

Babinski Integration Therapies



https://www.pinterest.com

POSTUREPRO

https://posturepro.co/annette-verpillot/

Palmar Reflex (Darwinian Reflex)

*In utero around 28-32 weeks

*Integrates after 3-4 months

*Touch on palm causes fingers to curl over the object that produced the touch. Curl will tighten if the object is pulled/moved away slightly. NOTE- To release, gently stroke the back side of the hand.

Palmar Reflex

Purpose:

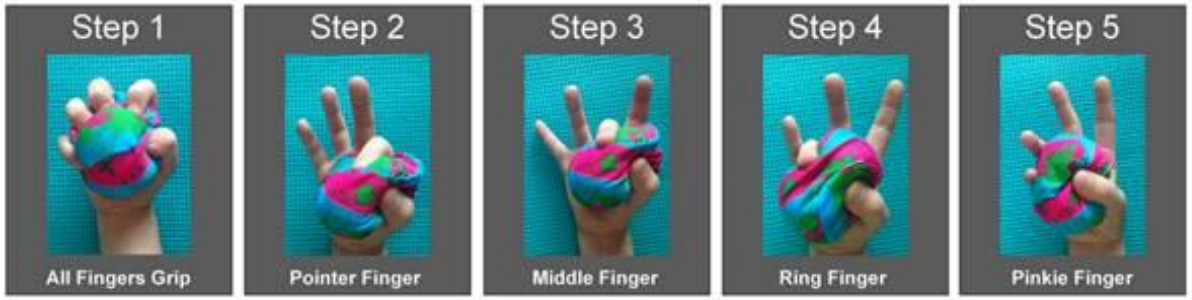
*They are not really sure. Assume it has to do with muscle coordination and the holding of objects.

Signs of Non-Integration:

*Poor handwriting/tight muscle grip
*Poor eye-hand coordination
*Overall difficulty with grasp, often due to lack of controlled pincer grasp and problems with related fine motor skills
*May use secondary physical movements during fine motor tasks (stick out tongue when cutting or writing)
*Hypersensitive palm of hand
*Some evidence of relation to speech problems (coordination of hand to mouth relationship)
*Some evidence of behavior and emotional issues and general immature development

Palmar Reflex Integration Therapies

Palmer Reflex Exercise



Repeat 10 times
Slowly
www.SolveLearningDisabilities.com

Purchase the Printable Primitive Reflex Integration Exercise Cards and get our Unlock Brilliance eBook FREE

Search for general OT activities!

