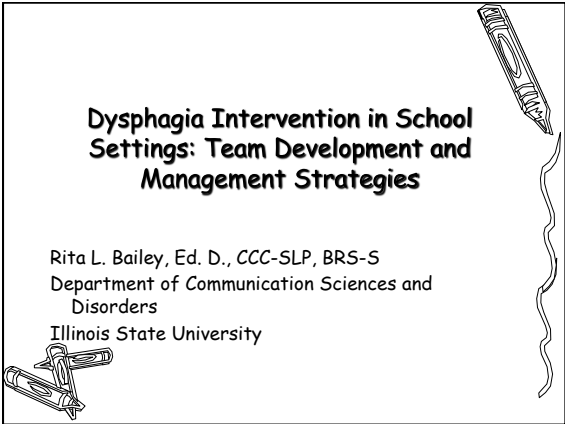


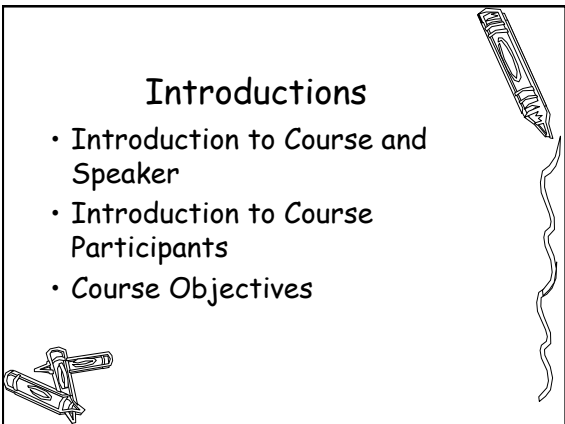
Dysphagia Intervention in School Settings: Team Development and Management Strategies

Rita L. Bailey, Ed. D., CCC-SLP, BRS-S
Department of Communication Sciences and Disorders
Illinois State University



Introductions

- Introduction to Course and Speaker
- Introduction to Course Participants
- Course Objectives

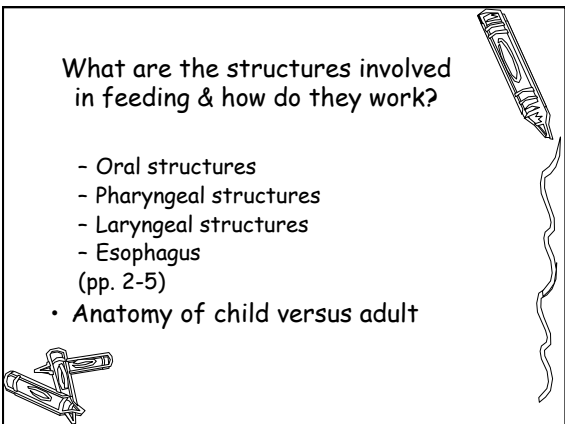


What are the structures involved in feeding & how do they work?

- Oral structures
- Pharyngeal structures
- Laryngeal structures
- Esophagus

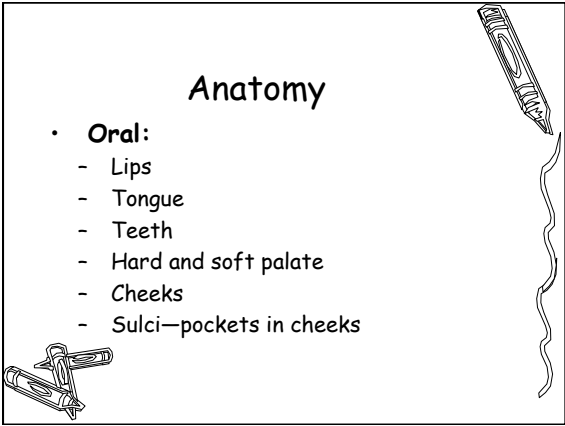
(pp. 2-5)

- Anatomy of child versus adult



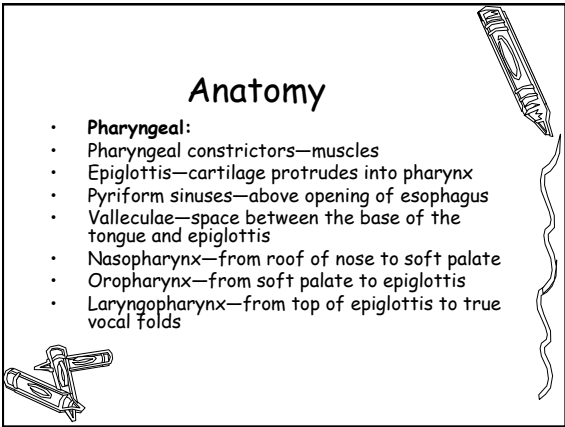
Anatomy

- **Oral:**
 - Lips
 - Tongue
 - Teeth
 - Hard and soft palate
 - Cheeks
 - Sulci—pockets in cheeks



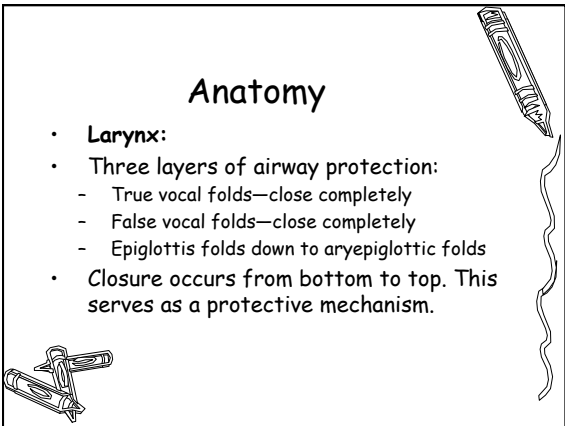
Anatomy

- **Pharyngeal:**
 - Pharyngeal constrictors—muscles
 - Epiglottis—cartilage protrudes into pharynx
 - Pyriform sinuses—above opening of esophagus
 - Valleculae—space between the base of the tongue and epiglottis
 - Nasopharynx—from roof of nose to soft palate
 - Oropharynx—from soft palate to epiglottis
 - Laryngopharynx—from top of epiglottis to true vocal folds



Anatomy

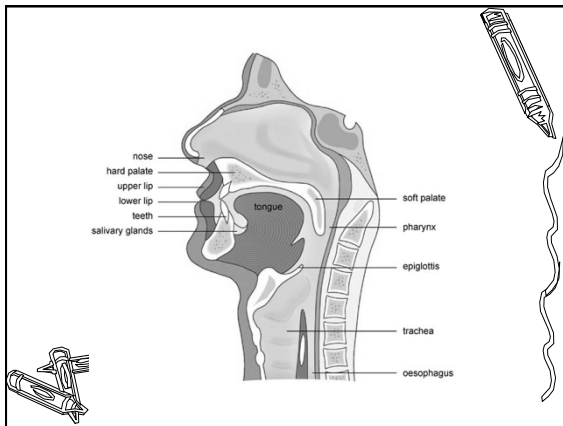
- **Larynx:**
 - Three layers of airway protection:
 - True vocal folds—close completely
 - False vocal folds—close completely
 - Epiglottis folds down to aryepiglottic folds
 - Closure occurs from bottom to top. This serves as a protective mechanism.

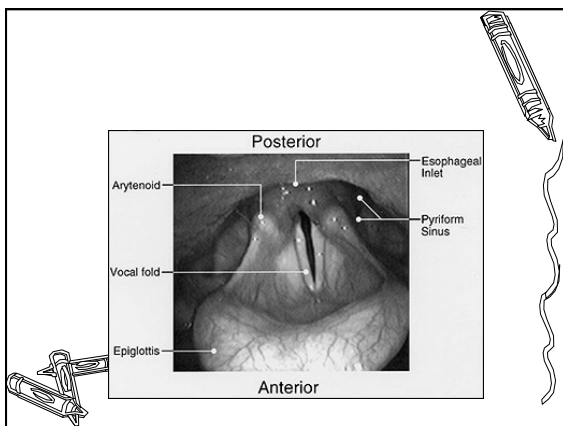



Anatomy

- **Esophagus:**
- 12-20 cm in adults
- Two sphincters:
 - Upper Esophageal Sphincter (UES)
 - Lower Esophageal Sphincter (LES)
- Sphincters are closed at rest to prevent reflux. This is another protective mechanism.












