



## Sensory Processing and Learning Disabilities Advice and Strategies for Families and Carers

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## What is Sensory Processing?

We all receive information about our environment through our senses. These senses include touch, smell, taste, sight and sound as well as hidden senses that enable us to detect movement and have an awareness of our bodies in space. Adults with Learning Disabilities can sometimes have difficulties processing this information, resulting in a reaction to, or avoidance of, the particular sensory stimulus involved.

Some individuals with a learning disability may have major problems in handling the variety of sensations that we normally take for granted. Subsequently, they may find even common sensations confusing or frightening and have further difficulty comprehending and communicating what they are experiencing.

Sensory processing is a subconscious and automatic neurological process that occurs in every person at all stages of life. Our brains take in information through our senses and organize it so that we are able to respond appropriately to particular situations and environmental demands.

We all need to process and integrate various forms of sensory input which affects:



The way we **see**.....the way we **hear**.....the way we **smell**....the way we **taste**.....the way we **move**.....the way we **touch**

Individuals can sometimes have difficulties processing this information, resulting in a reaction to, or avoidance of, the particular sensory stimulus involved. When a person has good sensory processing skills then they are able to integrate information automatically and efficiently. But for some people, sensory processing does not develop as efficiently as it should and can affect activities of daily living, behaviour or social participation.




*“The brain locates, sorts and orders sensations, somewhat like the way a traffic light directs moving cars. When sensations flow in a well organised or integrated manner, the brain uses those sensations to form perceptions, behaviours and learning. When the flow of sensations is disorganized, life can be like a rush-hour traffic jam.”*

-- Adapted from Jane Ayres, OT

<p>Sensory traffic blocked from getting through to where it’s needed, i.e. understimulation</p>	<p>Just the perfect amount of sensory traffic so things flow smoothly</p>	<p>Sensory traffic is too much, or disorganized, i.e. Overstimulation</p>
		

## What happens when we get too little or too much sensory input?

Although it is best when things are 'just right', there will naturally be times when people are getting 'too little' or 'too much' sensory input.

Too little stimulation	Just enough stimulation "Just right"	Too much stimulation
<p>May feel bored, underwhelmed, understimulated, or underaroused. When underwhelmed, a person may end up seeking stimulation or attention.</p> 	<p>I'm feeling good</p> 	<p>May feel overwhelmed, overloaded, or overstimulated</p> 

- **Hypersensitivity** to sensory information – the person may eliminate or minimise sensory overload by avoiding

- **Hyposensitivity** to sensory information – the person may seek out heightened sensory information

When overwhelmed, individuals may respond with:








- ‘Fight’ response (responding with anger, irritability), or
- ‘Flight’ (responding with avoidance, fear, or withdrawal) or
- ‘Freeze’ response (simply shutting down).



*Picture yourself calm and relaxed. Suddenly, a stereo blasts in your ears, and you are punched in the arm. This would be frightening, painful and overwhelming. For someone with sensory processing problems, such auditory or touch hypersensitivity might occur in a noisy supermarket or busy street when accidentally touched by a passer-by. In other words, every day life becomes overwhelming.*

This resource offers practical advice for people who have a learning disability and sensory processing differences. It suggests useful strategies that can be adopted by the person (and their families/carers) to meet the persons sensory needs in every day life.

## The Seven Senses

The Visual system	
The Auditory system	
The Olfactory system	
The Gustatory system	
The Tactile system	
The Vestibular system	
The Proprioceptive system	





## The VISUAL System

The visual system gives us information about objects, people and our immediate environment. The visual system helps develop hand-eye coordination, fine motor skills and cognitive skills. It provides us with the skills to carry out visual perceptual tasks such as the following:

- Recognise similarities between objects
- Find objects in a competing background
- Know the position in space of objects

How it affects the person's daily activities.....	Strategies to help.....
<p data-bbox="245 1202 448 1234"><i>Hypersensitivity</i></p> <ul data-bbox="217 1323 772 2002" style="list-style-type: none"><li>• May react strongly to colourful or complex images (i.e. they find them confusing)</li><li>• May cover eyes from lights and prefer to be in darkened rooms</li><li>• Difficulty filtering visual stimuli within the room and responding to all actions and stimuli</li><li>• Reduced eye contact and looking down frequently</li><li>• May find messy desks, rooms etc. stressful (due to visual clutter)</li></ul>	<p data-bbox="879 1202 1082 1234"><i>Hypersensitivity</i></p> <ul data-bbox="855 1323 1385 1944" style="list-style-type: none"><li>• Minimize visual stimulation</li><li>• Minimize visual clutter</li><li>• Use natural lighting whenever possible</li><li>• For a time-out, soothing place, consider using dimmed lighting</li><li>• Consider wearing sunglasses, or even opaque eyeshades to wear (available in most pharmacies)</li><li>• Try to avoid artificial, fluorescent lighting whenever possible – in</li></ul>

- Sensitive to direct eye contact
- Avoidance of visually stimulating environments
- Preference for dim lighting
- Tires easily or gets irritable when attending to visually complex tasks
- Squinting, rubbing eyes or getting headaches after reading but not requiring glasses
- May have difficulties with fluorescent lighting

addition, many fluorescent lights have distracting humming.

