The Tactile System, Sensory Processing, and Tactile Defensiveness
An Introduction by Antonia Llull

The Tactile (Touch) System begins to function before a child is born, in utero. It is a child's first language. Touch receptors register touch, pressure, vibration, temperature, and pain. A child uses touch to explore and make contact with the world around them.

Information from the touch system is used in three ways:

1) **Protection**: our tactile system tells us when a situation/object is potentially harmful or painful.

2) **Discrimination**: it helps us to determine size, shape, texture and location of objects that come into contact with it. This is vital for the development of fine motor skills, motor planning, and academic success.

3) **Recognition of Novelty or Change**: an integrated tactile system recognizes novelty and change. When something is familiar and long lasting it becomes "ignored" so to speak (inhibited). For example, the clothes or jewelry we are wearing becomes very familiar and expected – we don't need to keep paying attention to the touch sensation from them, so the information is inhibited (after a time we no longer consciously feel the ring on our finger or the necklace around our neck).

Further, information from the touch system is used in combination with input from the vestibular and proprioceptive systems to tell us where we are in space, which is essential for planning and executing effective motor actions – this is called Somatopraxis.

This *inhibition* of familiar touch information allows our tactile system to work more efficiently for protection, discrimination, and recognition of change or novelty, i.e. if a necklace falls off, the change is noted, and a typical response will be to look for it. If a seam rips on our clothing, we will feel air seep in and that change causes us to investigate the issue.

If a tactile system is not processing the information adaptively (is misinterpreting the information), the touch information takes longer to become familiar and the balance of protective responses, discrimination, and recognition of change/novelty is skewed in a manner that results in a child reacting in an unexpected manner, given the situation or environment. So even when we might think a child is familiar with an experience, they may keep reacting to it as novel and is repetitively perceived and reacted to as new, strange, and/or potentially dangerous. For example, a child may always want to take off their shoes and socks, have difficulty changing from shorts and t-shirts to pants and long sleeves, and need the tags cut from the back of their shirts because it continuously

irritates him/her. They may have high aversion to grooming and hygiene tasks, like hair cutting, shampooing, nail trimming, and tooth brushing.

When your child has difficulty interpreting tactile information they may be tactilely defensive. Tactile defensiveness is characterized by adverse reactions to various types of stimuli (touch & textures) that are not generally considered dangerous, painful, or irritating. ** A child may have maladaptive behaviors secondary to tactile-defensiveness, without showing aversion to textures specifically -- a skilled sensory integration specialist will be able to evaluate this problem area and implement a plan of care to address the issue **

If your child tends to have fight or flight reactions and/or have consistent intervals of hyperactivity and distractibility they may have sensory processing disorder with tactile defensiveness. Fight and flight may result in aggression - verbal or physical, fleeing the area, isolation of themselves, hypervigilance, and strong avoidance of activities). If they show difficulty with grooming, hygiene, dressing, and feeding tasks they are likely to have a level of tactile defensiveness. **An occupational therapist can help you determine if your child has mild, moderate or severe tactile defensiveness and how to best treat the disorder.**

Tactile Defensiveness can be mild, moderate, or severe to profound.

Mild- The child may seem choosy or overly cautious. They may be over-reactive, mildly hyperactive, and/or uncomfortable with change. They may typically avoid certain clothes or food textures. They may show a need for a large personal space.

Moderate- The child may experience difficulty in social situations because they behave aggressively or separates him/herself from the situation. They may frequently move away from an approaching peer or hit if unexpectedly touched. Learning to take care of one's self is difficult -- Dressing, bathing, and eating may agitate your child. Teachers may advise you of poor attention or behavior in the classroom. They may need frequent hugs and like to carry items like a blanket or hand held toy most of the time.

Severe - Strong avoidance AND/OR seeking of multiple forms of tactile input, negatively impacts all aspects of the child's life. They may shut-down (block out their environment), become extremely hyperactive, and/or impulsively engage in intense tactile experiences, i.e. tantruming, head banging, shutdown, severe attachment to soft toys, and/or repetitive rubbing, scratching, picking, or hitting.

****** A child may actually be in an over-stimulated state (shutdown mode) even if they look like they are in a low arousal state (which usually means they need more

stimulation, like when we are in a seminar and feel slumped and groggy - we need to stretch or walk to refocus our attention to the speaker). A child may start yawning, look lethargic and show decreased orientation to task when in a "shutdown" state secondary to over-stimulation. ***It is critical to know the difference*** *– working with a skilled sensory integration specialist will assist you in recognizing when a child is truly in a low-arousal versus shutdown.* ****

Tactile defensiveness does not necessarily limit the academic capabilities of your child, but over-reaction to and misinterpretation of tactile input (information) may interfere with the learning process.

It is critical that you actively observe and listen to your child's verbal and non-verbal communication.

- **Pay attention to which types of fabrics, textures, toys, activities, and/or social situations seem to cause a negative response, for example:**
  - Quick touch, light touch, tickling, and/or unexpected touch especially from behind
  - Rough or wet textures (finger paint, sand)
  - Temperature changes
- **Believe him/her when they say something "hurts" or is scary.**
- **Try to avoid irritating textures/tastes/tactile activities prior and during academics or other new learning challenges.**
- **Notice what your child's favorite type of play and what they consistently avoid.**
- **Your child's therapist will advise you how to best introduce, new tactile experiences and decrease aversion to common tactile input and to prevent shutdown.**

A typical home program (created by an occupational therapist, after a complete evaluation) includes activities that provide your child with the sensory input (information) they need throughout the day to prevent or minimize the consequences of sensory processing disorder. When provided on a routine basis, the activities facilitate improvement in organization and processing of the sensory information coming into all systems. It is recommended to combine something that stimulates (increases awareness) with something that calms in order to minimize an unwelcome increase or decrease in arousal state. The balance created by combining the activities (stimulating) and organizers (calmers) supports increased skill development with your child. Your occupational therapist will provide you the recommended combination of sensory experiences, which are intended for incorporation into normal play times with your child. The activities should not be limited to the in-doors.

Please do not introduce new activities if your child is tired, upset, over-stimulated, and/or sick.