A Sensory Integrative Approach to Feeding
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Critical Components

Developmental sequence of feeding skills

• Critical windows
• Texture transitions
• Self feeding
• Meal preparation and participation
Review Typical Food – Think Sensory Qualities

- Breast/bottle
  - 0-13 months
- Thin baby food cereals
  - 6 months
- Thicker baby food cereals (plus one thin baby food)
  - 6 ½ months
Review Typical Food – Think Sensory Qualities

• Thin baby food/puree (stage 1)
  • 7 months
• Thicker baby cereals & thicker puree (stage 2)
  • 8 months
• Soft mashed table foods and table food purees
  • 9 months
Review of Typical Food – Think Sensory Qualities

**Hard munchables**
- 9 months (oral exploration only)
  - Jicama, baby pretzels, dried fruits, bagel strips, celery sticks

**Meltable hard solids**
- 9 ½ months
  - Graham crackers, frozen waffles, town crackers

**Soft cubed foods**
- 10 months
  - Avocado, kiwi, boiled potatoes, bananas

**Soft mechanical (single texture)**
- 11 months
  - Fruit breads, small pasta, scrambled eggs
<table>
<thead>
<tr>
<th>Soft mechanical (single texture)</th>
<th>Cubed lunch meats, soft pretzels, muffins</th>
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<tbody>
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<td>• 11 months</td>
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<table>
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<tr>
<th>Soft mechanical (mixed texture)</th>
<th>Macaroni and cheese, french fries, lasagna, spaghetti</th>
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<tbody>
<tr>
<td>• 12 months</td>
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<tr>
<th>Soft table foods</th>
<th>Soft foods in an appropriate size &amp; shape</th>
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<td>• 13-14 months</td>
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<tr>
<th>Hard mechanicals</th>
<th>Cheerios, saltine crackers, chips, cookies</th>
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<td>• 15-18 months</td>
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Self Feeding – fine motor skills

- 6 months
  - Cup drinking between 4-6 months (much liquid loss)

- 9 months
  - Straw drinking, finger feeding, banging spoon, imitate stirring

- 12 months
  - Finger feeding, cereal, small pieces, self feeding with spoon (messy)

- 15 months
  - Refining self feeding (spoon/cup), scooping foods and bring to mouth
Self Feeding – fine motor skills

- 18 months
  - Independent with spoon and cup – including open cup
- 24 months
  - Spoon/fork, palm up
- 31-32 months
  - Little spilling
- 30-36 months
  - Fork to stab food
Critical Components

- Gastrointestinal Issues
- Allergies
- Picky, Resistant, or Rigid & Inflexible
Gastrointestinal Issues

- Reflux
  - Esophageal issues (e.g., ulcers)
- Delayed gastric emptying
- Metabolic issues
- “Leaky” gut
Allergies and Sensitivities

Common but not all inclusive…

- Dairy
- Yeast
- Soy
- Wheat
- Eggs
- Nuts and seeds
- Gluten and Casein
Picky, Resistant, Rigid/Inflexible

Picky eaters

- Often between two and three years old
- May fear new foods
- Limited in selection but eat a variety to maintain balanced and healthy diet
Picky, Resistant, Rigid/Inflexible

Resistant

- Extreme end of continuum
- Not defined by a single test or diagnosis
- Serious food aversions or medical impairments that prevent them from eating a balanced diet
Picky, Resistant, Rigid/Inflexible

Resistant

• Limited selection (<10-15)
• Limited food groups
• Anxiety and/or tantrums when presented new foods (may gag or vomit)
• Experiences “food jags”
Food Jag

“Some children, especially those with feeding difficulties, prefer to eat the same food prepared the same way every day or at every meal. This is known as a ‘food jag.’ The main problem with food jags is that children will eventually get bored or burned out on these preferred foods.”

~ Kay Toomey, 2002
Food Jag

“…these foods are typically lost out of that child’s food range – permanently. They may then continue this process of eliminating foods until they have few foods left in their food repertoire.”

~ Kay Toomey, 2002
Picky, Resistant, Rigid/Inflexible

Rigid/inflexible

- Preferences lie outside of neuromotor or sensory rationale
- Often seen in children with autism or on the autism spectrum
What is the “behavior” really telling you???
What types of “behavior” do you see at mealtime?

Linking sensory systems to mealtime “behavior”
Sensory Considerations

Organization of Behavior/State Control Issues:

• Attention/awareness of mealtime activities?
• Ability to accept structure in mealtime?
• Frustration tolerance?
• Ability to self-calm? Re-initiate?
• Do any of these characteristics carry over into other times of day?
• Is child able to pace themselves?
• Do any fluctuate with different meals?
Sensory Considerations in the Meal Assessment

• Does child express hunger? Do they express when they are full?
• Can child tolerate different textures? Temperature?
• Can child tolerate different smells?
• Is child more efficient with crunchy? Salty? Sour?
• Is child able to detect saliva/food at edges of mouth?
• Does child stuff? Pocket?
Behaviors You May See Related to Sensory Challenges

• Hyper-sensitivity (over-reactive) yields gagging, increased head extension, lip retraction, tongue thrusting, jaw thrusting, and bite reflex

• Hypo-sensitivity (under-reactive) yields deceased coughing, over-stuffing and pocketing, drooling, decreased awareness of food residuals, inability to safely detect hot/cold
Proprioception