THE OT TOOLBOX

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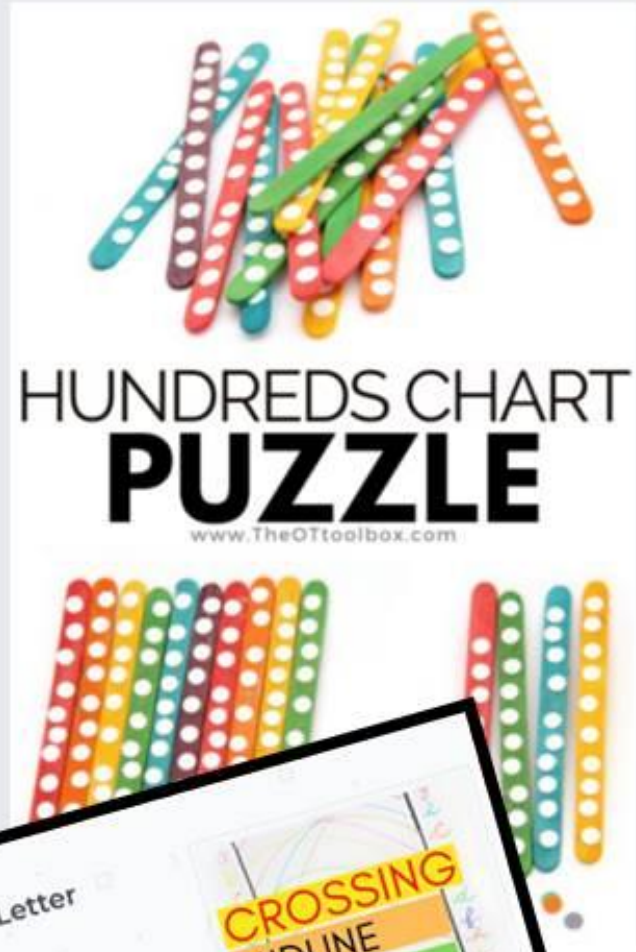
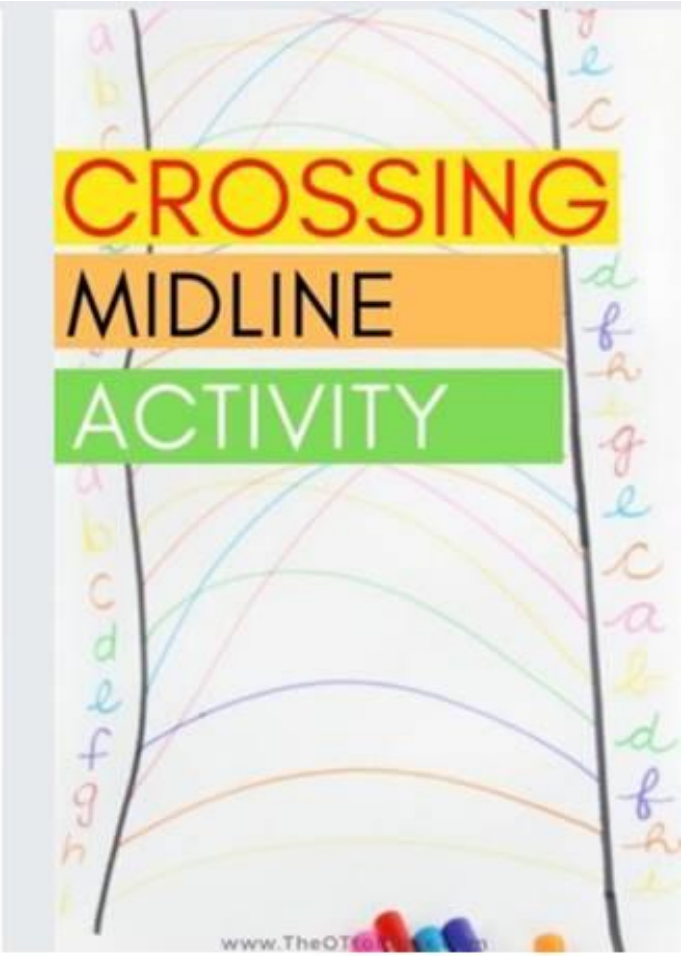
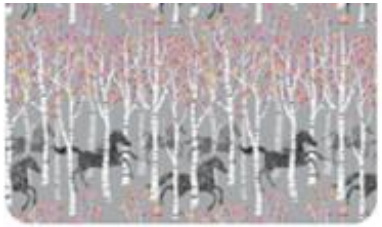


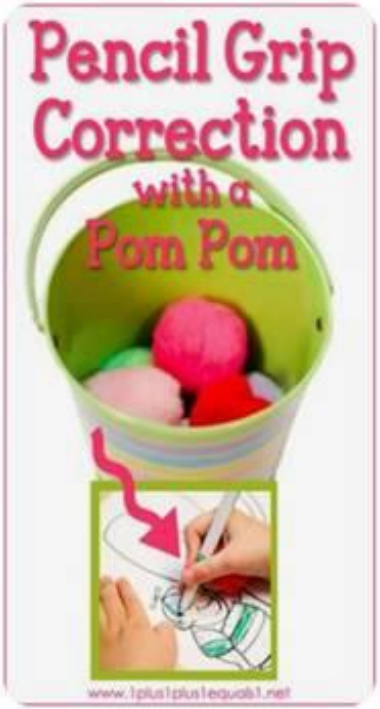


https://www.theottoolbox.com



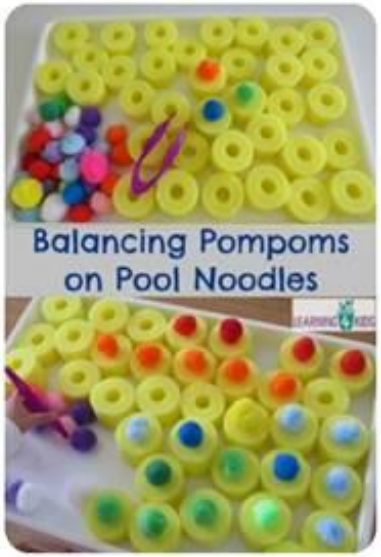
Fabric by the Yard All the pretty little horses

6 of the Best Fine Motor Activities - The Daily Alphabet



Pre-Writing Activities for Preschoolers - HAPPY...