- Normal and abnormal infant reflexes
- Normal development of oral-motor and swallowing skills (pp. 6-10)
- See video example




Normal Adult-like Swallow Physiology




- Swallow physiology
 - Oral-preparatory phase
 - Oral phase
 - Pharyngeal phase
 - Esophageal phase



Video Examples

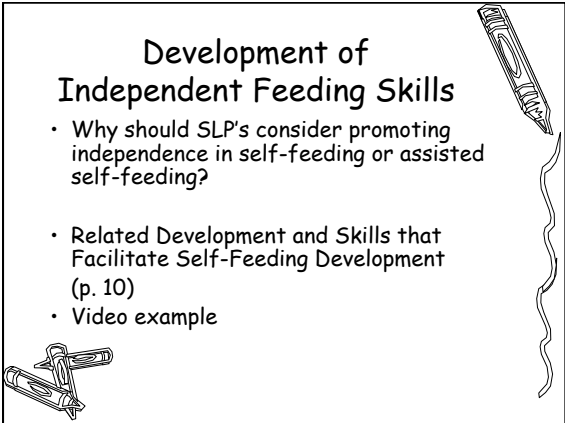


- Video of normal swallow

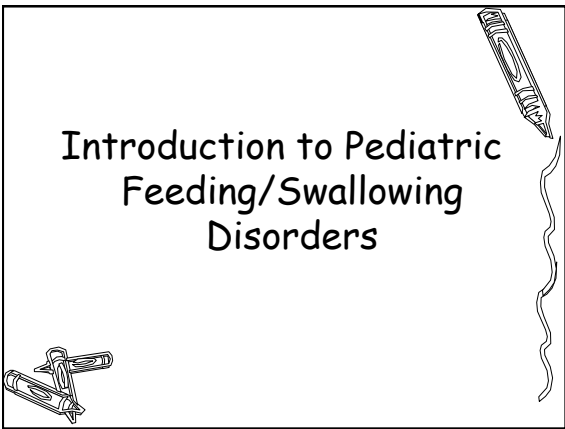


Development of Independent Feeding Skills

- Why should SLP's consider promoting independence in self-feeding or assisted self-feeding?
- Related Development and Skills that Facilitate Self-Feeding Development (p. 10)
- Video example



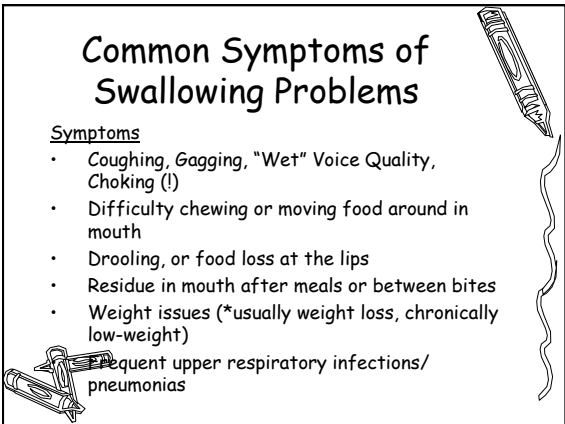
Introduction to Pediatric Feeding/Swallowing Disorders



Common Symptoms of Swallowing Problems

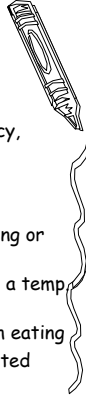
Symptoms

- Coughing, Gagging, "Wet" Voice Quality, Choking (!)
- Difficulty chewing or moving food around in mouth
- Drooling, or food loss at the lips
- Residue in mouth after meals or between bites
- Weight issues (*usually weight loss, chronically low-weight)
- Frequent upper respiratory infections/ pneumonias



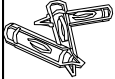
Common Symptoms, cont.

- Extreme preferences for consistency, temperature, taste
- Sensory Issues
- Fussiness at meals, or food refusals
- Breathing and/or color changes during or following eating
- Recurrent/chronic fevers or spiking a temp. associated with eating
- Wheezing or stridor associated with eating
- History of vomiting and/or documented gastro-esophageal reflux



Etiologies of Feeding Problems

- Motor-based Problems
- Sensory-based Problems
- Behaviorally-based Problems
 - Maladaptive mealtime behaviors
 - Issues of decreased independent functioning with or w/o limited opportunities for development of self-determination skills
- * **Combinations**
 - Limiting Patterns
 - Frequent Causes and Associated Characteristics



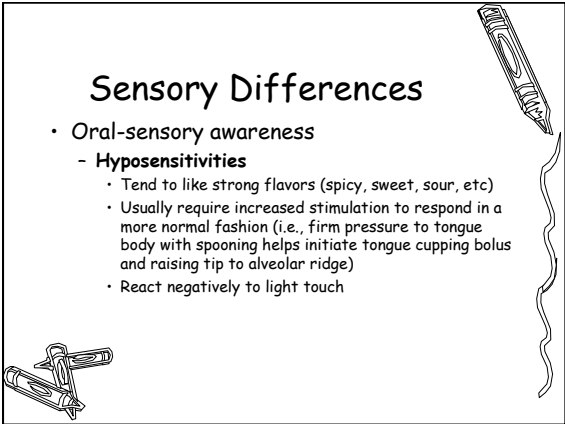
Symptoms vs. Underlying Deficits

- Underlying deficits in feeding skills result in a variety of symptoms related to the area of dysfunction:
- For example, motor and sensory deficits associated with **lips & cheeks**-
 - Lips that don't close or are retracted
 - Lips that aren't active in spooning and/or chewing
 - Lips that are pursed
 - Lips that don't maintain closure with swallowing
 - Residue in cheek cavities, cheeks that don't "help" with bolus control or chewing
- Try it! Efficient swallowing typically requires lip closure. Why?



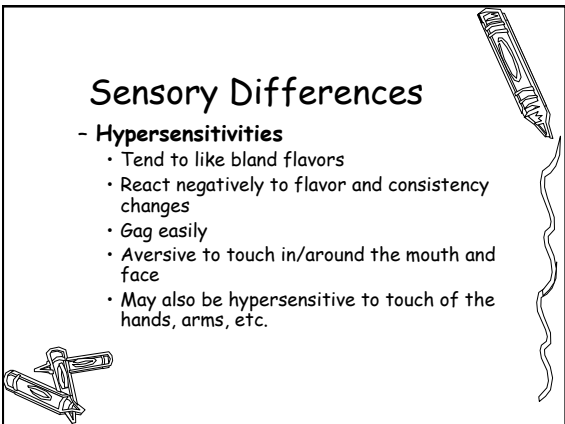
Sensory Differences

- Oral-sensory awareness
 - **Hyposensitivities**
 - Tend to like strong flavors (spicy, sweet, sour, etc)
 - Usually require increased stimulation to respond in a more normal fashion (i.e., firm pressure to tongue body with spooning helps initiate tongue cupping bolus and raising tip to alveolar ridge)
 - React negatively to light touch

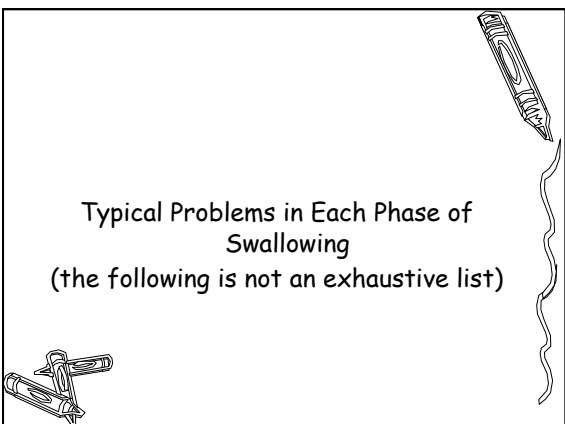


Sensory Differences

- **Hypersensitivities**
 - Tend to like bland flavors
 - React negatively to flavor and consistency changes
 - Gag easily
 - Aversive to touch in/around the mouth and face
 - May also be hypersensitive to touch of the hands, arms, etc.



