

“Eating’s Too Hard, Help Me” Dysphagia and the Medically Fragile Child

Leonia Walker, MSCCC-SLP/L
dysphagiatherapist@yahoo.com

- List common diagnoses that impact feeding in medically fragile children
- Demonstrate therapeutic techniques that will improve PO intake
- Define Speech/Language Pathologist’s role within Feeding Team

Learner’s Objective

- I. Development and Anatomy of oral structures
- II. Medical Diagnoses that impact feeding skills
- III. SLP's role during feeding therapy with medical fragile child
- IV. Goals and session setup during a feeding session
- V. Techniques to improve feeding skills

Table of Contents

Swallowing skills develop around 12-14 wks of gestation.

- In utero swallowing plays a role in regulation of amniotic fluid
- Cranial Nerves involved in oral and swallowing
 - CN V- Trigeminal
 - CN X- Vagus
 - CN IX- Glossopharyngeal
 - CN XII- Hypoglossal
 - CN VII- Facial

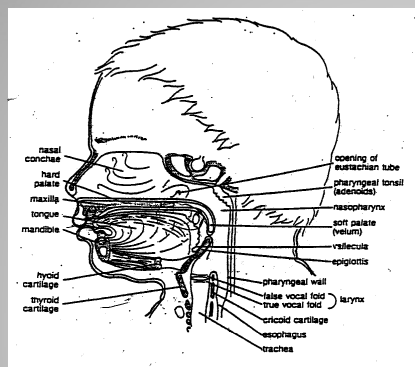
I. Development of Oral structures

Infant's oral anatomy more compact than adults

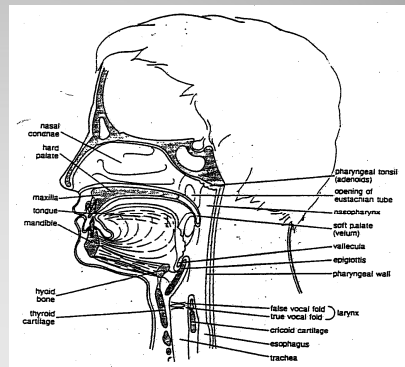
- Infants have decreased intraoral space, creating limited tongue movement
- Automatic nasal breathers due to small oral cavity

I. Anatomy of Oral structures

Newborn 0-6months



Older child-Adult



I. Anatomy of oral structures

Three phases of swallowing:

1. **Oral**- prepares bolus prior to swallow

- Tongue-
- Lips-
- Jaw-
- Cheeks-
- Palate-

I. Anatomy of oral structures

2. **Pharyngeal** - protects airway during swallow

- Nasopharynx- nasal choanae to elevate soft palate
- Oropharynx- pharyngeal space between elevated soft palate and epiglottis
- Hypopharynx- pharyngeal structures between epiglottis and sphincter to the top of esophagus

I. Anatomy of oral structures

3. Esophageal- directs bolus towards stomach for digestion

- upper esophagus sphincter-
- lower esophagus sphincter-

Bolus movement relies coordinated, progression of contractions called peristalsis

I. Anatomy of oral structures

Medical Diagnoses

Medical Diagnoses	Diagnoses description	How diagnoses impact feeding skills
Prematurity	Babies born before 36wks are diagnosed as premature infants	-Weak suck -Poor cheek stability -Small/absent sucking pads -Inadequate hunger signals -disorganized wake/sleep pattern
Gastrointestinal Issues: GERD, Esophageal Dysmotility, Achalasia	GERD is spontaneous return of gastric contents into the esophagus. Achalasia is a the absence of peristalsis sequence	-Irritable/fussy impeding calm awake state -Oral aversion -Coughing -Vomiting -chest pain during or after feeding

Medical Diagnoses		
Medical Diagnoses	Diagnoses description	How diagnosis impact feeding skills
Cardiac Issues	The defect of the cardiovascular system resulting in abnormal blood flow. The abnormal blood flow cause the body to compensate by increasing heart rate and blood pressure	<ul style="list-style-type: none"> -Decreased endurance -decreased arousal sate -Easily fatigued -Poor PO intake -Weak suck -irregular heart rate (Brady/Tachycardia episodes) -Overall feeding difficulties due to high energy demands for feeding
Anatomical Anomalies (Cleft Palate, Pierre Robin)	Atypical oral motor structures or movements due to malformations.	-Poor SSB patterns due to decreased negative air pressure or minimal lip/lingual ROM