- Consider prescription tinted lenses
- Reducing visual clutter and distractions (for example, cover bookcases with fabric)
- If person is particularly overwhelmed, provide time out in a room with little visual stimuli to help them self regulate.
- Break tasks down into small achievable sections with clear visual representation of what is expected.

*Hyposensitivity*

- Misses visual clues
- Touches everything (in order to make up for lack of visual input)
- Can't read body language
- Trouble finding objects in cluttered spaces
- Trouble with puzzles
- May not attend to visual cues or information because they cannot register it.
- Staring at people or objects
- Staring at lights or looking into a bright light
- Flicking fingers in front of eyes

*Hyposensitivity*

- Increase visual stimulation
- Use hand gestures, bright lights, lots of colour and movement.
- Use different coloured papers, or headings.
- Use natural lighting or bright lighting
- Add different visual components to tasks. For example: clapping or bright colours.'
- Use visual schedules to give a clear representation of what is expected
- Break tasks down into manageable steps

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Not noticing when people enter the room</li><li>• Fascinated by reflections</li></ul> |  |
|---|--|



## The AUDITORY System

The auditory system provides us with information about sounds in the environment. It allows us to discriminate, associate and filter out sounds. It also tells us about volume, rhythm, pitch and distance. Some individuals are hyposensitive to sound and some display hypersensitivities. People with auditory processing difficulties often find it difficult to filter noise and/or have difficulty discriminating between sounds.

How it affects the person's daily activities.....	Strategies to help.....
<p data-bbox="304 1189 507 1218"><i>Hypersensitivity</i></p> <ul data-bbox="256 1305 759 1921" style="list-style-type: none"><li data-bbox="256 1305 759 1391">• Sensitive to loud or unexpected noises.</li><li data-bbox="256 1424 759 1453">• Easily distracted by sounds</li><li data-bbox="256 1487 759 1749">• Irritated by sounds not usually bothersome to others (e.g., pencils or pens scratching, lights buzzing, others eating, sweet wrappers rustling).</li><li data-bbox="256 1783 759 1812">• Holding hands over ears</li><li data-bbox="256 1845 759 1921">• Making noises to cover up environmental sounds</li></ul>	<p data-bbox="906 1189 1109 1218"><i>Hypersensitivity</i></p> <ul data-bbox="858 1294 1377 1966" style="list-style-type: none"><li data-bbox="858 1294 1377 1379">• Encourage minimal auditory distractions where possible.</li><li data-bbox="858 1413 1377 1507">• Wear headphones with soft, slow music.</li><li data-bbox="858 1541 1377 1570">• Wear ear plugs.</li><li data-bbox="858 1603 1377 1697">• Use a stretchy headband to cover ears.</li><li data-bbox="858 1731 1377 1825">• Ear defenders may be helpful during particularly noisy times of the day.</li><li data-bbox="858 1859 1377 1953">• Listen to predictable and repetitive sounds</li></ul>

<ul style="list-style-type: none"> <li>• Can become upset or agitated in noisy public environments</li> <li>• Dislikes crowds or jostling in public places (e.g., standing in lines or shopping).</li> </ul>	<ul style="list-style-type: none"> <li>• Receive directions one at a time.</li> <li>• Avoiding noisy areas where possible.</li> <li>• Avoid special events such as firework displays, whenever possible, until the individual's sensory system can accommodate them.</li> </ul>
<p><i>Hyposensitivity</i></p> <ul style="list-style-type: none"> <li>• May appear to ignore sounds or spoken words</li> <li>• Enjoys vibration due to the noise</li> <li>• Enjoys noisy areas such as amusement arcades</li> </ul>	<p><i>Hyposensitivity</i></p> <ul style="list-style-type: none"> <li>• Use auditory cues e.g. a clap or a bell to get attention</li> <li>• Present information in a slower manner to allow for longer processing time</li> <li>• Provide information in small sections at a time</li> </ul>



## The OLFACTORY System (smell)

The receptors for the olfactory system are located in the nasal structure which provides information about different smells. The olfactory system is closely related to the gustatory (taste) system.