Typical Problems in Each Phase of Swallowing
(the following is not an exhaustive list)



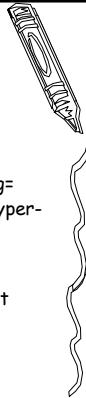
Common Underlying Problems within the Oral-Preparatory Phase of Swallowing

- Reduced tongue coordination = decreased control of the bolus, slow and/or increased effort to prepare it
- Reduced tone in the cheeks =
- Reduced lip closure =
- Reduced tongue range of motion and/or delayed tongue movement patterns =
- Reduced/absent lateral tongue movements =
- Reduced/absent rotary jaw movement =



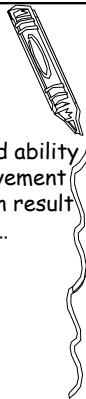
More oral-preparatory phase problems...

- Reduced jaw closure and/or limited opening=
- Abnormal reflexes interfere (tonic bite, hyper-gag, rooting, startle, etc)=
- Reduced sensory awareness or hypersensitivities=
- Dental and/or structural abnormalities that limit functional abilities



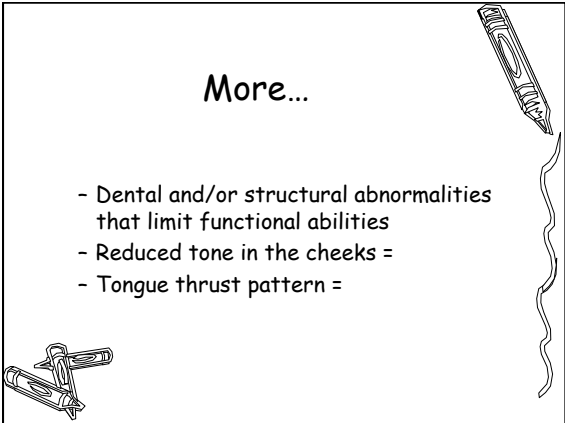
Common Problems within the Oral Phase of Swallowing

- Reduced tongue control (decreased ability to form a bolus and control its movement from front to back of mouth) = can result in premature spillover to pharynx ...
- Reduced/absent lip closure =
- Reduced sensory awareness or hypersensitivities =



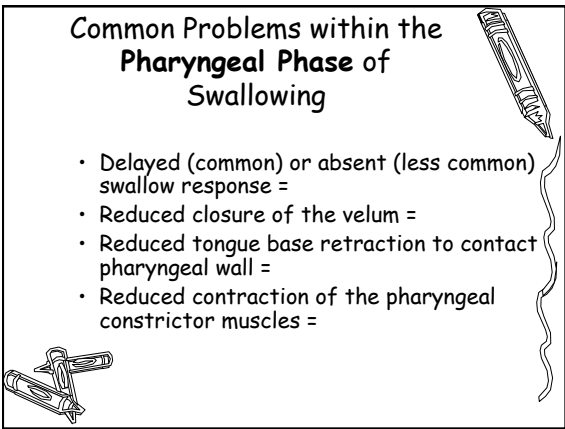
More...

- Dental and/or structural abnormalities that limit functional abilities
- Reduced tone in the cheeks =
- Tongue thrust pattern =



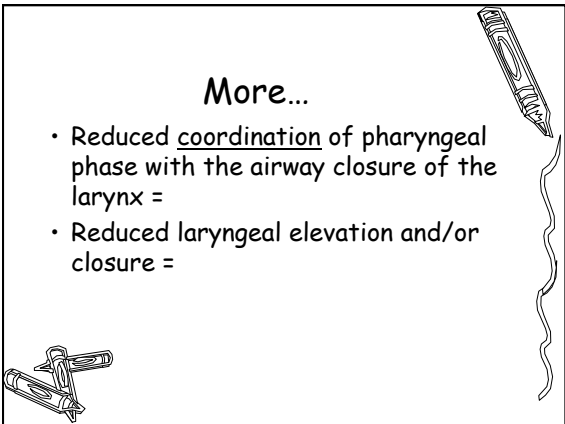
Common Problems within the Pharyngeal Phase of Swallowing

- Delayed (common) or absent (less common) swallow response =
- Reduced closure of the velum =
- Reduced tongue base retraction to contact pharyngeal wall =
- Reduced contraction of the pharyngeal constrictor muscles =



More...

- Reduced coordination of pharyngeal phase with the airway closure of the larynx =
- Reduced laryngeal elevation and/or closure =



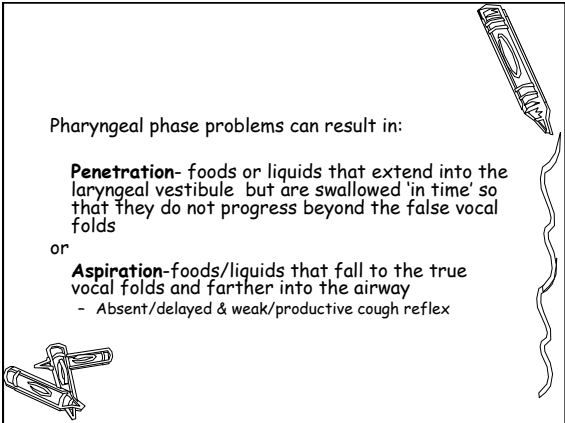
Pharyngeal phase problems can result in:

Penetration- foods or liquids that extend into the laryngeal vestibule but are swallowed 'in time' so that they do not progress beyond the false vocal folds

or

Aspiration-foods/liquids that fall to the true vocal folds and farther into the airway

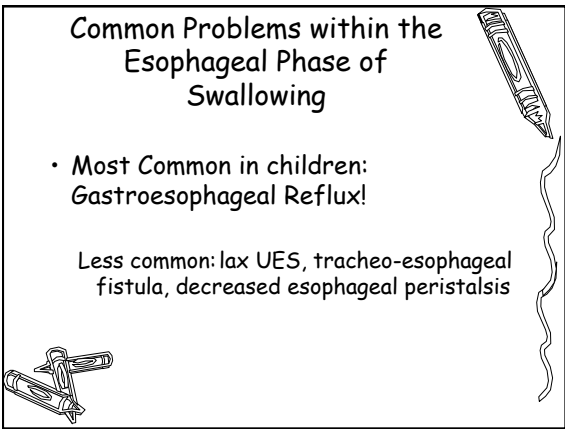
- Absent/delayed & weak/productive cough reflex



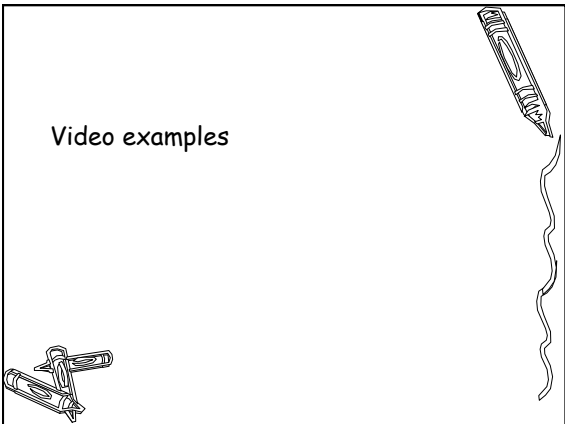
Common Problems within the Esophageal Phase of Swallowing

- Most Common in children:
Gastroesophageal Reflux!