- May have difficulty adjusting/grading amount of jaw opening needed to take bites of foods
- May hold and use eating utensils with too much/little force
- May bite lip/cheek without noticing
- May not know how much pressure to exert when using a cup/spoon (spilling frequently)
- Poor body awareness (in relation to objects/people – spilling or dropping frequently)
- May over-stuff mouth
Tactile

- Limited repertoire of food textures
- Extremes (very mushy - very crunchy)
- Difficulty transitioning with textures
- May spit out lumps in food
- Foods chosen in a pattern
Over-responsive - Tactile

- Dislikes “messy” play
- Bothered by certain textures of clothing
- Prefers a specific temperature of food
- Avoids mixed textures
- Dislikes ADL activities
  - Nail trimming
  - Teeth brushing
  - haircuts
Under-responsive - Tactile

- Unaware of touch unless very intense
- Unaware of food left on face or in mouth
- May swallow a large bolus with no reaction
- “disconnected” from their hands
- Seeks “messy” play
- Seeks strong flavors (food or drink)
- Mouths objects to gain information
  - after age 2
Tactile System – Adequate sensory processing

- Child is not aversive to having food on face or hands during meals
- Child eats a wide variety of tastes and textures
- Child engages in messy play activities without distress
- Child wears a variety of clothing materials
Vestibular

- Difficulty moving head back when drinking from a cup
- The child may focus all attention on how she is moving or not moving
- May be constantly alerted to one’s body position in space (leaning to one side and be fearful of falling) – therefore decreased attention on eating
- This system works closely with visual and proprioception
Over-responsive Vestibular System

- Dislikes playground activities
- Cautious, slow moving, or sedentary
- May get car sick
- Loses balance when climbing stairs, hopping, or riding a bike
- Uncoordinated or awkward
- Fear of falling/heights
Under-reactive to vestibular

• Needs to keep moving; can’t sit still
• Repeatedly or vigorously moves their head, rocks, jumps frequently
• Craves intense movement experiences
• Loose or floppy body
• Prefers to lie down vs. sit upright
• May not get as dizzy as others
Visual

- The sight of food alone elicits an aversive response
- May shield their eyes
- May cover one eye or squint when focusing
- Difficulty shifting gaze
- Misjudge spatial relationships of objects
- Maybe uncomfortable by people moving in the environment
Gustatory (taste)

Increased taste sensitivity: over-responsive

- Objects to certain textures (mashed, lumpy)
- Objects to certain temperatures (hot, cold, room temperature)
- Often gags when eating
Gustatory (taste)

Decreased taste sensitivity: under-responsive

- Mouths inedible objects (playdough, toys)
- Prefers intense flavors (spicy, sour, salty)
- Prefers intense temperature (hot or cold)
Olfactory (smell)

• May have a memory of a bad experience with a particular food/environment
• Smell in the environment may be distracting
• When there is dysfunction:
  • Oversensitive
  • Objects to odors not noticed by others
  • Ignores unpleasant odors
Feeding Concerns

Putting it all together....
Feeding Concerns

- Physiological
- Respiratory
- Posture
- Motor
- Sensory
- Behavioral
Case Study: Rachel

- Down syndrome
- Normal birth history
- Feeding history
- Therapy history
Physiological Concerns

- Overall structures
- Symmetry of structures
- Typical, atypical, or absent
Links to Feeding, Eating, and Growth Disruptions

Respiratory
• Mouth breather due to severe congestion/blocked nasal pharynx

Posture
• Low tone
  • posterior pelvic tilt
  • open mouth posture
Links to Feeding, Eating, and Growth Disruptions

Sensory

• Under-responsive
  • decreased awareness of food in mouth
  • decreased awareness to flavors

• Over-responsive
  • temperature

• Low arousal
Links to Feeding, Eating, and Growth Disruptions

**Praxis**: Major difficulties between coordination and execution of oral movements in relation to head/neck/trunk stability
Links to Feeding, Eating, and Growth Disruptions

Fine motor

• Decreased graded control
  • decreased midrange control of tongue
  • decreased strength/coordination for chewing
• Decreased fine motor skills in regards to hand function

Environmental

• Extremely distractible
Links to Feeding, Eating, and Growth Disruptions

Behavior

• Often refuses to eat new or familiar foods
  • often due to not able to “feel” where they are in her mouth
• Visually, if does not look familiar, refuses to eat
Motor Concerns

- Ideation
- Coordination
- Execution
Sensory Concerns

- Textures
- Temperatures
- Tastes
- Pain
- Hypo sensitivity
- Hyper sensitivity
- Modulation and arousal
Behavioral Concerns

Coping strategies stemming from
• physiological concerns
• skill deficits
• motivation and habits

Interactions between
• child and his/her world view
• significant other(s) and their view(s) of the child
• physical environment
General Intervention Strategies

• Play-based approach
• Calm environment
• Child initiated and therapist directed
• Fun
Intervention Strategies

Motor/Sensory/Praxis

• Whole body activity prior to feeding (heavy work)
• Use of vestibular input to increase arousal
• Warm up oral motor exercises or activity prior to meal (silly faces in the mirror, facial molding)
Intervention Strategies

Visual/Environmental

• Eliminate visual distractions in room (t.v., peers, lighting)
• Presenting small, child-sized plate with fistful portion of bite sized food

Posture

• Adequate support or positioning
Intervention Strategies

Tactile/Sensory

• Facilitate decreased tactile defensiveness by beginning distally, work proximally
• Whole body massage or proprioceptive based activity
• Increase variety and acceptance by choosing foods with similar qualities