How it affects the person's daily activities.....	Strategies to Help.....
<p data-bbox="288 1102 491 1137"><i>Hypersensitivity</i></p> <ul data-bbox="260 1220 778 1727" style="list-style-type: none"><li data-bbox="260 1220 564 1256">• Can be picky eaters.</li><li data-bbox="260 1279 644 1314">• Smell avoiding behaviours</li><li data-bbox="260 1337 778 1491">• Sensitivity to smells/odours, and may complain of strong smells when nobody else notices anything</li><li data-bbox="260 1514 778 1608">• May only eat bland, neutral smelling foods</li><li data-bbox="260 1630 695 1727">• Dislikes certain people or pets because of their smell</li></ul>	<p data-bbox="887 1102 1090 1137"><i>Hypersensitivity</i></p> <ul data-bbox="858 1220 1377 1899" style="list-style-type: none"><li data-bbox="858 1220 1219 1256">• Limit exposure to smells</li><li data-bbox="858 1279 1366 1373">• Gradually desensitize to smells that cannot be removed.</li><li data-bbox="858 1395 1377 1550">• Teach calming strategies to help deal with the overwhelming sensory stimulation</li><li data-bbox="858 1572 1377 1899">• If the person has aversions to certain smells, it may be helpful to carry around a pleasant smell (in a film container with a hole in the top) to use when bombarded with unpleasant smells.</li></ul>

	<ul style="list-style-type: none"> <li>• Use calming smells, such as those recommended in Aromatherapy such as</li> <li>• Lavender</li> <li>• Geranium</li> </ul>
<p><i>Hyposensitivity</i></p> <ul style="list-style-type: none"> <li>• May seek out smells, even unpleasant ones, e.g. body wastes such as urine/faeces.</li> <li>• Extreme situations like this tend to occur more in severe conditions such as autism.</li> <li>• Person reports that all foods taste the same</li> <li>• Sniffs people or objects</li> <li>• Does not notice offensive smells</li> </ul>	<p><i>Hyposensitivity</i></p> <ul style="list-style-type: none"> <li>• Promote healthy ways for smell stimulation, such as:</li> <li>• Incense</li> <li>• Scented candles</li> <li>• Perfumes</li> <li>• Aromatherapy</li> <li>• Consider alerting smells, as used in Aromatherapy such as:</li> <li>• Peppermint or grapefruit</li> <li>• Basil or tangerine</li> <li>• Rosemary</li> <li>• Take part in regular activities that have a strong smell component – scented play- dough, fresh-cut grass, cooking with strong smells etc.</li> </ul>



## The GUSTATORY system (taste)

How it affects the person's daily activities.....	Strategies to Help.....
<p data-bbox="284 768 488 801"><i>Hypersensitivity</i></p> <ul data-bbox="253 887 783 1980" style="list-style-type: none"><li>• Refusing any contact with their mouth, for eating and drinking, tooth brushing.</li><li>• Preferring to only eat one food at a time, and have trouble eating more than one texture at a time.</li><li>• Gagging on foods, or on eating utensils</li><li>• Extreme distress during eating and drinking time, such the person may, push food away</li><li>• Refusing to chew food, or drooling all the time</li><li>• A need to control the mealtime experience, and may want only certain food textures, cutlery, plates.</li><li>• Tasting food with the tip of the tongue</li></ul>	<p data-bbox="892 768 1096 801"><i>Hypersensitivity</i></p> <p data-bbox="892 887 1075 920">Before eating:</p> <ul data-bbox="861 947 1382 1980" style="list-style-type: none"><li>• For a person is too overwhelmed to eat, allow the person to get used to oral stimulation by allowing them to explore his/her favourite sensory item orally. Dip them into flavoured water, pureed foods, etc.</li><li>• Consider calming background music during meals.</li><li>• Ensure the person has good sitting posture.</li><li>• Because many oral hypersensitive people may also have touch hypersensitivities, they may benefit from soothing deep pressure or firm touch, particularly if they are given advance notice.</li><li>• Avoid unexpected touch, or light ticklish touch.</li></ul>



- Disliking food on face or lips

- Let the person know in advance you are going to touch, and approach within their field of vision, so that the person can be prepared.
- Consider making a picture book that shows oral exercises of “How to warm up your mouth before eating” that you can show the person before eating

During eating:

- So that the person doesn't feel overwhelmed, do not present all foods at once, but rather present them one at a time.
- When your child gestures or says that they are all done with that food, clear all of it away from the table, hands and mouth with a wash cloth before going onto the next food.
- Pay attention to food temperature – in general, room-temperature foods are easier.
- Pay attention to food textures – when switching or changing foods, change gradually.

There are various products for oral hypersensitivity, can be found by doing an

internet search for 'products' and 'oral hypersensitivity'.

