Typical Feeding Development
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Session Outline

- Categories of Liquids and Foods
- Typical Swallowing
- Acquisition and Interdependence of Motor Milestones Across All Parameters
- Sensory Processing Considerations
Categories of Liquids & Foods
*All ages are approximate*

**Liquids**
- **Very Thin** = water, juice, apple and grape juice
- **Thin** = milk and formula
- **Thick** = nectar, cream soup, V8
- **Thickened** = by rice cereal, Thick-it or Simply Thick (commercial thickening agents), milkshake

**Purees**
- **Thin** = Stage I and II jarred baby foods (4-6 months)
- **Thick** = Naturally occurring purees such as pudding mashed banana, regular applesauce and yogurt
- **Lumpy** = oatmeal, Stage III jarred baby food (8 months)
Chewables
*All ages are approximate*

- **Soft Chopped**= small pieces of one type of food such as pasta, macaroni & cheese (8-10 months)
- **Soft**= piece of banana, cooked carrots, graham cracker
- **Medium**= hot dog without casing, French Fries & beans (12 months)
- **Firm**= piece of meat (chicken), hard cookie, bread and tortilla (18 months)
- **Mixed**= toddler meal, soup with pasta and vegetables, sandwich (24 months)
- **Very Firm**= unaltered hot dogs, nuts, seeds, chunks of meat or cheese, whole grapes, popcorn, raw vegetables
Review of What Happens When We Swallow?

There are four phases of the normal swallow:

- Oral Preparation
- Oral Phase
- Pharyngeal Phase
- Esophageal Phase
Typical Feeding
Newborn
By 3 Months…

Oral Motor Skills

- Rooting reflex
- Suck/swallow reflex
- Phasic bite reflex
- Gag reflex
- No disassociative movement: tongue, jaw and lips work together
- Tongue is cupped
- Lips seal to support pressure gradient
- Increased strength and efficiency with suck-swallow-breathe coordination
By 3 Months…

Nutrition

• 5-7 ounces per feeding by three months
• Infants can typically complete an oral feeding in 20-30 minutes
• Thin liquid, breast/bottle
• Breast milk is best suited to meet nutritional needs
• Brain growth increases need for iron, proteins, fats
• Accelerated growth increases need for protein and calories
By 3 Months…
Self-Feeding Skills

• Should be moving towards calming when bottle is in sight (ie: crying with hunger, sees bottle coming at them and calms to get ready to eat)

• Puts hands on bottle or breast but doesn’t hold independently
Typical Feeding

3 months
3 Month Old....
Common Problems/Strategies

• Problem 1: Infant has poor jaw stability so wide jaw movement when trying to suck
  • Strategy: Jaw support during bottle feeding
  • Lab: Practice jaw support (cupping jaw, 2 finger hold, etc.)

• Problem 2: Infant not able to calm and regulate during feeding, guzzling food and choking/coughing:
  • Strategy: Slow down flow of fluid by changing the nipple type - more dense or single hole vs. slit or cross cut, or an Avent bottle system (slow /medium/fast flow)
3 Month Old…. Common Problems/Strategies

Problem 3: Infant not able to calm, gagging, and unable to regulate during feeding, in a hyper-alert state with poor eye contact

- Strategy: Swaddle baby tightly and sit in more upright vs. reclined position
- Strategy: put the bottle in mouth with gentle input of the nipple up to the palate
  - Lab -- have students practice giving deep pressure to palate
- Strategy: Environment -- reduce bright lights, put on calming music, etc.
By 6 Months….
Oral Motor Skills

• Suckle in anticipation of the spoon
• Munch chew pattern emerges (5-6 months)
• Tongue & jaw move as one unit
• Increased tongue movement
• Gag reflex (moves to back of tongue)
• Poor coordination of suck, swallow, breathing sequence
By 6 Months.... Nutrition

- Introduction of cereal and pureed foods.
- Begin with infant cereal (rice, oatmeal)
- Next, introduce pureed fruits and vegetables.
- Finally, introduce pureed meats.
- Volume of solids: 2-12 tablespoons
- Volume of liquids: 32 ounces per day, 4 ounces of water per day
Self-Feeding at 6 Months

• Calms when sees parent preparing food
• Increased vocalizations to communicate mealtime interest
• Actively participates in meal with opening mouth in anticipation
• May begin holding own bottle
6 Month Old Common Problems/Strategies

• Problem 1: Infant has decreased jaw stability and has difficulty achieving lip closure on the spoon.
  • Strategy: Provide jaw and lip support.
  • Lab: Practice 3 ways to provide jaw support. Practice encouraging lip closure with tactile cues and sideways spoon placement