Less common: lax UES, tracheo-esophageal fistula, decreased esophageal peristalsis



Video examples



Issues of Decreased Independent Functioning

- Include problems with developing independence in self-feeding and related mealtime skills
- This includes the ability to feed oneself with fingers and/or utensils, make appropriate meal-related choices, and resolve other matters of self-determination.



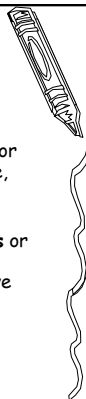
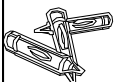
Issues of Independent Functioning


- This also includes difficulty in **communicating** needs, preferences, and social exchanges at the mealtime, independence in food preparation and self-care, and personal oral care.



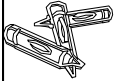
Symptoms

- Symptoms of difficulties in independent functioning include the ability to bring hands or objects to the mouth away from the mealtime, but dependence on others for feeding.
- Other symptoms include **limited opportunities** or a limited demonstration of self-expression, requests, refusals, choice-making, or to involve oneself in other types of mealtime social communications.







- Additional symptoms include dependence on others for food preparation and oral care, when physically capable of some independence in these areas.
- Video examples



Problematic Mealtime Behaviors

- A common finding in children with dysphagia
- Why???
- Due to a combination of the impact of caregiver influences, physical conditions, social, psychological factors, and the feeding environment on the development of feeding interaction patterns and behaviors.





Caregiver Influences

- Concern for intake or other??? may lead to battles for control

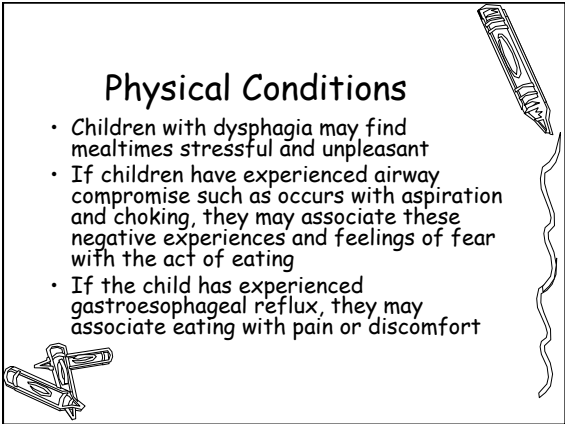
We see:

- Forced or coerced feeding-
- Bribing-
- Guilting-
- Catering or "short-order cooking" to meet child's demands (even if those demands are due to underlying sensitivity differences, they often can develop into problematic behaviors)-



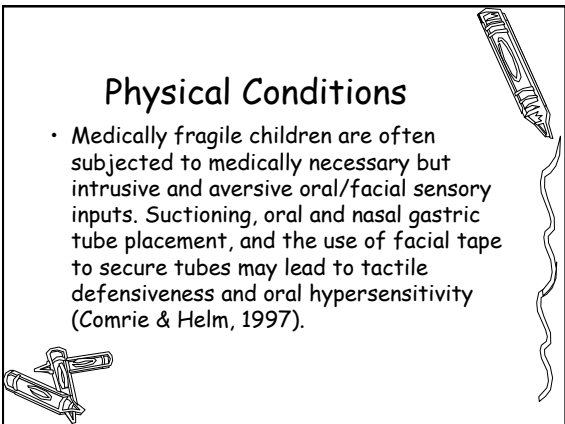
Physical Conditions

- Children with dysphagia may find mealtimes stressful and unpleasant
- If children have experienced airway compromise such as occurs with aspiration and choking, they may associate these negative experiences and feelings of fear with the act of eating
- If the child has experienced gastroesophageal reflux, they may associate eating with pain or discomfort



Physical Conditions

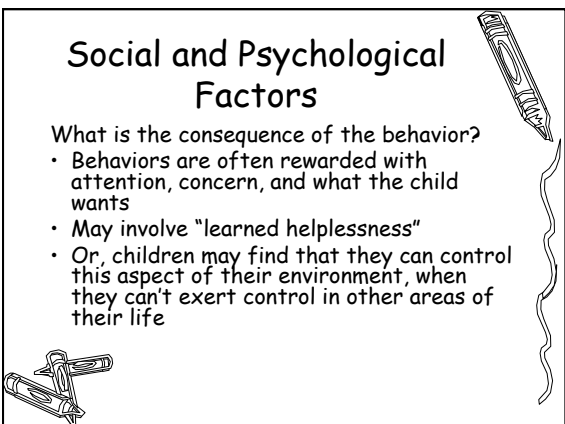
- Medically fragile children are often subjected to medically necessary but intrusive and aversive oral/facial sensory inputs. Suctioning, oral and nasal gastric tube placement, and the use of facial tape to secure tubes may lead to tactile defensiveness and oral hypersensitivity (Comrie & Helm, 1997).



Social and Psychological Factors

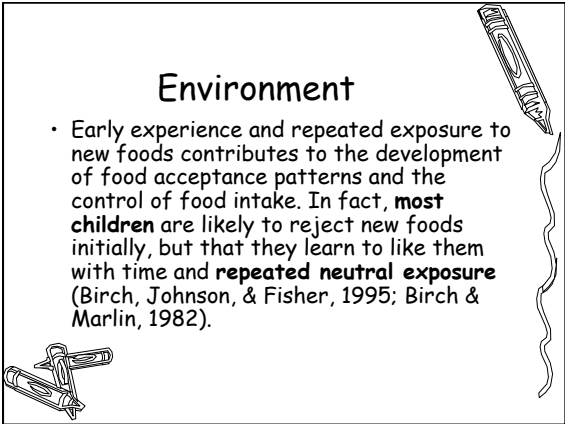
What is the consequence of the behavior?

- Behaviors are often rewarded with attention, concern, and what the child wants
- May involve "learned helplessness"
- Or, children may find that they can control this aspect of their environment, when they can't exert control in other areas of their life



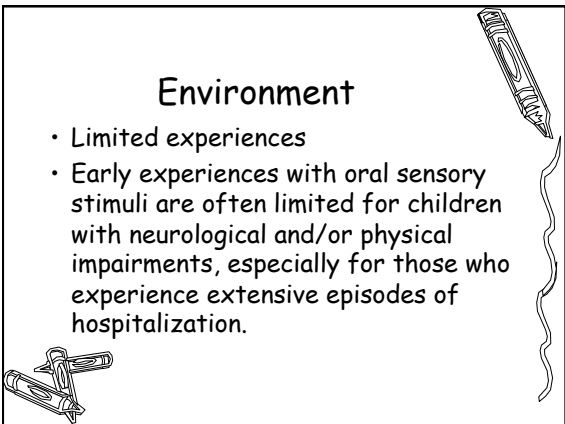
Environment

- Early experience and repeated exposure to new foods contributes to the development of food acceptance patterns and the control of food intake. In fact, **most children** are likely to reject new foods initially, but that they learn to like them with time and **repeated neutral exposure** (Birch, Johnson, & Fisher, 1995; Birch & Marlin, 1982).



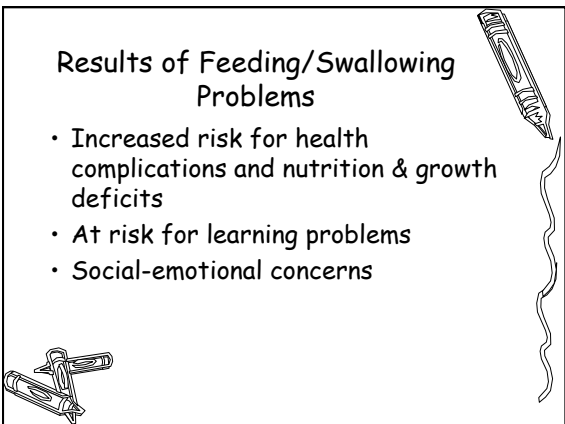
Environment

- Limited experiences
- Early experiences with oral sensory stimuli are often limited for children with neurological and/or physical impairments, especially for those who experience extensive episodes of hospitalization.