#### ***Dental Visits***

- The person wear a weighted vest during the appointment to provide extra weight and deep pressure.
- Have the carer do oral deep pressure or vibration in the form of electric toothbrush, mini massager, or rubbing with toothette prior to appointment.
- Have the individual eat something very chewy prior to the appointment.
- Allow the person to have a fidget item during the session.
- Have the person wear a heavy or tight hat before and during the appointment.
- Use firm touch whenever touching the person.
- Verbally warn the person before each thing you do.
- Allow person to wear something that blocks the bright lights if he/she is sensitive to this.
- Allow the person to listen to calming music with headphones

*Hyposensitivity*

*Hyposensitivity*

- Use a Vibrating toothbrush
- Use strong tooth paste
- Suck from different straws
- Use a water bottle
- Eat snacks which are spicy, crunchy, salty, sour
- Use mouth instruments such as recorders, harmonicas
- Combine bland foods with intensely flavoured foods



## The TACTILE System

The sensory system that receives sensations of pressure, vibration, movement, temperature and pain, primarily through touch receptors in the brain.

Function:

- Regulates arousal and attention.
- Contributes to the development of body scheme.
- Forms foundation for perceptual and cognitive development

How it affects the person's daily activities.....	Strategies to help...
<p><i>Hypersensitivity</i></p> <ul style="list-style-type: none"><li>• A gentle touch may hurt and feel like an electric shock.</li><li>• May find a wide variety of textures and light touch overwhelming.</li><li>• Light touch may feel painful</li><li>• Deep/firm pressure touch can be soothing as it is thought to have an inhibitory (calming) effect on the nervous system.</li></ul>	<p><i>Hypersensitivity</i></p> <ul style="list-style-type: none"><li>• Deep pressure activities</li><li>• Begin with the outside of the hands and arms and gradually progress to the palms as this is the most sensitive area.</li><li>• Firmly press down on the person's shoulders. (Ensure the person is sitting well and upright in the chair before beginning).</li><li>• Use a weighted lap pad or shoulder wrap.</li></ul>

- Overly sensitive to being touched, especially unanticipated touch
- Difficulty in standing close to others
- May sit with back close to wall, withdraw or hit when staff/peers approach
- Rub spot after being touched
- Dislike messy activities
- Choosy about clothing (e.g. fabrics, textures, labels)
- Dislikes bathing, hair washing etc

- Use a large bean bag to encompass the person and provide a form of deep pressure.
- Use a weighted backpack during stressful times, i.e. busy.
- Ensure the backpack is only worn for 20 minutes at a time and weighs no more than 5% of the individual's bodyweight.
- Caution is required with the above activities; monitor the person's reactions throughout.

*Hyposensitivity*

- May have difficulty registering the touch cues that are required for skilful manipulation.
- May not notice that their clothes are twisted, that they have food on their face or that they have messy hands.
- Know when there has been touch, but not exactly where
- Not able to discriminate between objects via touch.

*Hyposensitivity*

- Massage to the upper limbs using a variety of lotions and massage items such as rollers etc.
- Use vibration to provide enhanced tactile input – monitor child's reactions closely. Vibration can be overwhelming for some.
- Provide the individual with fidget sensory items.

- Poor awareness of body when vision occluded
- Mouth objects in an exploratory manner
- Pushes or rubs body against objects / wall
- Provide opportunities for enhanced tactile stimulation.
- May be insensitive to pain and not notice injuries.
- May be insensitive to hot and cold.
- May need to injure self to be fully aware of their bodies

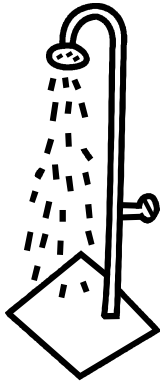
- Provide the individual with opportunities to go barefoot and walk across a variety of textures.
- Provide regular movement breaks.
- Stirring/kneading dough during baking activities.
- Popping bubble wrap

- **Difficulties with hair cutting, combing, washing or cutting**






- Give definite time limits to the task e.g. "Let's count to 10, and then we will stop cutting your hair". Provide deep pressure immediately after (see above).
- Break the task into small steps and eliminate any unnecessary steps or stages.
- Use a firm stroke or pressure as you comb or wash the individuals hair.
- Count or have the individual count as you comb, wash, rinse or cut the hair.
- Firm contact may be preferable.

## Individual does not like baths or showers



- Before bath time, do activities that provide deep touch input, for example, resting your hands on your individual's shoulders and applying moderate pressure.
- Have the bath water ready before having the individual undress. Make the transition from undressing and getting into the bath as quick and smooth as possible.
- If the individual dislikes having his face or body washed, encourage him to wash himself. Self-imposed touch produces a less defensive reaction.
- Use a large sponge or loofah sponge. Rub firmly to decrease defensiveness.
- Use fragrance free soap made for sensitive skin.
- If the individual is showering, use a hand held shower nozzle. Let the individual control the direction and force of the water.
- Use a large towel, and quickly and firmly wrap the individual in it.
- Avoid exposure of the wet skin to the air: the light touch may trigger a defensive reaction.