Sticker Line-Up - Busy Toddler

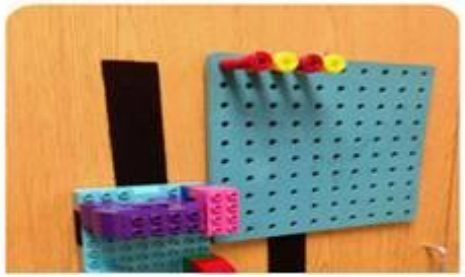


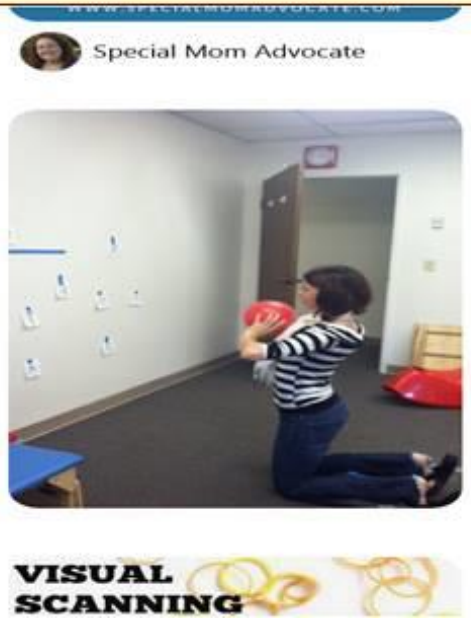
Pool Noodle Activities Fine Motor Fun

Finger Gym: Daily Activities for Fine Motor Exercises - Mrs. D...

Search for dysgraphia resources and therapies as well...

...as visual coordination and scanning activities. All will target this reflex to some degree. Just be careful of levels...





Spinal Galant Reflex

*In utero at around 10 weeks

*Integrates between 5-9 months

*Touch to side of the spine causes the back to twitch towards the side that is being touched

Spinal Galant Reflex

Purpose:

*Stimulation for developing muscle tone in the womb
*Stimulation of vestibular system in the womb
*Assists birthing process (inhibits limb movement so baby can corkscrew through birthing canal
*Helps with eye-hand coordination after birth

Signs of Non-Integration:

*Poor handwriting/tight muscle grip and eye-hand coordination
*Poor sense of direction, motor control, and balance
*Difficulty with visual tracking /double vision(lose place while reading)
*Poor short term memory and ability to listen, attend, and follow directions
*Difficulty crossing midline and managing bilateral tasks
*Impulsive and often emotionally immature for age
*Poor sense of direction and sense of space

Spinal Galant Integration Therapies

Spinal Galant Reflex: Brain Therapy for Neonatal & General Reflexes (BR) - Dr B. Chikly

https://www.youtube.com/channel/UCwByu411vmcxI18MrM_CGJQ/videos

STNR Primitive Reflex

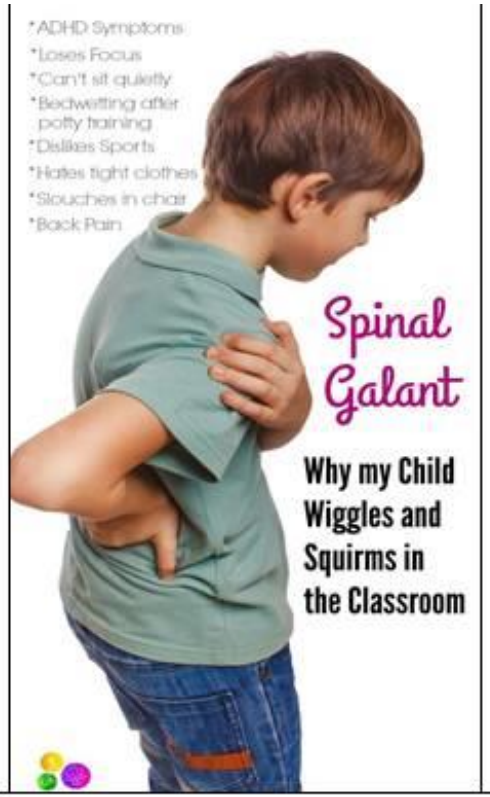
https://www.youtube.com/channel/UCwByu411vmcxI18MrM_CGJQ/videos

