Assessment & Treatment of Pediatric Feeding Disorders

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Boys Town
In One End and Out the Other, or not

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In one end...
Confucius says:

- I hear and I forget. I see and I remember. I do and I understand.
- Ignorance is the night of the mind, but a night without moon and star.
- It does not matter how slowly you go, as long as you do not stop.
- NEVER follow Friman.
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“Actually, choking on Ethel’s cooking is the body’s early warning system.”
Feeding is a learned behavior!
Feeding Problem?: Warning Signs

- Weight is persistently below the 5%
- Failure to advance texture/taste (they are stuck)
- Dependent on a single source of calories
- High rates of resistive behavior at meals
- Consecutive months of weight loss
- Crossing major weight percentiles
- Flattening of growth curve
Feeding Problems: Demographics

- Age range of 2-5 is typical
- Gender: 2/3rd male
- 40% of children with developmental delay
- 15% of typically developing children
- 50% of children hospitalized for FTT
Feeding Disorder of Infancy or Early Childhood (DSM-IV-TR)

A. Feeding disturbance as manifested by persistent failure to eat adequately with significant failure to gain weight or significant loss of weight over at least 1 month.

B. The disturbance is not due to an associated gastrointestinal or other general medical condition.

C. The disturbance is not better accounted for by another mental disorder (e.g., Rumination Disorder) or by lack of available food.

D. The age of onset is before age 6 years.
Problems with the DSM-IV Dx

- Organic vs. non-organic
- Cause vs. contribution of medical disorders
- Feeding problems are usually multi-factorial
- Feeding problems go beyond weight
Chatoor’s Diagnostic Classification of Feeding Disorders

- Feeding disorder of state regulation.
- Feeding disorder of caregiver-infant reciprocity.
- Infantile anorexia.
- Sensory food aversions.
- Feeding disorder associated with concurrent medical condition.
- Feeding disorder associated with insults to the gastrointestinal tract.
Interdisciplinary Approach

- Medicine
- Nutrition
- Speech Pathology
- Occupational Therapy
- Psychology
Medical Factors

- Evaluation and treatment by a physician is critical to rule out potential medical factors.

- Behavioral treatment for a child with medical conditions could worsen the feeding problem.

*Medical Factors can’t always be completely treated before behavioral treatment begins.*
Factors Contributing to Food Refusal: Medical

- No physical sensation of hunger or thirst
- Child has not experienced that eating and drinking will produce pleasant tastes or reduce discomfort from hunger
- Physical discomfort when eating or drinking
  - Gastroesophageal reflux
  - Slow gastric emptying
  - Small window of time until satiation
  - Hypersensitive gag reflex
Medical Factors: Reflux

Burning sensation in the chest

Acid and stomach contents back up into esophagus

Stomach

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Medical Factors: Genetic
Medical Factors: Prematurity
Medical Factors: Allergy
Medical Factors:
Delayed Gastric Emptying
Oral Motor Factors

- Evaluation and treatment by an OT or Speech Pathologist is critical if aspiration or other oral-motor factors are evident.

- Aggressive behavioral treatment for a child with aspiration or other oral motor problems could worsen the problem or be deadly.
Factors Contributing to Food Refusal: Oral Motor

- Texture Aversion (prefer liquid/smooth)
- Taste Aversion
- Weak Suck
- Unsafe Swallow/choking - gagging
- Delayed oral-motor skills
Developmental Factors: Dysphasia
Developmental Factors: Texture Aversion
# Feeding Skill: Stages and Timing

<table>
<thead>
<tr>
<th>skills</th>
<th>0-3m</th>
<th>3-6m</th>
<th>7-11m</th>
<th>12-24m</th>
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</thead>
<tbody>
<tr>
<td>Feeding (motor)</td>
<td>sucks</td>
<td>Sucks/bites</td>
<td>Munches</td>
<td>Chews</td>
</tr>
<tr>
<td>Texture (sensory)</td>
<td>Liquid</td>
<td>Purees</td>
<td>Chopped</td>
<td>Table</td>
</tr>
<tr>
<td>Speech</td>
<td>Coos</td>
<td>Babbles</td>
<td>Syllables</td>
<td>Words</td>
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<tr>
<td>Fine motor</td>
<td>Fingers</td>
<td>Reaches</td>
<td>Transfers</td>
<td>Releases</td>
</tr>
<tr>
<td>Gross motor</td>
<td>Lifts head</td>
<td>Turns/sits</td>
<td>Stands</td>
<td>Walks</td>
</tr>
</tbody>
</table>
Developmental Factors: Texture Aversion
Developmental Factors: Taste Aversion
Non-oral Feeding

- NG Tube
- G-Tube/Button
Inserting a Nasogastric (NG) Tube
Inserting a Gastrostomy PEG
Factors Contributing to Food Refusal: Behavioral