	<ul style="list-style-type: none"> <li>• Provide deep-touch using a towel to the extremities, hands and feet to decrease defensiveness. If the individual will tolerate it, provide a firm massage, using lotion to avoid skin irritation.</li> </ul>
<ul style="list-style-type: none"> <li>• New clothing is irritating</li> <li>• Feeling of clothing may be disliked/ cause distress (stripping/ tearing clothes).</li> </ul> 	<ul style="list-style-type: none"> <li>• Wash new clothing to remove the stiffness</li> <li>• Try using detergent for sensitive skins (natural detergents may be preferable to ones with chemicals)</li> <li>• Have the individual help to select clothing</li> </ul>
<ul style="list-style-type: none"> <li>• Tags on clothing are irritating</li> </ul> 	<ul style="list-style-type: none"> <li>• Remove tags until individual's system can tolerate them.</li> </ul>
<ul style="list-style-type: none"> <li>• Individual takes off clothes inappropriately</li> </ul> 	<ul style="list-style-type: none"> <li>• When individual removes clothes because they are over-stimulating or arousing, try snug or tight-fitting clothes.</li> <li>• When individual removes clothes as he/she likes the feeling of air on the skin, have him/her wear loose-fitting clothes for added light touch.</li> </ul>



<ul style="list-style-type: none"> <li>• Individual avoids getting his hands dirty or using messy materials. Hurries to wash off even a speck of dirt.</li> </ul>	<ul style="list-style-type: none"> <li>• Use tools to manipulate the supplies whenever possible (for example, a paintbrush rather than finger paint).</li> <li>• Gradually introduce messy activities if the individual can tolerate this.</li> <li>• Use messy materials that provide resistance, such as putties or dough mixtures.</li> </ul>
<ul style="list-style-type: none"> <li>• Withdraws or hits out at others who touch him lightly</li> </ul>	<ul style="list-style-type: none"> <li>• Teach others to touch the individual firmly. Explain that the individual feels light touch more strongly and may perceive it to be painful.</li> <li>• Approach individual from within his/her visual field.</li> </ul>
<ul style="list-style-type: none"> <li>• Reacts negatively when touched from behind or when touched by others</li> </ul>	<ul style="list-style-type: none"> <li>• Tell the individual when you are going to touch him. Always touch firmly. Assure the child that you will touch firmly and that you will not move your hands.</li> </ul>
<ul style="list-style-type: none"> <li>• Reacts negatively and emotionally when touched lightly (exhibits anxiety, hostility, or aggression)</li> </ul>	<ul style="list-style-type: none"> <li>• Teach friends and relatives to show affection firmly and directly.</li> </ul>
<ul style="list-style-type: none"> <li>• Individual may pull away when approached for a friendly hug or caress from a carer or friend</li> </ul>	<ul style="list-style-type: none"> <li>• Offer deep-touch input. Hold the individual firmly and give a deep, firm hug.</li> </ul>
<ul style="list-style-type: none"> <li>• Individual may crave the deep-touch pressure of a hug, but try to rub off the light touch of a kiss</li> </ul>	<ul style="list-style-type: none"> <li>• Offer deep-touch input. Hold the individual firmly and give a deep, firm hug.</li> </ul>

<ul style="list-style-type: none"> <li>• Individual may reject touch altogether from anyone but his primary care giver.</li> <li>• May not discriminate when clothes are askew or food is on their face.</li> </ul>	<ul style="list-style-type: none"> <li>• Teach people always to approach the individual from the front and always make sure the child is able to anticipate the hug or expression of affection.</li> </ul>

<p>Individual is a picky eater:</p> <ul style="list-style-type: none"> <li>• Prefers certain textures</li> <li>• Refuses to eat foods with lumps</li> <li>• Dislikes sticky foods</li> <li>• Dislikes foods touching</li> <li>• Limited engagement in food and meal preparation and/or variety in diet.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply deep pressure to teeth and gums using a hard yet pliable item e.g. chewing on rubber tubing, a straw or a “Chewy tube”.</li> <li>• Please seek further advice from an Occupational Therapist if necessary.</li> <li>• Do not introduce new foods or challenges at meal times. Set aside a separate time for graded eating and drinking programmes to remediate the underlying problem.</li> <li>• Try to make mealtimes a relaxed pleasurable experience</li> <li>• Introduce new foods by expanding one sensory characteristic at a time. For example, if the person eats yoghurt, introduce cornflakes, oat-flakes or seeds into the yoghurt to produce texture.</li> </ul>
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- May toe walk to avoid contact with the ground
- Avoids walking barefoot in grass or sand, wading in water, or walking on sand at the beach



- Use a plate with compartments for food, or try to space foods to allow for consistency.
- Provide deep pressure into the bottom of the feet.



