Pediatric Feeding Disorders: A Multidisciplinary Approach to Assessment and Treatment

Elements of Successful Feeding Treatment

• Understand behavioral intervention
  – Utilizing behavioral interventions
• Understand of the role of the Nutritionist
  – Nutrition consult
• Oral Motor
• Sensory Sensitivities

Traditional Sensory Treatments

Sequential Oral Sensory Approach (S.O.S)
  Kay Toomey PhD

Food Chaining
  Cheryl Fraker CCC/SLP

Sensory Integration activities/Sensory Diet implementation prior to food introductions

Professionals often recommend treatments based on Sensory Integration (72% of feeding programs)

Peterson et al, 2014
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S.O.S.

- Sequential Oral Sensory Approach
  Kay Toomey PhD
  - Child lead/child paced
  - If child refuses, the therapist halts attempts
  - Social role modeling
  - Systematic desensitization
  - Cognitive learning through sensorimotor experiences
  - Sensory processing disorders and phobias cause feeding difficulties (Lane, 2008; Toomey, 2010)

GOAL: Expansion of the child's food repertoire

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Sensory-based Treatment

- Sensory approaches work very well for some children; however, there is little to no empirical data to support our beliefs about a sensory integrative approach to feeding concerns

- Behavioral/ABA approach to feeding concerns has mounting empirical support; however, remain controversial in the SLP/OT community of Feeding therapists

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ABA v SOS

- A Comparison of the Sequential-Oral-Sensory Approach to an Applied Behavior Analytic Approach in the Treatment of Food Selectivity in Children with Autism

Kathryn M. Peterson, Valerie M. Volbert, Cathleen C. Piazza, Ashley M. Neubauer, & Kayla D. Broksle 2014
University of Nebraska Medical Center's Munroe-Meyer Institute
Petersen et al, 2014

Overall Findings
• During ABA, acceptance and mouth cleans were high across foods for all participants
• During SOS, zero or low acceptance across foods for 3 of the 6 children
• More age-typical eating during ABA
• Participants were self-feeding bites of table-textured foods with utensils
• Increased bite size and variety
  – Trained caregivers to implement protocols in the home

Assessment

1. a. Oral Motor Function
   b. Sensory Sensitivities
2. Behavioral components of feeding concerns
   Mealtime behaviors
3. Nutrition

• Beckman Oral Motor Evaluation
  Debra Beckman CCC/SLP
  Beckman, D.A., 2007
  – Baseline function of oral structures for the purposes of speech and feeding, criterion referenced tool
• Oral Hypersensitivity Scale
  Beckman, D.A., 2004
  – 5 level rating scale
  – Profound, severe, moderate, mild, typical
  – Subjective & objective descriptions of responses to food presentations and oral sensorimotor function
Assessment

- Developmental/Global Pre-Feeding Checklist

Suzanne Evans Morris Ph.D., CCC/SLP
Marsha Dunn Klein, M.Ed., OT/R

- Detailed check list of developmental skill/sequential skill acquisition

Clinical Decision Making Process

- Formalized Data Collection
- Structured Decision Rules
- Standardized Treatment Elements
- Individualized Treatment Approach

Data Collection: Oral Motor & Sensory Operational Definition Examples

- Diagonal/Diagonal-Rotary chew
  - Rhythmical chew
- Laterization of the tongue from mid-line
- Mid-blade elevation of the tongue
- Reduced occurrences of gagging
- Reduced occurrences of emesis
Operational Definition:
**Diagonal Chew / Diagonal-Rotary chew**

Example:
Diagonal/Diagonal-Rotary chew

A rhythmical (1 chew/second), resistive/graded vertical movement of the jaw with concomitant unilateral and/or bilateral lateral and vertical movements of the tongue (to push the bolus to the molars and re-collect the bolus on the tongue prior to swallow)

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Operational Definition:
**Lateralization of the Tongue**