• Problem 2: 6 month olds who are not bringing toys to their mouth
  • Strategy: oral sensory activities to help promote oral awareness
Problem 3: 6 month olds who are not tolerating progression to purees

- Strategy: just before meals, use a NUK brush to “wake up” / alert mouth
- Strategy: use soft terry towel to massage cheeks, lips, tongue, & gums
- Strategy: put food into the sides of mouth by turning spoon to dump food onto gums/cheek sulcus every other bite
- Strategy: slowly thicken foods -- combine fork mashed with puree and slowly increase to more fork mashed and less pureed
By 9 Months

Babies are crawling, manipulating toys more…

Showing lots of big developmental strides.
By 9 Months…
Oral Motor Skills

• Variable tongue movements: in/out and up/down
• Increased lip action
• Cup drinking (unstable jaw)
• Start to see disassociation of jaw from tongue and lips with biting
• Transfer of food: side to center and center to side
• Gag is less sensitive & moving posteriorly
By 9 Months…Nutrition

- Bottle moves away from being primary source
- Texture: liquids, purees, mashed soft foods. Introduce meltable chewables such as cheerios, Gerber puffs, and biter biscuits.
- Limit juice to 4 ounces per day (if at all; water is better)
- Iron stores depleted. Introduce iron fortified cereal.
- Introduce vitamin C rich fruits (strawberries/oranges) and vegetables (broccoli/brussel sprouts) to facilitate iron absorption.
- Vitamin D supplements/fluoride to build teeth and bones.
- Allergy prevention - give same food for 3 days
Self Feeding at 9 Months…

- Using gross raking grasp to pick up small food items
- Holding own bottle
Typical Feeding

9 months
9 month old…

Common Problems/Strategies

• Problem 1: 9 month old is not initiating holding the bottle
  • Strategy: Work on bilateral (2-handed) play activities, encourage hands to midline during play, and increase visual attention (bottles with colorful designs).

• Problem 2: 9 month old having difficulty transitioning to mashed foods or thick purees
  • Strategy: Alternate a spoonful of a preferred puree (i.e. jarred carrots) with a spoonful of pureed carrots.
9 month old…
Common Problems/Strategies

• Problem 2: 9 month old having difficulty transitioning to mashed foods or thick purees
  • Strategy: Give sturdy food with supervision to mouth and chew but that will not break into chunks (frozen bread, etc.)

• Problem 1: 9 month old is not moving food to gums to chew
  • Strategy: Wrap small fruit in cheese cloth and work on chewing
By 12 Months…

Babies are beginning to move more. They should be pulling to stand, standing independently for brief moments, and taking short steps with handheld assist, etc.
By 12 Months…
Oral Motor Skills

- True suck
- Cleans lower lip with teeth
- Improved coordination of suck-swallow-breathe to support cup drinking
- Controlled bite
- Emerging ability to transfer foods across midline (emerging rotary chew)
- Chewing with active lip and cheek movement
By 12 Months…

Nutrition

- Offer foods from the family meal
- Avoid foods that are potential choking hazards (see appendix A for details)
- 3-4 oz solids per meal/day
- 24-32 oz of formula/day
- 2-4 oz combination water and diluted juices
- 6-7 oz purees per meal/day
Self-Feeding 12 month old

- Self feeding with a spoon
- Holding cup independently
Typical Feeding

12 months
12 month old…

Common Problems/Strategies

• Problem 1: 12 m/o who is not lateralizing food
  • Strategy: lateral placement of the spoon
  • Strategy: chewing on a NUK brush on the side
  • Lab: Practice lateral placement with a spoon and applesauce.

• Problem 2: 12 m/o who is not self feeding with fingers
  • Strategy: work on pincer grasp, tactile input to hands before meals
Problem 3: 12 m/o who has decreased jaw stability and is unable to bite through foods

• **Strategy:** Play tug-of-war with Theratubing, coffee stirrers or straws.