## The VESTIBULAR system

This is located in the inner ear and is activated by movement or by changing head position.

This results in appropriate postural adjustments being made.

The functions of the vestibular system are:

- “*the unifying system*”
- Provides unconscious information from the inner ear about equilibrium and head and body movements away from, and to, the centre of gravity
- Automatically coordinates the movement of our eyes, head and body.
- Provides sense of security and ties us to the ground
- Sends information to all parts of the body
- Receives input from body movement and movement in the environment
- Slow, linear movement is calming; fast is stimulating and arousing
- Detects whether movement is up, down, fast, slow, linear or angular.
- Coordinates movement
- Maintains muscle tone
- Provides information about where body is in space

Vestibular input that is calming includes those activities that provide linear (back and forth) movements or those that provide a slow rocking motion.

Vestibular activities that are excitatory are those that involve fast movements, quick changes of direction and speed and rotary movements. **Please be cautious with these activities.** Some children who appear under aroused may be in a nervous system state known as “shutdown.” These children are so over aroused that they have gone into shutdown” mode and may appear quiet and listless. Excitatory input at this stage can cause deeper levels of shutdown.

How it affects the person’s daily activities.....	Strategies to help...
<p><b><i>Hypersensitivity</i></b></p> <ul style="list-style-type: none"> <li>• Tense or irritable when moved</li> <li>• Intolerance of excess movement</li> <li>• Dislikes games/sports</li> <li>• Reluctance in climbing stairs</li> <li>• Fearful reactions to ordinary movement activities</li> <li>• Control of body position (consciously/unconsciously)</li> <li>• Difficulties walking or crawling over uneven or unstable surfaces</li> <li>• Anxiety or fear when feet leave the ground</li> <li>• Difficulties with balance, dislike of walking on uneven surfaces.</li> <li>• Dislikes or disoriented in elevators or on escalators.</li> <li>• Becomes nauseous when riding in the car. Needs to ride in the front seat or be the driver.</li> <li>• Fearful of leaving the house or of flying.</li> </ul>	<p><b><i>Hypersensitivity</i></b></p> <ul style="list-style-type: none"> <li>• Slowly introduce different movements in a safe way</li> <li>• Limit unnecessary movement or the number of steps (directions) in new activities</li> <li>• Teach the individual some calming strategies, (see below)</li> <li>• Participating in repetitive exercise activities such as walking or swimming</li> <li>• Holding head upright in movement activities</li> <li>• Using firm touch and heavy pressure when carrying out movements</li> <li>• Placing object at arm level height to avoid bending over</li> <li>• Placing stool under feet to keep contact with the ground</li> </ul>

- Difficulties with balance, dislike of walking on uneven surfaces.
- Dislikes or disoriented in elevators or on escalators.
- Becomes nauseous when riding in the car. Needs to ride in the front seat or be the driver.
- Difficulty driving, parking, shifting gears, or entering a freeway with an automobile.
- Clumsy or awkward with motor activities (e.g., exercise, leisure, self-care tasks).

#### **Calming vestibular activities**

- Jogging
- Stretching
- Swinging in linear movements
- Scooter board in linear direction.  
Encourage the individual to lie on the scooter board on their tummy and move the board in linear directions using their flat hands.
- If possible, give individual allocated time on a rocking chair.

### ***Hyposensitivity***

- An individual may be **hypo-responsive** (under responsive) to movement and will not become dizzy on rotational movements. They may also seek excessive amounts of movement e.g. excessive spinning, running, rocking back and forth.
- Weak muscles
- Crave movement stimulation, e.g. rocking
- Difficulty in sitting still
- Fall or trip over
- Bump into objects
- Walk with a bouncing gait
- spurts of running

### ***Hyposensitivity***

- The person will need opportunity to move as much as possible.
- Gym sessions
- Long Walks
- Spinning and jumping within activities e.g. dancing/movement, trampolining, climbing – within limitations
- Enjoy using suspended or non-suspended equipment
- Enjoy whole body movement
- Gradual linear movement
- Gentle rocking
- Enjoy self control within activities e.g. rocking chair, slow swinging, horse riding
- Give the individual an opportunity to move as much as possible
- Provide ample movement breaks, e.g., running an errand
- Consider a move n sit cushion or ball chair.
- Exercises such as jumping jacks or push ups
- Using a variety of surfaces during physical activities e.g. exercise mats
- Using clear pathways for movement e.g. clutter free home

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|  | <ul style="list-style-type: none"><li>• Performing gross motor activities before fine motor activities</li></ul> |
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## **The PROPRIOCEPTIVE System**

Just as our eyes and ears send information about what we see and hear to the brain, parts of our muscles and joints sense the position of our body and send these messages to the brain. We depend on this information to know exactly where our body parts are and to plan our movements.