Example:
Lateralization of the tongue

A lateral (to the side) sweeping movement of the tongue to the molars or lateral borders of the oral cavity (cheeks)

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**Decision Rule for Texture Advancement**

- Example: **minimal** competency to advance from puree to dissolvable solids

1. 3-5 non-nutritive resistive chews (on chewing tool)
2. 33%-66% lingual pressure matching to stimulus (finger or probe)
3. Cheek strength at 2/5 x
4. Accepts food by mouth
5. Swallows puree without s/s aspiration
6. 20% or less gags and no emesis
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**Elements of Oral Motor Function**

- Strength and range of movement of the lips, cheeks and jaw
- Variety of lingual movement
  - Lateralization of the tongue to cheek, molars, and upper & lower gum line
  - Mid-blade elevation of the tongue
- Alignment of the jaw and dentition
- Oral Hypersensitivity
- Hard and Soft Palate

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**Elements of Feeding Deficits**

<table>
<thead>
<tr>
<th>Oral Motor Control</th>
<th>Sensory Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Jaw strength</td>
<td>• Taste</td>
</tr>
<tr>
<td>– Chewing</td>
<td>– Sweet, salty, sour, bitter, Super taster</td>
</tr>
<tr>
<td>• Cheek strength &amp; range of movement</td>
<td>• Smell</td>
</tr>
<tr>
<td>– Pocketing</td>
<td>– Food on plate, food nearby</td>
</tr>
<tr>
<td>• Lingual Variety</td>
<td>• Touch</td>
</tr>
<tr>
<td>– Bolus control</td>
<td>– Texture</td>
</tr>
<tr>
<td>• Lip Strength &amp; Range of movement</td>
<td>• Visual</td>
</tr>
<tr>
<td>– Bolus control</td>
<td>– Food on plate/nearby, color, shape, size</td>
</tr>
</tbody>
</table>

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**Oral Motor Target specificity**

To increase bolus control during mastication
- Specifically, lateralization of a pea size bolus to the molars for 8-10 resistive, rhythmic chews (1/second) prior to the swallow
  OR
- Specifically, increase mid-blade elevation of tongue for 3/3 trials across 2 sessions
  OR
- Specifically, contain a pea size chewable bolus on molars for 8-10 resistive, rhythmic chews prior to swallow
Reasonable Request:
Meet the child where she is...

Desensitize to sitting in a chair
Desensitize to non-nutritive tools or to gloved hands

Treatment Decisions

• Nutrition needs of the child guide initial p.o. food targets based on the child's current nutritional needs and growth deficits
  – Fruits, Vegetables, Starch, Protein
  – Liquids (nutritionally balanced supplement, water, milk)
  – Volume tolerance per meal / balanced with enteral feeds
  – Continuous enteral feeds vs bolus enteral feeds
  – It is within the scope of practice and the role of the Nutritionist to guide gastric tube weaning with the caregivers and to create a balanced enteral/p.o. feeding plan
• Oral Motor/feeding skill guides:
  – The texture of foods introduced (i.e., puree, ground, mashed, ⅛” table each texture has different caloric density), and
  – The quantity, viscosity, and vessel for p.o. liquids
  – The SLP’s scope of practice does not include tube weaning
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Pediatric Feeding Disorders: Case Study

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Goal of Admission: Increase Texture of Foods from Puree to Chewable Solids

- HX: 38 week gestation, IUGR, Failure to Thrive, Liquid dependent
- 20 months at admission to day treatment and accepts all foods at puree texture, but unable to tolerate higher textures or changes in textures
- Baseline OM eval:
  - Poor upper and lower lip strength, poor bilateral cheek strength, and poor jaw strength: left side (3/20 chews @ 15%) and right side (4/20 chews @ 20%), Phasic bite pattern, moderately reduced variety of lingual movement
  - Severe oral hypersensitivity: unable to bear weight on molars and frequent gagging with emesis