- Emotional/physical discomfort due to unpleasant experience with eating or drinking
- Adaptive manipulation of environment to obtain something child wants
- History of aversive feeding routines
- Child eats successfully for one adult, but not for others
- Oppositional
Behavioral Factors: Previous Experience
Behavioral Factors: Inconsistency
Behavioral Factors: Past Feeding History
Behavioral Factors:
Oppositional
Assessment of Feeding Problems

Is it me, or do our kids seem much more resistant than we ever were?
Task Analysis of Normal Eating Process

1. The child is sitting quietly and comfortably in a high chair or at a table.
2. Eating utensils are placed on the child’s tray or in front of her on the table.
3. A plate or tray of food is placed in front of the child.
4. The feeder/child raises the spoon, fork, bottle, or cup from the tray or plate and approaches the child’s mouth with the utensil.
5. The child opens her mouth to receive the utensil and food.
6. The child sucks, chews, or swallows what has been provided.
7. She eagerly awaits more food.
8. The child opens her mouth to receive another bite of food from the feeder, etc.
9. At the end of some predetermined length of time, the child has consumed the amount as well as the type of food that the feeder has intended.
10. The child leaves the feeding location, engages herself in some activity, and experiences no discomfort from feeding.
**ASSESSMENT = TEAM APPROACH TO DETERMINE:**

<table>
<thead>
<tr>
<th>Skill</th>
<th>vs.</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>sucking</td>
<td></td>
<td>quantity</td>
</tr>
<tr>
<td>chewing</td>
<td></td>
<td>type</td>
</tr>
<tr>
<td>swallowing</td>
<td></td>
<td>acceptance</td>
</tr>
<tr>
<td>tongue lateralization</td>
<td></td>
<td>length of meal</td>
</tr>
<tr>
<td>self-feeding</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Types of Feeding Problems

- Selectivity by Type
- Selectivity by Texture
- Insufficient Quantity
  - Structural, medical impediments
  - Type/Texture
  - Positive reinforcement
  - Negative reinforcement
Target Behaviors Might Include:

- Texture
- Quantity (per meal, or total intake)
- Food type
- Cooperation
- Length of meal
- Weight
Incoming Information

Feeding History | Medical History | Observation of Meal | Structured Interview | Past Treatments

Hypothesis Generation/Functional Assessment

Positive Reinforcement | Positive/Negative Reinforcement | Negative Reinforcement

Treatment Selection

- DRO
- Token System
- Extinction
- Shaping
- Time-out
Informal Observation of Meal

- Child’s feeding skills
- Parent’s feeding approach
- Avoidance behaviors
- Physical response to eating
- Feeding environment
- Parent/child interactions
  - Seating
  - Visibility of food
  - Utensils
- Window until satiation
  - Length of meal
Functional Assessment of Feeding Disorders

Are disruptive feeding behaviors a function of?:

- Escape/Avoidance
- Attention
- Tangible
## Characteristics Associated with the Behavioral Functions of Feeding Difficulties

<table>
<thead>
<tr>
<th>Positive Reinforcement</th>
<th>Negative Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wider Range of Preferred Foods</td>
<td>• Limited Range of Preferred Foods</td>
</tr>
<tr>
<td>• Fewer Negative Experiences with Eating</td>
<td>• History of Medical/Motor Problems</td>
</tr>
<tr>
<td>• Stimulus Control is a Factor</td>
<td>• Stimulus Control is Less of a Factor</td>
</tr>
<tr>
<td>• Inappropriate Behavior Does Not Decrease When Meal is Avoided or Terminated</td>
<td>• Inappropriate Behavior Decreases When Meal is Avoided or Terminated</td>
</tr>
</tbody>
</table>
Food (Stimulus)

- Child accepts and swallows food (BEHAVIOR)
  - Hunger is satisfied (CONSEQUENCE)
    - Child continues to eat (POSITIVE REINFORCEMENT)
  - Child experiences reflux or aspiration (CONSEQUENCE)
    - Child decreases or stops eating (PUNISHMENT)
- Child turns head, pushes food away (BEHAVIOR)
  - Food is removed, presentation is delayed (CONSEQUENCE)
    - Child increases or maintains head-turning, etc., when food is presented (NEGATIVE REINFORCEMENT)
The Function of Avoidance

- Avoidance of eating is initially an adaptive behavior as it allows the child to avoid an activity that is painful, difficult, scary and potentially dangerous.

- Poor oral control and/or sensory aversion may lead to gagging which reinforces fear and promotes further refusal.

- The child will use a variety of behaviors to avoid placement of food into his/her mouth.