Proprioception relates to information received from sensory receptors in muscles, joints and ligaments. It is our sense of body position.

### **Function**

- Gives information to the brain about where body parts are and what they are doing.
- Allows automatic adjustment of body.
- Allows limb movement to take place without having to observe
- Interacts closely with the vestibular system
- Makes it possible for an individual to skilfully guide his/her arm or leg movement without having to watch every action.
- Allows for automatic adjustment of the body and skilful manipulation. For example, the proprioceptive sense helps us stay in an optimal position in a chair.
- Helps us to judge how to manoeuvre through space so that we do not bump into obstacles.
- Responsible for force control e.g. when using a pencil.
- Allows us to hold utensils such as a pen or a fork in the right way

- Enhances our awareness of how far to stand away from people so we are not too close or too far

How it affects the person's daily activities.....	Strategies to help...
<p style="text-align: center;"><b><i>Hyporeactivity</i></b></p> <ul style="list-style-type: none"> <li>• Stiff, uncoordinated movements</li> <li>• Clumsy</li> <li>• Fall frequently</li> <li>• Bump into objects</li> <li>• Have difficulty in sitting down</li> <li>• Hold objects very tightly or loosely</li> <li>• Grind teeth</li> <li>• Bangs head</li> <li>• Slaps/hits self</li> <li>• Have stiff and uncoordinated movements</li> <li>• Be clumsy and fall frequently</li> <li>• Crash into objects in the environment</li> </ul>	<p style="text-align: center;"><b><i>Hyporeactivity</i></b></p> <p>To enhance proprioception individuals needs lots of activities against resistance or with pressure to enable them to become more aware of their body position. Weight bearing activities are most effective to provide proprioceptive input.</p> <ul style="list-style-type: none"> <li>• <b>Physical activity</b> -Any push/pull activities i.e. tug of war</li> <li>• Use sand bags stretched on outstretched arms, head, shoulders and back of neck whilst playing games.</li> <li>• Pulling own body along a bench using arms</li> <li>• Skipping with weighted skipping ropes</li> <li>• Volleyball</li> <li>• Wall push ups – stand an arms distance away from a wall. Lean on the wall, with the hands flat on it. Lean towards the wall and push away from the wall by bending and straightening the elbows.</li> </ul>

<ul style="list-style-type: none"> <li>• Not be able to do things without looking</li> <li>• Have difficulty sitting in a chair (may overshoot or sit down too hard on the seat)</li> <li>• Hold a pencil too hard causing the point to break or the paper to tear (force control)</li> <li>• Poor motor control and body awareness</li> <li>• Experience anxiety around moving through space or moving up or down stairs</li> <li>• May often over or under extend muscles to perform a task, causing you to break things or drop them</li> <li>• Difficulty adjusting and navigating body parts to dress yourself efficiently)</li> <li>• <b>Proprioceptive Motor Dysfunction</b></li> <li>• Poor posture while sitting or standing</li> <li>• Low muscle tone, especially in the abdominal area</li> <li>• Sit in awkward positions, like over the edge of a seat</li> </ul>	<p>Make sure the person’s feet stay flat on the floor.</p> <ul style="list-style-type: none"> <li>• Ask the person to close their eyes and “feel” where their legs, hands, arms, etc. are. Ask if they are up or down. See if person can get into different positions without looking, such as roll into a ball, touch their nose, make a circle with their arms, make an “x” with arms and legs etc.</li> </ul> <p>Within Art</p> <ul style="list-style-type: none"> <li>• Tearing thick paper or card</li> <li>• Stiff construction games i.e. lego, stickle bricks and poppa beads.</li> <li>• Marble painting: hold tray on outstretched arms with piece of paper on it. Add a marble coated in paint and roll it around the tray.</li> <li>• Large drawings on walls/blackboard.</li> <li>• Draw on paper over textured surfaces e.g. corrugated card, texture rubbings, i.e. tree bark/coins</li> <li>• Postural control and central stability are important for functional motor skills e.g. Jumping, hopping, and also for using hands e.g. Threading and handwriting.</li> <li>• Hold different positions against gravity e.g. Curling up like a ball while on back.</li> <li>• Use of climbing frames</li> </ul>
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- Often lean head forward onto hands, arms, or other objects when working at a desk or eating
- Difficulty digesting food properly, often experiencing constipation or 'leaky gut'
- Difficulty passing stool or urinating 'on command', may have a 'shy bladder'
- Difficulty swallowing food properly, frequently gagging or choking
- Frequently have a heartbeat or respiration rate that doesn't match your condition (i.e. heart racing and breathing heavily when at rest, or vice versa)



