

Pediatric Oral and Pharyngeal Issues in Feeding: What to Do if They Are Motor-Based, Sensory-Based or A Combination of Both

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Oral Issues

- A. Oral Sensory
- B. Oral Motor
- C. Structural/Alignment

Pharyngeal Issues

- A. Pharyngeal Sensory
- B. Pharyngeal Motility
- C. Structural/Alignment

ORAL ISSUES

Oral Issues

- A. Oral Sensory Problems
 - 1. Difficulties managing incoming sensory information on the face, to the structures of the oral mechanism, and within the oral cavity.

- 2. Difficulties with reception, modulation, integration, and organization of sensory stimulation presented through the somatosensory (touch, proprioception, pain, and temperature), vestibular, visual, auditory, olfactory (smell), and gustatory (taste) peripheral sensory systems during general movement activities, and eating and drinking tasks.

3. Under responsiveness or over responsiveness to oral sensory input may be influenced by:

- a. Pharyngeal issues
- b. Gastrointestinal issues
- c. Respiratory/Airway issues

d. Sensory processing dysfunction

e. Neuromotor system impairments

f. Dental issues

B. Oral Motor Problems

- 1. May be mild, moderate, or severe in the degree of involvement.
- 2. Reflected in a child's response to the presentation of food/liquid; the way the child prepares and controls material within the oral cavity; and/or the way the child moves food/liquid back toward the pharyngeal area for swallowing.

3. May appear more severe in involvement due to influences of:

- a. Pharyngeal issues
- b. Gastrointestinal issues
- c. Respiratory/Airway issues
- d. Neuromotor system impairments

e. Musculoskeletal system impairments

f. Sensory-perceptual processing problems

g. Craniofacial and oral structural issues

h. Dental issues

C. Oral Structural/Alignment Problems

1. Craniofacial issues

2. Malocclusion

3. Jaw development issues

PHARYNGEAL ISSUES

Pharyngeal Issues

A. Pharyngeal Sensory Problems

1. Difficulties managing incoming sensory information within the pharynx (i.e., nasopharynx, oropharynx, hypopharynx).

2. Difficulties with reception, modulation, integration, and organization of sensory stimulation to the pharynx presented through the somatosensory (touch, proprioception, pain, and temperature), olfactory (smell), gustatory (taste), and vestibular peripheral sensory systems.

3. Infant sounds wet/gurgly and shows no effort to clear material.
4. Child exhibits wet/gurgly quality during activities that do not involve feeding.

5. Child exhibits great interest in oral motor/oral sensory activities, but shows only variable signs of swallowing during these activities.
6. Child accepts and processes food in the mouth, but does not initiate the pharyngeal phase of swallowing.

7. Under responsiveness or over responsiveness to pharyngeal sensory input may be influenced by:
 - a. Oral issues
 - b. Gastrointestinal issues
 - c. Respiratory/Airway issues
 - d. Neuromotor system impairments
 - e. Sensory processing dysfunction

B. Pharyngeal Motility Problems

1. Often prefer liquids and/or wet pureed.
2. Have significantly more trouble with increased texture.
3. May have problems with residual material in the pharynx remaining after swallowing.

4. May use breath holding to help during attempts to sequence swallows.
5. May turn head to the side or flex head to assist with swallowing.
6. May move in a continuous motion from head flexion to extension in order to swallow.

7. Poor posterior tongue activity often results in the use of changes in head/neck and trunk position to assist in swallowing.
8. Changes in texture preferences, head/neck and body position, and food volume subsequent to significant growth spurt.

9. May be influenced by:
 - a. Oral issues
 - b. Gastrointestinal issues
 - c. Respiratory/Airway issues

- d. Neuromotor system impairments
- e. Musculoskeletal system impairments
- f. Sensory-perceptual processing problems

C. Pharyngeal Structural/Alignment Issues

1. Adenoids, palatine tonsils, and lingual tonsils (i.e., Waldeyer's Ring)
2. Cleft of the soft palate
3. Malacias
 - a. Laryngomalacia (i.e., collapse of the supraglottic airway)
 - b. Pharyngomalacia

4. Tumors
5. Size discrepancies
6. Structural relationship problems

SENSORY ISSUES

What is sensory stimulation?

- “Passive” sensory input.
 - Assess the environment.
 - What are we being exposed to?
 - Remember internal systems.

What is Sensory Processing?