Medical Diagnoses		
Medical Diagnoses	Diagnoses description	How diagnoses impact feeding skills
Respiratory compromise (tracheomalacia, subglottic stenosis, tracheotomy, Vent Dep.)	<p>Impaired respiratory system due to narrowing of trachea/laryngeal cartilages.</p> <p>Respiratory system required external support .</p>	<ul style="list-style-type: none"> -Poor suck, swallow and breath (SSB) -altered neck posture -decreased olfactory cues -discordination of rhythmic breathing (Apnea episodes)
Broncho-pulmonary Dysplasia (BPD)	Chronic pulmonary disease that increases airway resistance and respiratory effort resulting in respiratory fatigue. (Sandra Agnes, MACCC-SLP, 1997)	<ul style="list-style-type: none"> -Decreased endurance -Oral defensiveness -Anterior spillage -Uncoordinated SSB -arhythmical tongue/ jaw movements -excessive tongue protrusion during sucking

Feeding team member

- Nutritionist-
- Physician-
- Otolaryngologist-
- Gastroenterologist-
- Social Worker-
- Occupational Therapist-
- Physical Therapist-
- Pulmonologist-

SLP's role during feeding therapy

When to involve SLP with feeding?

- Minimal weight gain and growth
- Safe liquid and food intake
- Quality of life
- Timely feeding
- Oral-motor skills
- Oral tactile defensiveness
- Physiological changes with feeding
- Aversive behaviors with feeding

SLP's role during feeding therapy

Assess Feeding Issues

- **Motor Based-** atypical neurological development
- **Sensory Based-** paralysis/dysfunction with cranial nerves that affects how sense interpret eating
- **Structurally Based-** feeding limited secondary to structural limitations
- **Experimentally Based-** feeding limited due to children accepting familiar and safe food items
- **Combination-** most feeding issues are a combinations of the above areas

SLP's role during feeding therapy

Improve Oral-Motor skill and efficiency during feeding

- **Normalize oral tone (if possible)**
 - a. postural changes
 - b. external oral-motor support
- **Increase oral ROM/STR**
 - a. resistance exercises
 - b. ROM exercises

SLP's role during feeding therapy

Ensure Safe Feeding

- Modified Barium Swallow Study/FEES
 - a. testing to determine safest diet level
 - b. evaluate aspiration/penetrations risks
- Vital Stimulation (E-Stim) therapy
- Laryngeal Strengthening exercise
- Trialing higher texturized foods/liquids

SLP's role during feeding therapy

Goals within session

- Goals achieved when child is able to accept textures and tastes 80% of presentations without distress
- Parents to carryover session suggestions within the week
- Session must be consistent and performed when child is hungry

Session Goals

Example Goals

Transitional state

- Pt will maintain calm-awake state for 30 minutes.
- Pt. will tolerate structural feeding environment for >20 minutes w/o signs of distress
- Pt. will maintain baseline physiological status during and >10 minutes after feeding

Session Goals

Example Goals

Oral- Motor

- Present rhythmic SSB pattern to consume >2 ounces of formula
- Orient towards nipple/spoon 80% of the time
- Accept bolus with flat tongue, followed by closed lips on spoon 8/10 trials
- Demonstrate lingual lateralization lumpy pureed 8/10 trials

Session Goals

Example Goals

Sensory

- accept nonedible mouthing items to level of lips/gums
- accept vibratory stimuli to level of cheeks/tongue 8/10 presentations
- accept lumpy pureed 8/10 presentations

Session Goals

Example Goals

Structural

- Safely consume 3-4 oz of formula within 20-30 minutes
- Safely consume at least 3 tsps of 2 different textures within 30 minutes
- Safely consume >5 bites of dissolvable crunchy within 20 minute period

Session Goals

Infants

- See at mealtimes-
- Cue based Feedings-
- Assess state control-

Session Setup

Toddler- see at mealtime or snack

- Oral play
- Presentations at dry level
- Present PO presentations in intervals
- Immediately reward targeted amount accepted

Session Setup

Primary areas to address during feeding session

- Sensory
 - a. Feeding Environment
 - b. Feeding Equipment
 - c. Diet Levels
- Stability
 - a. Positioning during feeding
 - b. Feeding Equipment
- Motor
 - a. Feeding Equipment
 - b. Diet Levels
 - c. Positioning during feeding