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Maddie- 20 months

- Oral Motor Control
  - Poor bilateral cheek strength (less than 35%)
  - Poor Jaw strength: left side (3/20 chews @ 15%) and right side (4/20 chews @ 20%)
  - Phasic bite pattern
  - Moderately reduced variety of lingual movement (35%-80%)

- Sensory Tolerance
  - Unable to bear weight on molars
  - No mouthing of toys/fingers
  - Frequent gagging with copious emesis
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MADDIE’S 8-wk Sensorimotor Goals

- Maddie will bite off a pea size bolus from a dissolvable solid with molars, chew 5x, and swallow without gag, 2 out of 3 trials.
- Maddie will demonstrate lateral lingual shift in response to pressure probe/non-nutritive chewing, 2 out of 3 trials.
- Maddie will demonstrate emerging diagonal chew in session.
- Maddie will reduce emesis with texture introduction to 1/5x in 4, 5 bite sessions.
- Caregiver will be compliant and proficient with home program assigned by therapist.

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Maddie: Introduction of Texture

Treatment Elements

A. Introduction of dissolvable solid at molars
   1. Crumbled dissolvable solid on Soft EZ spoon
      - Pseudo-nutritive (organza wrapped dissolvable solid bolus) for bolus control and tolerance of texture in molars. Goal: 5 chews/presentation
   2. Pea size dissolvable solid on Soft EZ spoon

B. Introduction of soft chewable solids
   1. Pea size soft chewable solid Pseudo-nutritive (soft chewable solid in organza) Goal: min. 5-8 chews
   2. Pea size soft chewable solid on the Soft EZ spoon, Goal: min. 5-8 chews

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Task breakdown

- Determine REASONABLE DEMAND w/each task
  a. Tolerance of pressure/weight bearing on molars using NN chewing task (home program)
  b. Intro of solid using a crumbled dissolvable solid presented to molars on EZ spoon
  c. Tolerance of NN lingual lateralization tasks to engage tongue in bolus control
  d. Addition of pseudo-nutritive /sham bolus (organza wrapped 1 pea size dissolvable solid)
  e. Home program involving practice 5 min, 3x/day
Maddie’s Home Program

- Parent Home program implemented:
  1. Resistive non-nutritive chews with Chewy T
  2. Lingual lateralization exercise
  3. Munching with Soft EZ spoon with dissolvable crumbles
  4. Parent return demonstration weekly

Maddie- 4 weeks later

- Munching dissolvable solids with 5 munches prior to the swallow and the swallow is timely (no packing/pocketing) independently
- Demonstrating a diagonal chew with a pseudo-nutritive (organza wrapped chewable bolus) at 50% on her better side
- Chewing chicken nugget ½”x ½” strip on better side (L) with cued chews up to 12, packing at anterior lingual sulcus, and swallowing after redistribution back to tongue

Discharge- 8 weeks later

Maddie met all goals and accomplished chewing foods in her meals:

- Chews with 5-8 chews with a pea size chewable solid – raisin, chicken nugget, soft fruits in meals
- Diagonal chews to her better/preferred side (L)
- Demonstrating a lingual shift of a chewable solid from mid-line to her left molars at 80-100%
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Nutrition Evaluation

- 14 months old
  - Dependent on breast milk via bottle feedings to meet 100% of caloric and nutritional needs
  - In behavioral feeding therapy to increase intake of pureed foods (was starting to make progress)
- Anthropometrics:
  - <3rd percentile weight for age
  - <3rd percentile length for age
  - <3rd percentile weight-for-length

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Nutrition Evaluation, cont.

- Difficulty breastfeeding
- No maternal dietary elimination
- Poor growth since birth
  - Diagnosis of “idiopathic short stature”
- Regular BMs, no report of GI pain

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Nutrition Evaluation

- Initial recommendations:
  - Catch up growth needs
  - Increase food variety (with additives)