Results of Feeding/Swallowing Problems

- Increased risk for health complications and nutrition & growth deficits
- At risk for learning problems
- Social-emotional concerns

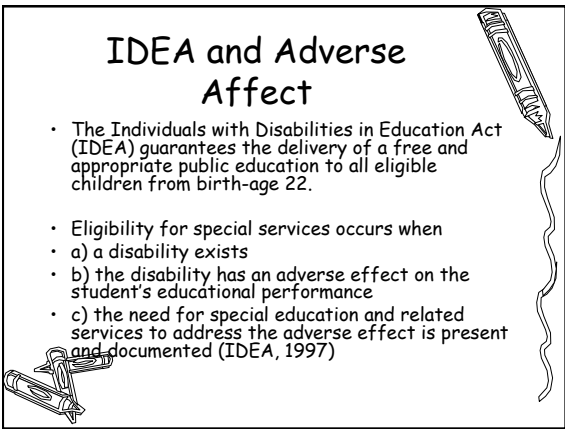


Time for a Break!



IDEA and Adverse Affect

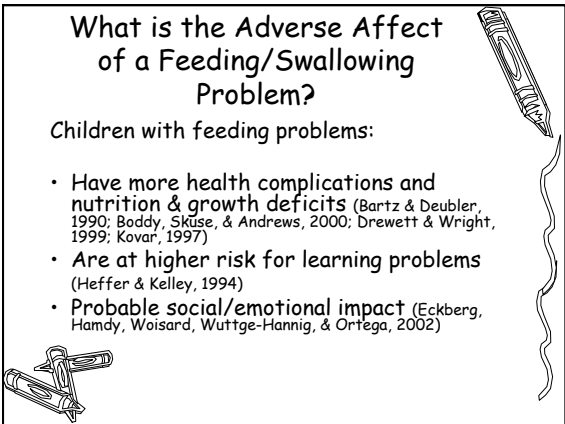
- The Individuals with Disabilities in Education Act (IDEA) guarantees the delivery of a free and appropriate public education to all eligible children from birth-age 22.
- Eligibility for special services occurs when
 - a) a disability exists
 - b) the disability has an adverse effect on the student's educational performance
 - c) the need for special education and related services to address the adverse effect is present and documented (IDEA, 1997)



What is the Adverse Affect of a Feeding/Swallowing Problem?

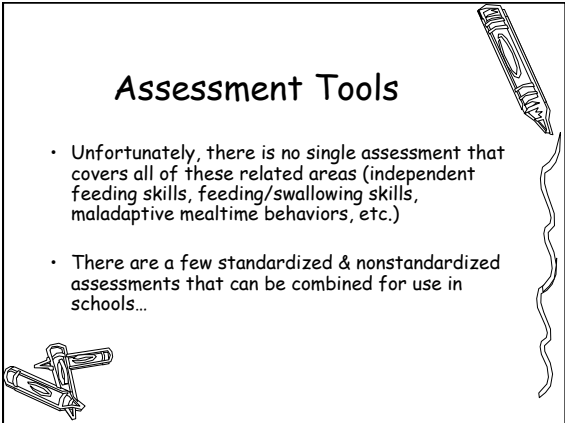
Children with feeding problems:

- Have more health complications and nutrition & growth deficits (Bartz & Deubler, 1990; Boddy, Skuse, & Andrews, 2000; Drewett & Wright, 1999; Kovar, 1997)
- Are at higher risk for learning problems (Heffer & Kelley, 1994)
- Probable social/emotional impact (Eckberg, Hamdy, Woisard, Wuttge-Hannig, & Ortega, 2002)



Assessment Tools

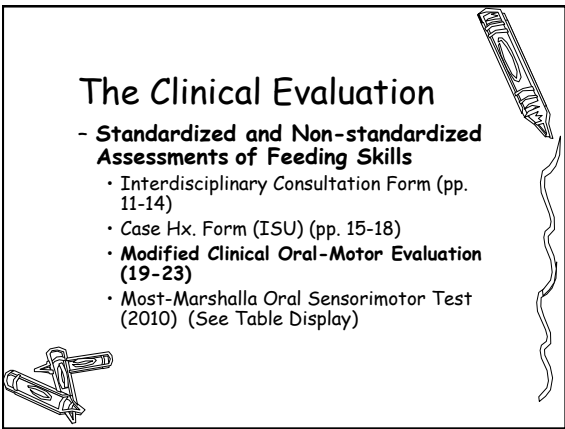
- Unfortunately, there is no single assessment that covers all of these related areas (independent feeding skills, feeding/swallowing skills, maladaptive mealtime behaviors, etc.)
- There are a few standardized & nonstandardized assessments that can be combined for use in schools...



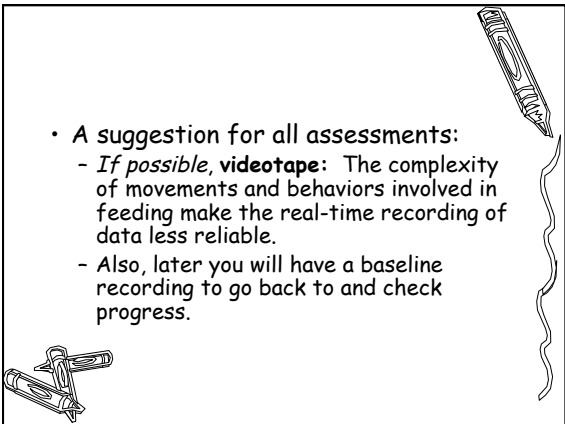
The Clinical Evaluation

- Standardized and Non-standardized Assessments of Feeding Skills

- Interdisciplinary Consultation Form (pp. 11-14)
- Case Hx. Form (ISU) (pp. 15-18)
- **Modified Clinical Oral-Motor Evaluation (19-23)**
- Most-Marshalla Oral Sensorimotor Test (2010) (See Table Display)

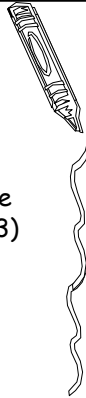


- A suggestion for all assessments:
 - **If possible, videotape:** The complexity of movements and behaviors involved in feeding make the real-time recording of data less reliable.
 - Also, later you will have a baseline recording to go back to and check progress.



Let's Try It!

- While viewing this next video segment, practice by filling out the sample assessment form (pp. 19-23)



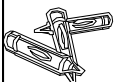
- Oral-Sensory-Motor Analysis - (Boshart, 1998)
 - Tests **tactile sensitivity** by firmly stroking face and neck with gloved hands or cloth, and oral areas with a therapy tool. Also, tests **oral-motor differentiation** with verbal command or visual cue.
 - Takes ~ 15 minutes to administer.
 - Subjective rating of "normal", "hyper" and "hyposensitive", 1-5 Rating Scale of Oral-Motor Differentiation.



Others

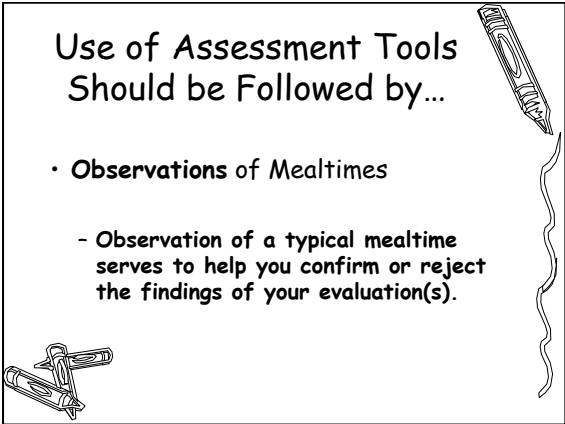
- Interviews with caregivers
- Caregiver/teacher/classroom assistant checklists

- Subjective, but often provide a great deal of detail and insight



**Use of Assessment Tools
Should be Followed by...**

- **Observations of Mealtimes**
 - Observation of a typical mealtime serves to help you confirm or reject the findings of your evaluation(s).