- Drawing or colouring on chalkboard/easel or other vertical surface whilst kneeling
- Throw – catch games in high kneeling and half kneeling
- Obstacle course –crawling under, climbing over, stepping on paper stepping stones.
- Worm walk – walk with hands and feet on floor, take small steps with feet then hands
- Move in space – e.g. Rolling with arms above head, down at side, holding bean bags in hands, between knees, feet
- Walk forward following curvy path along floor to target goal.
- Walks backwards, sideways. Walk at different tempos and barefoot.
- Hoop games – hoola, hoola hoop round different body parts.
- Target games
- Rope games – wrap rope round different body parts, jumping, stepping over, passing rope from one hand to other.
- Activities to encourage body scheme/body awareness
- **Use body in games and activities**
- Simon says e.g. Place hand on head and one on nose
- Stepping stones, animal tracks
- Twister



- Rolling on the floor to get a beanbag
- Crawling through, under over confined spaces e.g. Tunnels, tables
- Make self into small ball then stretch out as big as possible
- Move around as light and as heavy as possible
  
- **Encourage knowledge of body parts**
- Name of body parts, touch body parts
- Draw around body
- Musical statues – talk about the various static positions held by different parts of the body
- Move using different parts of the body e.g. Feet only, bottom, one foot, one hand
- Experience contrasts of muscle tone – stiffening body, e.g. Like a wooden spoon, relaxing body by going all floppy. Use mirror to aid physical appearance.
- Activities to encourage bilateral coordination
- Activities to encourage bilateral coordination
- Jumping games e.g. Using a sequence of hoops or stepping stones,
- Ball games involving rolling, jumping, catching – grade activity by using large then smaller balls

	<ul style="list-style-type: none"> <li>• Pouring water or sand from one container to the other</li> <li>• Baking/cooking activities e.g. Holding mixing bowl in one arm and holding bowl with other.</li> <li>• Construction activities including lego, woodwork kits etc</li> <li>• processing and proprioceptive processing</li> <li>• Spinning, rolling, jumping, sliding, swinging, rocking, bouncing.</li> <li>• Resistive activities (pushing and pulling against something) or by stretching.</li> <li>• Tug of war, pushing wheelbarrow, lying with stomach on therapy ball and walking with hands</li> <li>• Heavy loads – carrying rucksack, laundry basket, weighted blanket, weights etc.</li> </ul> <p><b>General strategies</b></p> <ul style="list-style-type: none"> <li>• Carrying and delivering heavy items</li> <li>• Carrying books close to body with hands touching opposite elbows</li> <li>• The use of a weighted lap pad or heavy book on the lap</li> <li>• Doing chair push ups – whilst sitting ask the person to push against the chair with the palms of their hands and try to raise their bottom off the chair for a count or 3 seconds –keep feet on ground but do not take weight through feet.</li> </ul>
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	<ul style="list-style-type: none"><li>• While standing, push down on the table for a count of 5. Pretend with the person you are trying to be really strong and push through the table.</li><li>• Place theraband around the front legs of a chair to provide the person with a resistive surface to push against with their feet.</li></ul>
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### Further reading

*Sensational Kids: Hope and Help for Children with Sensory Processing Disorder.* Miller (2006). Penguin Group, New York.

*Sensory Perceptual Issues in Autism and Asperger Syndrome: Different Sensory Experiences, Different Perceptual Worlds.* Bogdashina (2003) Jessica Kingsley Publishers Ltd, London.

*Ten Things Every Child With Autism Wishes You Knew.* Notbohm (2005) Future Horizons (Inc) Texas.

*The Out-of-Sync Child: Recognising and Coping with Sensory Integration Dysfunction.* Kranowitz (1998) The Berkely Publishing Group, New York.

*The Out-of-Sync Child Has Fun: Activities for Kids with Sensory Integration Dysfunction.* Kranowitz (2003) The Berkely Publishing Group, New York.

For further information on sensory processing difficulties, please browse the resources below:

National Autistic Society – Sensory Differences:

<https://www.autism.org.uk/about/behaviour/sensory-world.aspx>

Zones of Regulation <http://www.zonesofregulation.com/index.html>

The Out of Sync Child (Carol Kranowitz)

Building Bridges through Sensory Integration (Yack, Aquilla & Sutton)

[www.sensoryintegration.org.uk](http://www.sensoryintegration.org.uk)

*This resource was completed by Joan Philipsz, Specialist Occupational Therapist, June 2020.*