• **Lab:** Practice providing jaw support 3 different ways: chin cupping, chin support-2 fingers, & “L” with thumb and index fingers.
By 15 months…

Oral Motor Skills

• Independent tongue movements for lateralization and posterior propulsion of bolus
• Increased lip activation for clearing of residuals
• Efficient rotary chew pattern
• Good coordination of suck-swallow-breathe
• Lip closure during chewing
• Increased stability for controlled bite on hard cookie
By 15 months…

**Nutrition**

- Texture: mashed foods, chopped table foods and some raw veggies and meats.
- Wean from bottle and encourage cup drinking.
- Offer cow’s milk in a cup (whole milk)
- Offer same amount of fluids
- Offer 3 meals and 2-3 snacks per day.
- Increased intake of solid foods
- Continue to elevate nutritional needs in order to support brain growth
- Need for nutrient dense foods.
15 month old…

Nutritional Needs

Daily Estimated Calories and Recommended Servings per the American Heart Association for children ages 1-2 years (2005):

• 900 kcals
• Fat: 30-40% kcals
• 2 cups milk/dairy
• 1.5 oz lean meat/beans
• 1 c fruits (serving size= ¼ c for 1 year olds)
• ¾ c vegetables (serving size= ¼ c for 1 year olds)
• 2 oz grains (half of all grains should be whole grains)
Self-Feeding, 15 month old

- Emerging fork skills
- Interest in drinking from open cup with adult help
By 18 months…

Oral Motor Skills

- Internal jaw stability emerges
- Decreased tongue extension during swallowing
- Adequate control of liquids
- Controlled bite (hard cookie, pretzel)
- Well coordinated rotary chew pattern with smoother integration of tongue, lip & jaw movements
By 18 months…

Nutrition

• Texture: table foods
• Offer bite sized pieces
• Offer fist full portions
• Nutritional needs for the 18-23 month old are the same as the 15 m/o (see nutritional needs slide for the 15 month old for details)
Self-feeding, 18 months

- Self-feeding with spoon
- Can use a napkin with verbal cues
- Holds cup independently
Common Problems/Strategies

Problem 1: Child is not self-feeding with a spoon
  - Strategy: backward chaining (see handout)
  - Lab: practice backward chaining
  - Strategy: chewing on a NUK brush on the side

Problem 2: Child is not transitioning from bottle to cup.
  - Strategy: Try an infa-trainer cup which allows you to control the flow of liquid: fast, medium or slow. Can also try cut-away cup.
  - Strategy: Put a nutritious beverage in a small Dixie cup or medicine cup.
18 month old…

Common Problems/Strategies

Problem 3: Child is not transitioning onto chewable foods but chews on non-nutritives (i.e. NUK brush)

- Strategy: Place chewable foods in a piece of cheese cloth and place on lateral molar surfaces.
- Strategy: Freeze a preferred puree (i.e. yogurt, applesauce or pudding) in a straw or ice cube tray. Place on lateral molar surfaces to practice chewing with an already preferred flavor.
By 24 months…

**Oral Motor**
- Uses tongue to clear lips
- Increased efficiency with drinking (drinks in long sequences)
- Lip closure with straw drinking
- Tongue retraction for swallowing
- Chews meats adequately
- Transfers across midline

**Nutrition**
- Same as 18 month old

**Self feeding**
- Fork and spoon
- Picking up sandwiches
- Helping clean up after meal (i.e. napkin in trashcan)
Typical Feeding

2 years
24 month old…
Common Problems/Strategies

• Problem 1: Child is not able to pierce food with a fork
  • Strategy: work on hand strengthening activities: practice piercing play dough with a fork during play

• Problem 2: Child has decreased body awareness and has difficulty bringing utensils to his/her mouth.
  • Strategy: Do heavy work/proprioceptive activities before meal times to increase body awareness (i.e. wheelbarrow walks, pushing chairs to the table etc)
  • Strategy: Have the child sit in front of a mirror during meals to increase visual feedback during self-feeding.
By 36 months…

Oral Motor

- Internal jaw stabilization
- Tongue-tip elevation for swallowing
- Adequate jaw grading and total dissociation of head movement with bite
- Transfers food smoothly side to side
- Tongue movements are more refined
By 36 months…

Nutrition

- 1000 kcals/day
- Fat: 30-35% kcal
- 2 c milk/dairy (The American Academy of Pediatrics recommends that low-fat/reduced fat milk not be started before 2 years of age.)
- 2 oz lean meat/beans
- 1 c fruits (serving size= 1/3 c)
- 1 c vegetables (serving size= 1/3 c)
- 3 oz grains (half of all grains should be whole grains)
Self-feeding, 36 months

- Simple meal prep:
  - Stirring
  - Scooping
  - Pouring
- “Helping” to set the table
36 month old…
Common Problems/Strategies

• Problem 1: Child is not able to self feed with a fork
  • Strategy: Stabbing play-doh

• Problem 2: Child has decreased body awareness and has difficulty bringing utensils to his/her mouth.
  • Strategy: Do heavy work/proprioceptive activities before meal times to increase body awareness (i.e. wheelbarrow walks, pushing chairs to the table etc)
  • Strategy: Have the child sit in front of a mirror during meals to increase visual feedback during self-feeding.
References