HOME | LOGIN | AFFILIATE AREA | PRIVACY POLICY | CONTACT

INTEGRATED
Learning Strategies
Learning Corner

Online Courses | Developmental milestones | Emotions & Behavior | Gross Motor | Fine Motor

EMOTIONAL GROUNDING



VISUAL PROCESSING

Clever Visual Spatial Solutions to Boost a Child's Reading and Math Skills

Tools to Grow®

RESOURCES FOR PEDIATRIC THERAPISTS

LOG IN

WHAT'S INCLUDED

- Print & Go Resources!
- Interactive Digital Teletherapy Technology
- Free Activities
- New Resources A Regularly!
- Excellent Tools for Tight Spaces & Budgets!

https://www.toolstogrowot.com/

INTERACTIVE DIGITAL TELETHERAPY TECHNOLOGY

Use these digital interactive resources for teletherapy. Digital technologies are electronic tools, systems, devices, and resources that generate or process data.

MONTHLY THEMED THERAPY SESSION PLANS

This section will offer detailed themed weekly session plans for each month!

FINE MOTOR SKILLS

Fine Motor Skills involve the use of precise and coordinated movements of the fingers to perform hand use tasks.

COMMUNICATION

Communication includes the exchange of thoughts, messages, or information through speech, gesture, behavior, symbols, and/or written materials.

VISUAL MOTOR INTEGRATION

Visual Motor Integration is the coordination of hand movements based upon the perception of visual information.

HANDWRITING

Handwriting is a complex process of recording language by hand, often by using paper and a pen or pencil.

EXECUTIVE FUNCTIONING

Executive Function is a term used to describe the many tasks one's brain performs that are necessary to think, act, and solve problems.

SELF CARE / LIFE SKILLS

Self Care and Life Skills include the various ADLs and IADLs that a child performs.

GROSS MOTOR

Gross Motor Skills involve the use of large muscles for performing functions such as walking, running, jumping, riding a bike and playing sports.

SENSORY PROCESSING

Sensory Processing refers to the way a person's nervous system receives sensory messages and turns them into adaptive or functional responses.

VISUAL PERCEPTION

Visual Perception is the vision skills needed to understand, evaluate, and interpret what is seen.

BILATERAL COORDINATION

Bilateral Coordination involves the ability to use both sides of the body at the same time.

CASELOAD MANAGEMENT

Comprehensive resources for clinic and caseload management

CAREGIVER EDUCATION & TEAM COLLABORATION

Comprehensive caregiver education and resources for use when collaborating with others.

HOLIDAYS / SEASONS /THEMES

This section will offer fun and exciting resources for various holidays and seasons.

SOCIAL SKILLS

Social Skills refers to effective interaction and communication with others. It is necessary for developing and keeping friendships and other relationships.

Gift of CURIOSITY

Sparking children's creativity and learning

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https://www.giftofcuriosity.com