- “Refers to the individual's ability to receive, manage sensory information that comes from the nervous system from the outside world”. Lane 2001
- Lucy Jane Miller defines it as the way the nervous system receives sensory messages and turns them into responses.

What is Sensory Integration?

- The neurological process that organizes sensations from one's own body and from the environment and makes it possible to use the body effectively within the environment.
- Sensory integration is information processing.
- The brain must select, enhance, inhibit, compare and associate the sensory information in a flexible constantly changing pattern.
- The brain must integrate it! Jean Ayres

Review of Sensory Systems

- Somatosensory System
 - Touch/Tactile
 - Kinesthesia/Proprioception
- Movement/Vestibular
- Auditory
- Visual
- Gustatory (taste)
- Olfactory (smell)

Tactile System

- Gives us information about the external world.
- Responds to contact with the skin either active or passive.
 - Broad reception area = the skin.
 - The only sensory system that requires physical contact to be activated or stimulated.
- First to develop in utero.
- Commonly divided into two different systems
 - Protective = quick to respond.
 - Discriminative = assesses the quality of a sensation or object

Proprioception/Kinesthesia System

- Activated or stimulated or responds to muscle contraction and/or joint movement.
 - Receptors are in the muscles and joints.
 - Always need active movement to stimulate this system.
- Provides regulatory influence over other sensory system and regulatory influence on arousal level.
- Discriminative function allows just enough speed and force of movement for smooth graded movement.

Vestibular System

- Receptors are located in the inner ear.
- Facilitates upright postural control.
- Detects position and movement of head in space.
- Provides an awareness of position in space.
- Bilateral system – both sides are always stimulated with any movement.
- Active at 4½ months in utero.

Auditory System

- As with the vestibular system, receptors are located in the ear.
- Bilateral system.
- In addition to hearing, it is important for spatial awareness, timing and sequencing and praxis.
 - Sound gives us a marker of time on an unconscious level.
- The vestibular system tells us about our body in space, sound gives us information about that space. (Frick)

Visual System

Vestibular system lays the groundwork for efficient visual processing

- Gives us information and detail about our space. A major portion of one's attention is devoted to imaging the visual world.
- One of the only sensory system that we can control the input
- Information is pre-processed at the brain stem and then processed at the visual cortex

Olfactory (Smell) System

- Molecules are smelled → olfactory sensory neurons → lying in specialized neuroepithelium in the posterior, superior nasal cavity → olfactory bulb of the brain → several different areas of the cerebral cortex.
- Olfactory neurons are short-lived, with average life span of 30-60 days.
- Cilia of olfactory neurons are specialized for the detection of odorants. Mucus helps in detection.
- There are differing sensitivities of individual neurons to different odorants.

Gustatory (Taste) System

- Sensory cells for taste are specialized epithelial cells that cluster together in the taste buds.
- Taste cells sense 4 basic types of taste stimuli (tastants): bitter, sweet, salty, sour.
- Taste buds are in the papillae:
 - Fungiform = 1-5 taste buds each; anterior 2/3 of tongue.
 - Circumvallate = hundreds of taste buds each; posterior 1/3 of tongue.
 - Foliate = leaf-like structures surrounded by a groove; on posterior edge of tongue.
- Taste buds for all tastes are found in all regions of the tongue.

Sensory Based Motor Disorder

- Dyspraxia

- Postural disorder (Miller, 2006)

Sensory Discrimination Disorder

- Problems sensing stimulation

- Problem differentiating between sensations. (Miller, 2006)

Another Perspective

- High Threshold
- Low Registration

- Low Threshold
- Sensory Sensitivity

Strategies to Help Organize

- Movement breaks – vary the position of the client during therapy and/or use cushions such as core disc, move and sit cushions, t-stools

- Provide deep pressure
 - Downward pressure on the shoulders
 - Weighted collars, lap pads, vest or blankets
 - Do pushing activities against a ball, wall or any stable vertical surface.
 - Rub up and down arms and legs with firm pressure. You can use your hand or different textured fabrics.

Strategies Cont.

- Use of Fidgets
 - Squishy balls
 - Velcro
 - Tangles
 - Twidgets
 - Bendable pencils

Environmental Strategies

- ASSESS THE ENVIRONMENT!
 - Limit distracting or over stimulating sensory stimulation
 - Assess noise
 - Assess light and visual stimulation
 - Assess movement
 - Assess smells.

STRATEGIES IN ACTION