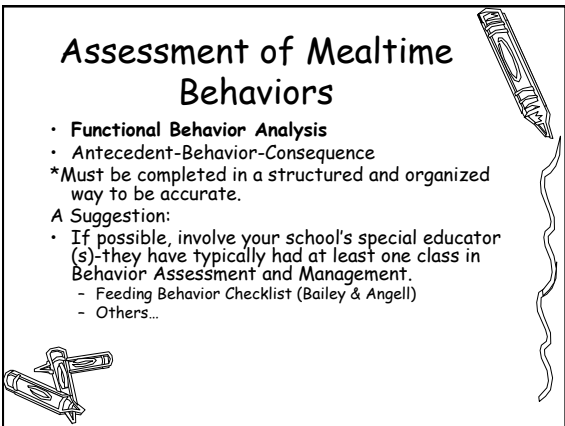
**Assessment of Mealtime
Behaviors**

- **Functional Behavior Analysis**
- Antecedent-Behavior-Consequence

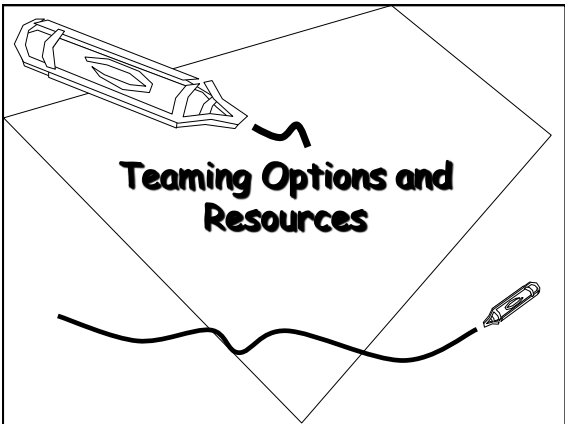
*Must be completed in a structured and organized way to be accurate.

A Suggestion:

- If possible, involve your school's special educator (s)-they have typically had at least one class in Behavior Assessment and Management.
 - Feeding Behavior Checklist (Bailey & Angell)
 - Others...



**Teaming Options and
Resources**



A Model for Collaborative School-Based Feeding Teams (pp. 24-26)



Bailey, R. L., & Angell, M. E. (2003). A model for collaborative school-based feeding teams. *ASHA Special Interest Division 16 Newsletter, Perspectives on School-based Issues*, 4, 20-22.



Feeding Specialist

- Feeding Support Staff 1 -
Dietary Manager
- Feeding Support Staff 2 -
Communication Facilitator
- Feeding Support Staff 3 -
Equipment Manager
- Feeding Support Staff 4 -
Behavior Manager
- Other recommended specialists



On Being a Professional: Successful Teaming

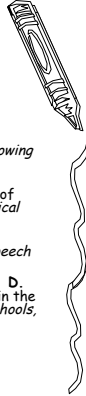
- Team member qualities that facilitate successful teaming
 - Knowledge
 - Skills
 - DISPOSITION
 - Collaborative-sharing, willing to learn, cooperative, flexible, hard-working, intelligent, positive attitude, caring, etc...



Select Literature Related to School-based Dysphagia Team Models

References

- **American Speech-Language-Hearing Association.** (2007). *Guidelines for Speech-Language Pathologists Providing Swallowing and Feeding Services in Schools* [Guidelines]. Available from www.asha.org/policy.
- **Bailey, R. L., & Angell, M. E.** (2004). Critical components of effective school-based feeding improvement programs. *Physical disabilities: Education and related services, 23(1)*, 19-32.
- **Homer, E.** (2003). An interdisciplinary team approach to providing dysphagia treatment in the schools. *Seminars in Speech and Language, 24(3)*, 215-234.
- **Homer, E., Bickerton, C., Hill, S., Parham, L., & Taylor, D.** (2000). Development of an interdisciplinary dysphagia team in the public schools. *Language, Speech, and Hearing Services in Schools, 31*, 62-75.



Related Research

Angell, M. E., Bailey, R. L., & Stoner, J. B. (2008). Family perceptions of facilitators and inhibitors of effective school-based dysphagia management. *Language, Speech, and Hearing Services in Schools, 39*, 214-226.



Time for Lunch!!



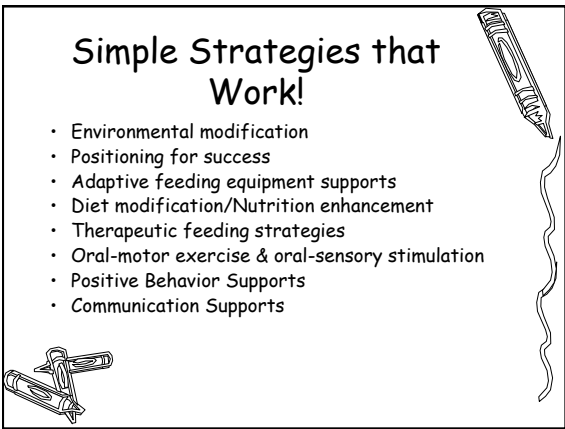
Afternoon focus...

Practical Management Strategies



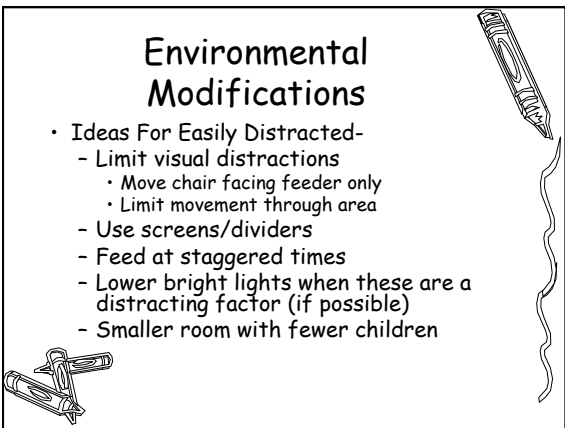
Simple Strategies that Work!

- Environmental modification
- Positioning for success
- Adaptive feeding equipment supports
- Diet modification/Nutrition enhancement
- Therapeutic feeding strategies
- Oral-motor exercise & oral-sensory stimulation
- Positive Behavior Supports
- Communication Supports





Environmental Modifications

- Ideas For Easily Distracted-
 - Limit visual distractions
 - Move chair facing feeder only
 - Limit movement through area
 - Use screens/dividers
 - Feed at staggered times
 - Lower bright lights when these are a distracting factor (if possible)
 - Smaller room with fewer children





More...

- Quiet rhythmic background music may help improve focus
- Use attentional (auditory) cue (i.e., Bite, Jenny)
- Use visual cue (bring spoon in at eye level, **be predictable** & rhythmic in movements when possible, show icon depicting face-wiping prior to doing so),
- Use tactile cues (tap spoon on lower lip), etc.