Techniques to improve feeding skills

Assist with Oral phase

- Discoordinated vs. dysrhythmic sucking patterns
- Oral explorations at dry level
- Positive oral stimuli
- Oral-motor prep

Techniques to improve feeding skills

Feeding Environment

- Good state regulation and organization
- Assist transition to calm-awake state
- Decrease external distractions
- Present immediate positive reinforcement with targeted response

Techniques to improve feeding skills

Feeding Equipment

Nipple types

- Colored preemie- softer than standard nipple
- Standard single hole- harder/fast flow than preemie
- Cross cut – allows for thickened formula
- Haberman Feeder – flow controlled by feeder
- Nuk (orthodontic) – shaped to duplicate oral cavity
- Variable Flow – change flow during feeding

Techniques to improve feeding skills

Toddler Equipment

- Spoons-small-wide bowls, textured and vibratory
- Sippy cups-soft vs. hard spouts
- Cut out cups- used with individuals with decreased head/neck control

Techniques to improve feeding skills

Diet Levels

Liquids

- Thin liquid
- Thicken liquid
 - a. Allow baby time to control formula before swallow
 - b. Decrease rate of liquid flow from nipple to oral cavity
 - c. Works best with infants with strong suck and decreased SSB

Techniques to improve feeding skills

Diet Levels

- Thicken liquid
 - a. May clog nipples
 - b. Causes feeders to alter nipple, thus changing the function on the nipple
 - c. Increases work in infant during sucking, thus decreasing feeding endurance
 - d. May increase occurrence of constipation in infants (oatmeal better choice than rice cereal)

Techniques to improve feeding skills

Diet Levels

Solids

- Smoothy puree (stages 1-2)
- Thick puree (stage 3)
- Lumpy puree (stages 3)
- Soft chewables (stages 3- Gerber Entrees)
- Crunchy dissolvables (crackers, cheese curls)
- Soft chewables (mac-n-cheese)
- Chewables (raisins, ground/diced meats)
- Regular

Techniques to improve feeding skills

Positioning during feeding

- **Upright positioning**
 - a. Allows gravity to move bolus more efficiently
 - b. Ensure trunk and feet stability

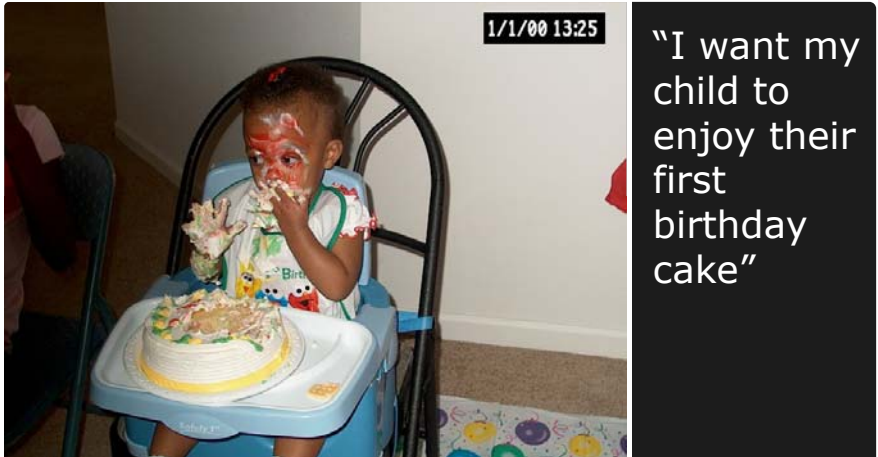
- **Sideline positioning**
 - a. Most preferred with preemies/infants
 - b. Use to decrease respiratory distress
 - c. Best breath support for feeding
 - d. Decreases occurrences of penetration/aspiration

Techniques to improve feeding skills

Positioning during feeding

- **Semi upright positioning**
 - a. Decreases occurrences of reflux
 - b. Allowing more spaces in abdomen and decreased amount of pressure in stomach
 - c. Used with typical developing infants
 - d. Lying prone with hips upwards decreased reflux episodes


Techniques to improve feeding skills



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"I want my child to enjoy their first birthday cake"

Parents' Goal



Notes

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