Kinetic sand


Sensory fun with play foam


Fun with flubber


Easter egg color grading activity


Halloween sensory play


Fall sensory play


12 Christmas sensory play ideas


Water bead sensory play


Water beads & shaving cream


Rainbow bubbles


Scientific thinking using glitter putty


Kinetic sand letters


Honey taste testing


Alphabet Soup

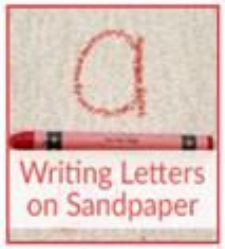

Smash the puffy letter


Calm down bottles


Foam blocks & shaving cream


Water play toys


Exploring hard vs. soft


Writing Letters on Sandpaper

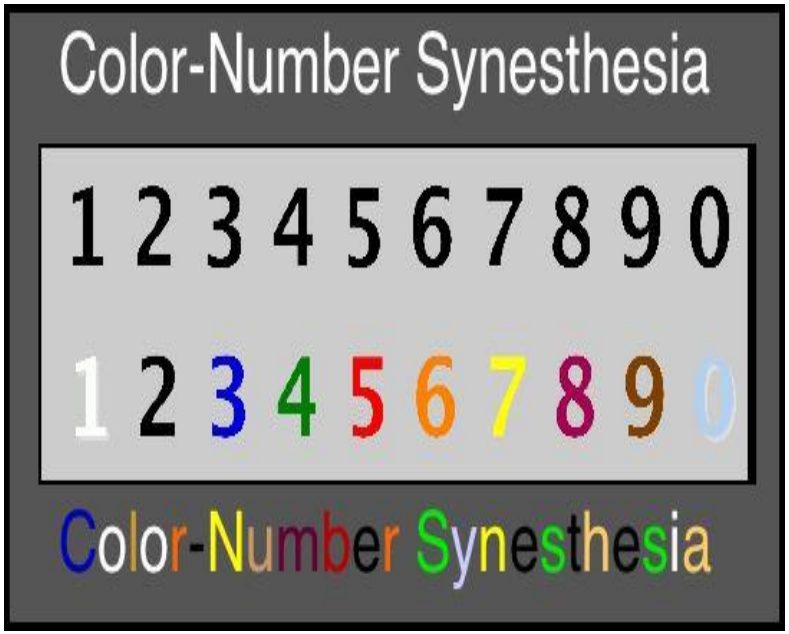

Icy letter writing


Sensory nature letters


Easter game: What's in the bag?

Synesthesia

This last section will deal with an unusual condition that really highlights the complexity of the sensory system. Synesthesia is a condition where the senses are cross-wired so a person experiences two senses simultaneously. For example, every time a person with a particular type of synesthesia sees the color red, they have a certain taste in their mouth, or every time they hear a particular word they see a color or experience a certain smell (NOT always pleasant ones either, by the way…).



Here are some interesting facts about synesthesia:

- It is permanent and personally consistent
- Is genetic so it runs in families
- Colored hearing is most common
- Often associated with photographic memory
- Over 50 forms of it have been discovered
- 1 in 75 people have some level of synesthesia

Because synesthesia is so difficult to imagine, it helps to see some examples. Here is an older ABC News special on the condition that provides a great overview http://www.youtube.com/watch?v=KApieSGlyBk and this site provides a simulation of colored symbols for reading: http://web.mit.edu/synesthesia/www/colordemo.html

Additional information can be found at the American Synesthesia society: http://synesthesia.info/ and this article: https://www.psychologytoday.com/us/basics/synesthesia . A general search will also yield a wealth of resources.

Informal Assessment

In closing, I urge you to take a very close look **at all of the students under your care**. Often, what we consider to be a behavior or attention problem is actually a sign that the child is experiencing some type of sensory disorder. This does not mean, however, that behavioral support can be skipped. Sometimes the sensory challenges create a situation where the child then learns an inappropriate interaction pattern which must be addressed.

For example, a child has a proprioceptive problem and often misses the chair when going to sit down and falls on the floor. This causes the other children to laugh, something the child loves, so the behavior is now being used purposefully for attention. So, yes, there is a sensory issue that must be addressed, but there is also a learned behavior that has developed as well. Unless you deal with the sensory issues that originally caused the behavior in the first place, the problem will continue, but the attention being received for the falling behavior may continue long after sensory support has removed the sensory side of the problem too. In other words, BOTH issues must be managed to completely resolve the situation!

So, please look for additional resources to assist you. There are so many highly qualified professionals in most areas and also so many resources on the internet that you should have little trouble finding more information. There are also a number of sensory processing checklists available that allow you to quickly screen for general problems. These are only screening tools, though, so you should then contact your school support team and/or a qualified professional to review the information you gathered and determine if there is a need for further assessment.

There is also a quick screen that I created many years ago that has worked well for me in the past. It can be found at the www.Neuro-Teach.com website under the PROCESSING tab and is titled, *Questionnaire: Processing Issues*. Feel free to use, adapt, or combine this screen with your own resources.