SENSORY PROBLEMS

TACTILE PROCESSING

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(Temple Grandin)

“Washing my hair really hurts my scalp. It feels as if thimbles massaged my head”
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“Tactile Processing”

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Touch: Our first and most primal sense.

The tactile system - the sense of touch - is the first sensory system to develop in the womb and is the largest sensory system in the body. There are tactile receptors not only on the outer skin but also the lining of the mouth, throat, and digestive system, inside the ear canals and so on. Receptors pick up various touch sensations and transport them on specific nerve fibres at different speeds. The sensory signals travel along two separate pathways in the central nervous system and end up in the brain for processing.

Types of touch

- **Light touch**
  Sensed by certain skin cells and the displacement of hairs on the skin, is often the most upsetting type of touch to a child with sensory processing difficulties. A child may be irritated or distressed by certain clothing textures; by having someone softly touch them; by feeling grass, sand, or dirt on their skin; by having their face and hair washed, their hair or teeth brushed; by feeling specific food textures in their mouth.

- **Deep Pressure**
  Is often more tolerable than light touch for a child with tactile issues. Deep pressure sensations are created by activities such as bear hugs, massage, banging, crashing, rolling and bouncing. These touch experiences also give important sensory information to the joints and muscles.

- **Vibration**
  Such as a vibrating toy, or appliances, can be alarming for some children with sensory processing difficulties. A tactile over-sensitive child may be extremely uncomfortable if they feel the vibrations of cars and trucks rumbling nearby. On the
other hand, an under-sensitive child might think sitting on top of a washing machine is the best feeling in the world.

- **Temperature**
  Some children with sensory issues complain that their lukewarm bath or shower is too hot. Some children crave freezing cold food items while others want to eat their meals boiling hot. Some children refuse to eat any food that isn’t exactly at their favourite temperature.

- **Pain sensations**
  Some children with tactile problems are distressed by a small scrape, while others are unaware of a broken bone.

**When there are problems with the tactile system**

**Under-sensitive**
- Holds others tightly - needs to do so before there is a sensation of having applied any pressure.
- Has a high pain threshold.
- May be unable to feel food in the mouth.
- May self-harm.
- Enjoys heavy objects (e.g. weighted blankets) on top of them.
- Smears faeces as enjoys the texture.
- Chews on everything, including clothing and inedible objects.

You could help by:
- For smearing, offering alternatives to handle with similar textures, such as jelly, or cornflour and water
- For chewing, offering latex-free tubes, straws or hard sweets (chill in the fridge).

**Over-sensitive**
- Touch can be painful and uncomfortable - people may not like to be touched and this can affect their relationships with others.
- Dislikes having anything on hands or feet.
- Difficulties brushing and washing hair because head is sensitive.
- May find many food textures uncomfortable.
- Only tolerates certain types of clothing or textures.

You could help by:
- Warning the person if you are about to touch them - always approach them from the front
- Remembering that a hug may be painful rather than comforting
- Changing the texture of food (e.g. purée it)
- Slowly introducing different textures around the person's mouth, such as a flannel, a toothbrush and some different foods
- Gradually introducing different textures to touch, e.g. have a box of materials available
- Allowing a person to complete activities themselves (e.g. hair brushing and washing) so that they can do what is comfortable for them
- Turning clothes inside out so there is no seam, removing any tags or labels
- Allowing the person to wear clothes they're comfortable in.

A child with difficulties processing tactile information may have difficulty modulating their response to touch. They may often display tactile defensiveness, this is when the tactile system sometimes alerts the child to non-threatening stimuli, (e.g. hair cutting, nail cutting,
messy activities, light touch), but at the same time does not provide them with enough discriminatory feedback (e.g. awareness of pain, finding something in a bag without using vision).

**Tactile Defensiveness**

The tactilely defensive child is usually hyperactive and distractible.

A tactile defensive child will react negatively and emotionally to any touch sensations. He/she is overly sensitive to tactile stimuli that other people would hardly feel. Touch sensations cause major disruptions in the nervous system and cause negative emotions and behaviour.

**The Childs Experience**

Imagine yourself lying on a sunny beach, your eyes closed and you feel warm sun shining on your bare feet. Suddenly someone runs a stick quickly, but lightly up the sole of your foot. Even though your nervous system was in a very relaxed state, that tactile stimuli would probably make you angry or alarmed, even though it was not painful. Your reaction would be less if the person pressed the stick slowly and firmly on your skin. This is because quick, light touch sensations tend to arouse the nervous system more than firm, non-moving pressure particularly true for the tactile defensive child.