- Parents often unintentionally reward avoidance behaviors by responding with positive attention (playing, smiling, bargaining) or by removing the food.
Common Avoidant Behaviors

- Pushing food away
- Throwing food
- Turning away
- Crying
- Saying “No!”
- Refusing to open mouth
- Expelling foods from mouth
- Gagging/Vomiting
Structuring the Meal

- Allows for predictability and systematic changes
- Select 2-3 basic rules for child/feeder
- Identify food and liquid type
- Select beginning quantity (start small)
- Select meal length by time or bites
- Determine how to respond to behavior
- Caregiver vs. self-feed
Where’s the Beef?

- Have a plan in place that outlines how the child will meet their caloric/nutritional needs while treatment plan is in place.
Basic Behavioral Components

- Shaping
- Escape Extinction
- Premack
- Time-out
Shaping

- Definition: Gradually reinforcing “successive approximations” of a target behavior

- Gradually shape acceptance of larger quantities of food by type and/or texture
Escape Extinction

- Block reaching
- Ignore head turning etc.
- Hold bite or drink at mid-line
- Re-introduce expelled food
- Decrease avoidance behavior by monitoring texture, utensil size, bolus size
- Pair with DRA, etc.
Pairing Preferred with Non-Preferred Foods

- Premack
- Texture fading
- Reward tastes vs. bites
- Combine type/texture then fade preferred
Time-Out

• Definition: Providing time-out from reinforcement either by removing the child or the environment

• Use will likely be non-traditional
Use Time-Out for Children Who:

- Enjoy several foods
- Have a normal hunger-satiety routine
- Enjoy social attention
- Exhibit highly disruptive mealtime behaviors
Avoid Time-Out with Children Who:

- Are tube dependent
- Are highly avoidant
- Have limited potential for oral intake
Factors Suggesting That Intensive Behavioral Programming May Be Contraindicated (or that medical interventions should precede/coincide with behavioral intervention)

- Gagging/choking
- Turning blue
- Expelling food through nostrils
- Indication of stomach discomfort
- Physical discomfort midway through eating process
- Arching of back
- Persistent colic/irritability
Chance

- Born 29 weeks gestation via c-section
- NG (Nasogastric tube) shortly after birth
- G-button (Gastrostomy) tube placed at 10 mos.
- At referral:
  - 2 y.o.
  - completely tube dependent
  - receiving 4 bolus feeds/day and nighttime drip
  - tastes of cereal and formula
- Tx
  - Structured mealtime routine and rules
  - Gradually shaped acceptance of textures and liquids
  - Increased solid and liquid intake by mouth
  - Faded and eventually eliminated drip feeds (then boluses)
  - Escape extinction plus DRO
The Picky Eater

• Picky eaters are made – not born

• Function: Avoidance/escape vs. access to preferred

• Positive change will take time
Characteristics of the Picky Eater

- Early texture/taste sensitivity
- Hx of oppositional behavior and/or high permissiveness by parent
- Diet becomes more restrictive
- Multiple failed ‘interventions’
- Inconsistent to negative mealtime behavior
- Lack of consistent mealtime routine
Expanding the Diet of the Picky Eater

- Exposure is the key
Expanding the Diet of the Picky Eater

- Leave grazing to the cattle
- Fade temperature and texture
- Modify preferred foods
- Stick to the schedule
- Grandma’s Rule
- One taste/bite rule (at start of meal)
- Require set time at the table (use a timer)
Rating Taste and Bite Size

Yuk
1

Ok
2

Yum
3

1
2
3
4
5

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Behavioral Strategies (one example)

- Generate list of foods to try
- Give permission to start small
- Have clear contingencies
- Actively involve the child
- Measure taste preference and bite size
- Short term and long term rewards
Rating of Taste

Yuk
1

Ok
2

Yum
5
Rating of Bite Size

1 2 3 4 5
# Recording of Tastes

<table>
<thead>
<tr>
<th>Date</th>
<th>Food Item</th>
<th>Taste Rating</th>
<th>Bite Size</th>
<th># of Bites</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-17-11</td>
<td>Carrot</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6-17-11</td>
<td>Mac &amp; Cheese</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>6-18-11</td>
<td>Apple</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6-19-11</td>
<td>Tuna Casserole</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6-20-11</td>
<td>Hot Dog</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6-21-11</td>
<td>Broccoli</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6-22-11</td>
<td>Broccoli with cheese</td>
<td>5</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>
Reward Jar

- One token per bite – initially
- Use masking tape to have levels of rewards
- Fade by providing one token for increasingly more bites
Tips for Healthy Eating

- Present a wide range of foods before the child reaches 15 to 18 months of age
- Present preferred as well as non-preferred foods
- Stick to a consistent schedule; keep meals, naptime, and bedtime at same times daily
- Avoid grazing
- No short order cooks allowed
- Make healthy foods readily available and unhealthy foods less available
- Model healthy eating behaviors and discuss good eating habits
“I do like vegetables… That’s why I hate to see them brutally killed and eaten.”