Positioning

- Upright
- Hips & knees bent
- Feet supported/stable base
- Head supported in neutral or slight chin tuck
- Shoulders neutral
 - Too far retracted tend to have increased pharyngeal &/ or laryngeal tension
 - Too far forward, difficulty keeping head upright, difficulty with hand to mouth movements

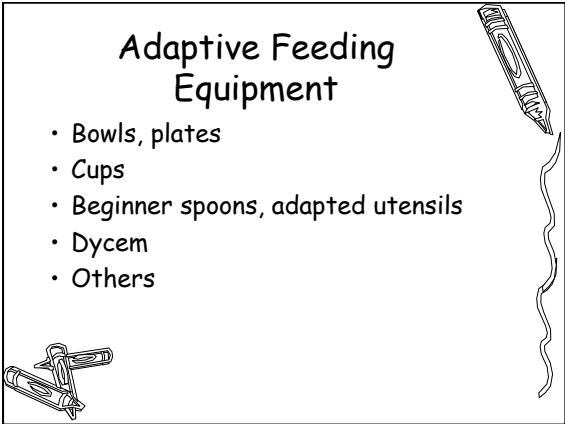



- Positioning supports
 - Pillows-head, lumbar, knees, sides
 - Folded towels or towel rolls-same or similar
 - Butterfly straps, foot straps, etc.
 - Tactile supports
 - Others...
 - OT, PT evaluations/consultation re: adaptive equipment or positioning modifications

Adaptive Feeding Equipment

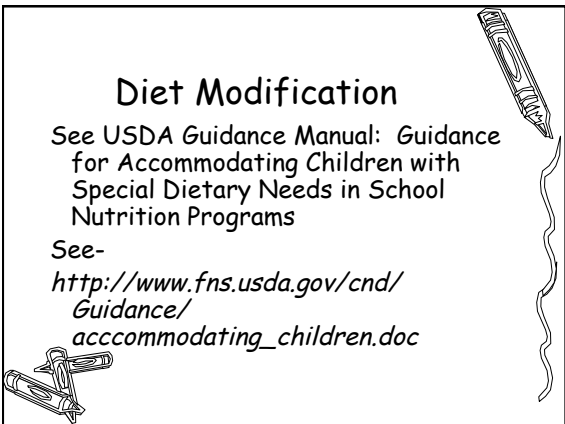
- Bowls, plates
- Cups
- Beginner spoons, adapted utensils
- Dycem
- Others



Diet Modification

See USDA Guidance Manual: *Guidance for Accommodating Children with Special Dietary Needs in School Nutrition Programs*

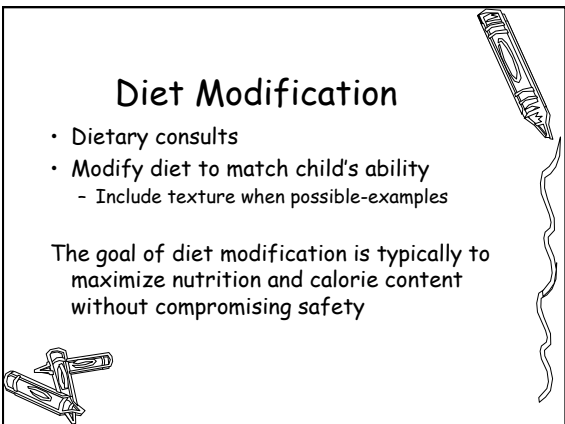
See-
http://www.fns.usda.gov/cnd/Guidance/accommmodating_children.doc



Diet Modification

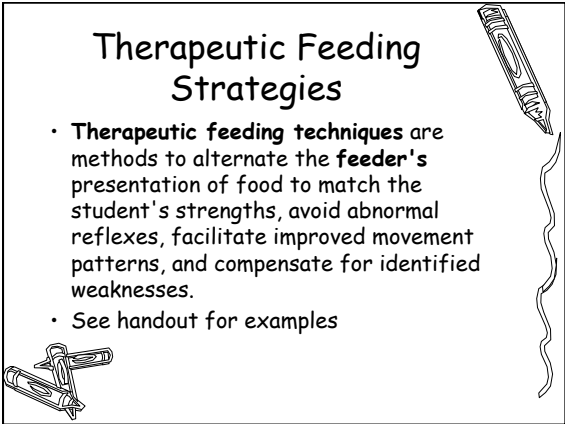
- Dietary consults
- Modify diet to match child's ability
 - Include texture when possible-examples

The goal of diet modification is typically to maximize nutrition and calorie content without compromising safety



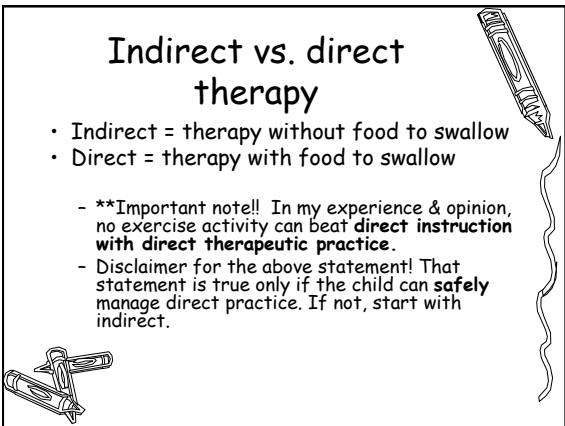
Therapeutic Feeding Strategies

- **Therapeutic feeding techniques** are methods to alternate the **feeder's** presentation of food to match the student's strengths, avoid abnormal reflexes, facilitate improved movement patterns, and compensate for identified weaknesses.
- See handout for examples



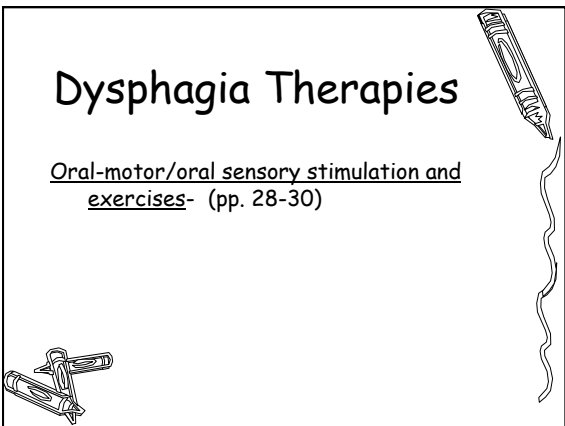
Indirect vs. direct therapy

- Indirect = therapy without food to swallow
- Direct = therapy with food to swallow
- ****Important note!!** In my experience & opinion, no exercise activity can beat **direct instruction with direct therapeutic practice.**
- Disclaimer for the above statement! That statement is true only if the child can **safely** manage direct practice. If not, start with indirect.



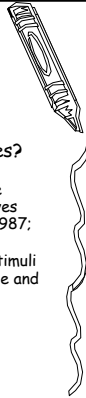
Dysphagia Therapies

Oral-motor/oral sensory stimulation and exercises- (pp. 28-30)



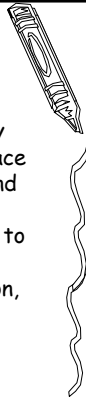
Benefits of Oral-Stimulation and Oral-Motor Exercise

- Why do oral stimulation & oral-motor activities?
 - Oral stim helps to normalize the sensory system, increase oral awareness and sensation, and increase tolerance in and around the face and mouth (improves both hypo and hypersensitivities) (Morris & Klein, 1987; 2000)
 - Serves to improve the child's reaction to sensory stimuli (in this case, food taste, texture, type, temperature and the touch of the feeding appliances).



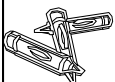
Benefits, cont.


- Help to normalize the motor system, by improving the resting posture of the face and mouth, and improving tongue, lip, and jaw movements for feeding and speech activities. These activities can be used to target specific deficits in the child's motor system (I.e., tongue lateralization, lip closure).



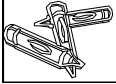
Benefits, cont.

- A combination of oral-sensory and oral motor therapy has been found to **decrease drooling, improve the timing of the swallow, decrease the amount of time needed to consume a meal, decrease the amount of residue left in the oral cavity and the pharynx following the swallow, and improve specific motor movements involved in eating** (Bailey & Angell, 2004; Domaracki & Sisson, 1989; Gisel, 1996; Helfrich-Miller et al., 1986).