The child with this neural disorder actually experiences touch stimuli differently from other people. Something that feels fine to other children may be irritating to this child. Sometimes the child can tell us what they feel. Some say that the touch of a pencil feels like a needle, or an electric shock, or an insect biting. Often touch feels like being tickled, and this is not pleasurable, although it may cause a reflex giggle. More often, the tactilely defensive child is not fully conscious of what he feels other than that another person is making him angry or uncomfortable. The poor tactile processing usually occurs in the brain stem or in subconscious areas of the cerebral hemispheres, and so the child does not realise that he is reacting to touch sensations. The child with good self-control is apt to find socially acceptable excuses for avoiding what he is doing. When his brain needs to escape from touch sensations he may make excuses such as ‘I want a drink of water’ or ‘I have to go to the bathroom, or ‘my mother does not want me to do that’.

Meanwhile, he is often miserable, and his misery leads to behaviour that makes other people miserable.

**Checklist for Tactile Defensive Behaviours**

If a child frequently or consistently shows several of the following reactions, they could be showing tactile defensive behaviour. If several of these behaviours are seen in conjunction with hyperactivity and the inability to focus on a task, it is probable that they are tactilely defensive and should receive help from an occupational therapist.

- Avoids being touched on the face. He may move his head away from things that are near his face. Washing his face may be especially difficult.

- May seem to under react to pain, crashing or bumping into things hard.

- Is very distressed about having his hair cut or washed, nail cutting or having a shower.
• Dislikes it when people touch him, even in a friendly or affectionate way. Pulls away from a hug or even a pat on the shoulder. At other times, or from other people, he may accept the same kind of touch.

• Touching the child while dressing him may elicit a negative reaction. Simply pulling up his sock may make him react.

• Tends to avoid physical contact with friends, even though he likes to talk to them and relate without touch.

• Being approached form behind is more threatening than it is for other children.

• Having people near him, even without touching, may cause him distress i.e. standing in a line.

• Often prefers long-sleeved shirt or blouse and wears a sweater or jacket even when he is warm.

• Has an unusual need for touching or avoiding touching certain surfaces or textures, such as blankets, carpets, or stuffed toys.

• Is sensitive to certain fabrics and avoids wearing clothes made of them.

• Does not like to get his hands in sand, finger paint, paste or similar materials.

Adapting to Touch
Another aspect of touch is how quickly we adapt to tactile changes. Most of us get used to the feeling of light touch or deep pressure, while we take longer to adapt to sensations of pain or changes in temperature and so are more likely to be aware of them. For example, you probably don't feel your socks soon after you put them on. A child with tactile issues may continue to be aware of their socks for hours afterwards. Their body perceives the socks as a new sensory event each time they put a pair of socks on and does not adapt to it.

Implications for Learning

• The sense of touch is necessary for manipulation of objects by the hands and fingers. Tactile discrimination can play an important part with promoting hand and finger awareness, accuracy in fine motor activities such as handwriting, doing up buttons, shoelaces, using cutlery. It tells us how much pressure to use, the properties of the objects that we touch and temperature awareness.

• Tactile defensiveness is unhelpful in that it is an irrelevant distraction; the tactile system becomes alerted to stimuli which do not need to be attended to.

Strategies that might help

• Tactile activities are those that provide touch or texture to the skin. These activities help children gain awareness of their bodies and are useful for helping children learn to move and manipulate their body and hands in a coordinated, planned manner.

• Firm touch is generally less alerting than light touch. Make sure touch is not unexpected whenever possible, and try to ensure that the child has control over
activities involving touch (i.e. so that they can withdraw from them if the sensation becomes unpleasant to them).

- The child may feel more comfortable sat at the end of the table in the classroom so the possibility of touch is reduced.

- The child may become anxious in busy environments due to noise, dislike of crowds but also worrying about being touched. This can cause particular anxieties in schools for example in busy corridors; some children find it easier to leave a lesson a few minutes early to avoid the busy crowd.

- Participating in proprioceptive, vestibular, tactile and deep pressure touch activities may help the child to regulate their over-responsiveness to touch.

**Useful Resources**
- *Raising A Sensory Smart Child* by Lindsey Biel and Nancy Peske
- *Building Bridges through Sensory Integration* by Ellen Yack, Paula Aquilla and Shirley Sutton.