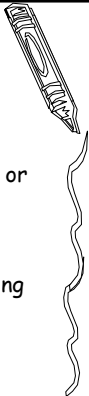





- Overview of some oral-motor, oral-stimulation therapy tools
- Other therapies/maneuvers for students with higher level abilities
- Video examples





General Positive Behavior Supports



- Examples of Positive Feeder Interaction Strategies
 - Neutral atmosphere (no forcing food or negative commenting on intake)
 - Provide encouragement
 - Reduce amount of face wiping
 - Feed the child at the table, not walking around the room

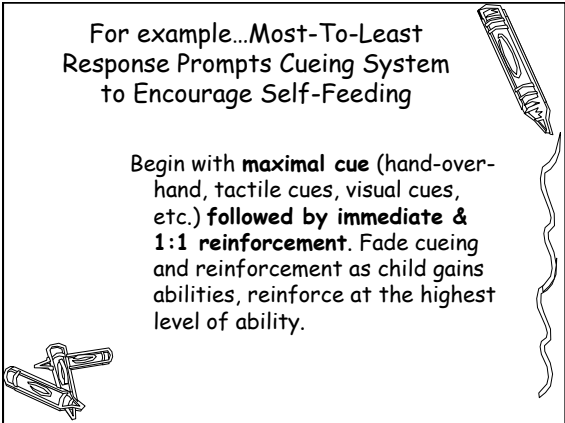


- Explicit instruction-
 - Teaching Skills
 - Involves Task Analysis, Instruction, and Positive Reinforcement



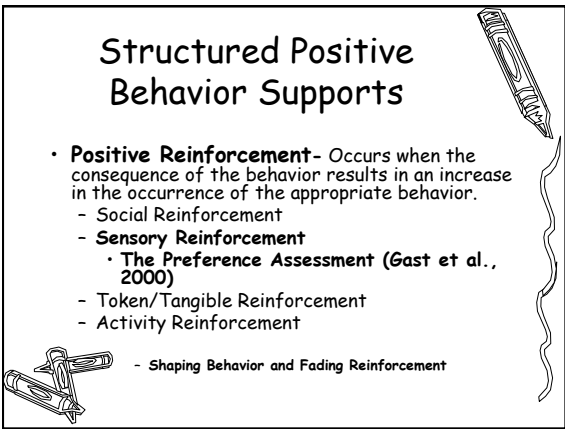
For example...Most-To-Least Response Prompts Cueing System to Encourage Self-Feeding

Begin with **maximal cue** (hand-over-hand, tactile cues, visual cues, etc.) **followed by immediate & 1:1 reinforcement**. Fade cueing and reinforcement as child gains abilities, reinforce at the highest level of ability.



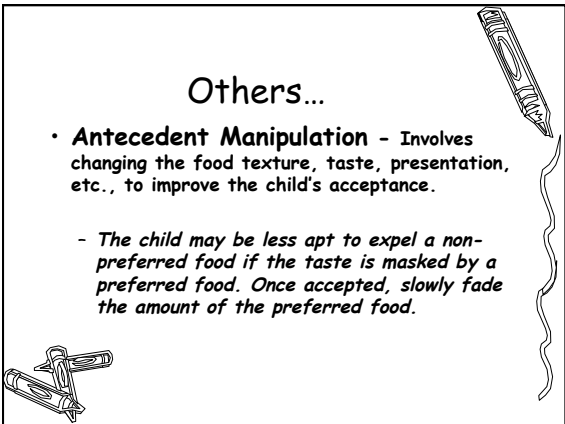
Structured Positive Behavior Supports

- **Positive Reinforcement**- Occurs when the consequence of the behavior results in an increase in the occurrence of the appropriate behavior.
 - Social Reinforcement
 - **Sensory Reinforcement**
 - **The Preference Assessment (Gast et al., 2000)**
 - Token/Tangible Reinforcement
 - Activity Reinforcement
- Shaping Behavior and Fading Reinforcement



Others...

- **Antecedent Manipulation** - Involves changing the food texture, taste, presentation, etc., to improve the child's acceptance.
 - *The child may be less apt to expel a non-preferred food if the taste is masked by a preferred food. Once accepted, slowly fade the amount of the preferred food.*



Others...

- Extinction-Involves the termination of the ongoing reinforcement contingency, or a planned ignoring of an inappropriate behavior.

- *When misbehaviors occur, such as throwing food, they are ignored. (This assumes that the behavior is being reinforced by attention.)*



A Favorite

A Positive Reinforcement Program... with shaping and fading of reinforcement schedules that is used to reinforce both positive mealtime behaviors and target feeding skills



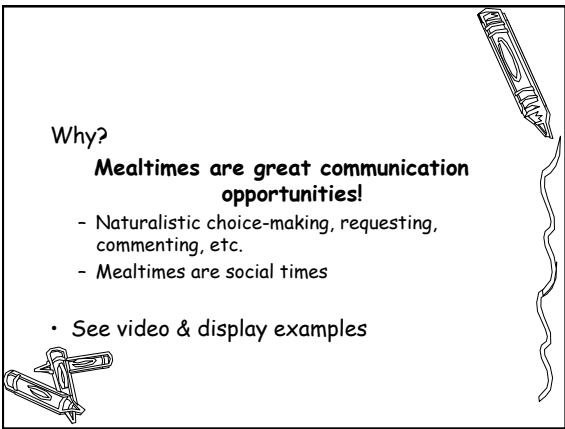
- Therapeutic Feeding Strategies (p. 31)

- Environmental Modifications (p. 32)





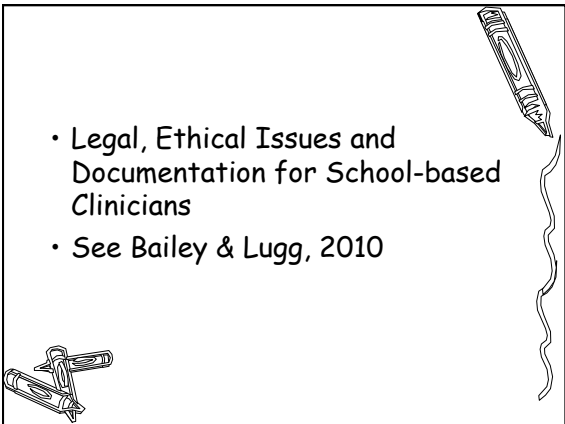
Strategies to Improve Communication at the Mealtime



Why?
Mealtimes are great communication opportunities!

- Naturalistic choice-making, requesting, commenting, etc.
- Mealtimes are social times


• See video & display examples



• Legal, Ethical Issues and Documentation for School-based Clinicians

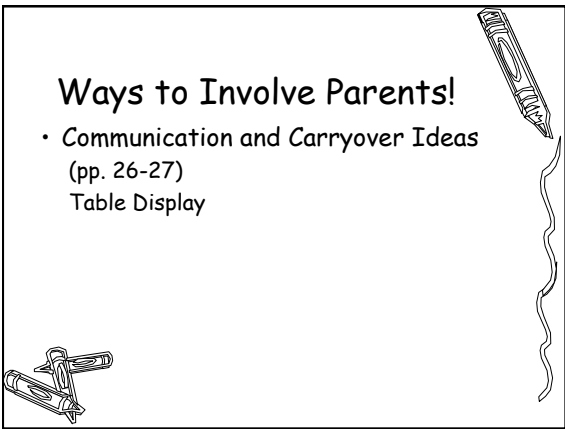
• See Bailey & Lugg, 2010

**When Possible...
Involve Parents!**



Ways to Involve Parents!


- *Communication and Carryover Ideas*
(pp. 26-27)
Table Display




**See the Feeding Team in
Action!**

- *Video Clips -*
 - Food preparation
 - Encouraging self-feeding
 - Mealtime communication
 - Skill-building exercises and oral-sensory stimulation activities





- Questions?
- Discussion and Case Study Practice





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