Feeding in Birth to 3

Is it a problem?

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QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Anatomy of the Newborn

- Small oral cavity
- Flat tongue with central groove
- Large fatty pads in the buccal area
- High, anterior placed laryngeal area
- Short pharyngeal and laryngeal spaces
- Uvula and epiglottis often approximate one another

Anatomy of the Newborn

- Head rests on the sternum
- Ribs are high; occupies approx. 1/3 of trunk
- Jaw and tongue

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Newborn Physiology

- Sucking may occur one to two days after birth (i.e. flexion)
- Obligate nose breathers
- Suckling up to six months due to lack of intra-oral space
- Sequences two or more sucks prior to breathe
- Abdominal breathing

Newborn Video 1

- Easy, relaxed sucking
- Coordinated suck, swallow, breathing
- No loss of formula
- Quiet feeding

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

Anatomy: 3-5 Months

- Oral, pharyngeal and laryngeal spaces relatively unchanged with exception of slow grow
- See initial control of jaw
- Jaw opens, tongue flattened

3-5 Month: Physiology

- Increasingly symmetrical
- Continues to use abdominal breathing
- Achieving 20 or more sucks prior to pause to breathe
- Rib cage begins to look rectangular; ribs remain horizontal
- Continued suckling
- Very active movement of lips during suckling

Anatomy: 6-9 months

- Lessening of fatty pads in buccal area
- Growth of intra-oral space
- Elongation of pharyngeal/laryngeal areas

Physiology: 6-9 months

- True suck emerges
- Gross tongue lateralization (i.e. munching)
- Increased central groove
- Biting aids emergence of teeth
- Long sequences of suck-swallows
- Emergence of thoracic breathing

QuickTime™ and a
Motion JPEG OpenDML decompressor
are needed to see this picture.

6 month old bottle feeding

QuickTime™ and a
Motion JPEG OpenDML decompressor
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9 Months

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Infant: 9-12 months

- Stability of shoulder girdle allows for jaw stability which provides opportunity for lip and tongue mobility
- True lateral tongue movements
- Active upper and lower lips

One Year

- Rib cage is rectangular
- Thoracic breather
- Achieves rotary chew
- Active, disassociated movements of articulators

2-3 years

- Refinement of oral motor skills
- Independent
- Utensils

Prevalence

- 25-35% of normal children have minor feeding problems
- 40-70% of premature infants/children have feeding disorder
  - Rudolph and Thompson, 2002

Types of Disorders

- Oral Motor
- Sensory
- Behavioral

Medical Issues

- Knowledge of underlying causes
  - Prematurity
  - GI Reflux
  - Motor Impairment
  - Heart or Respiratory Problems

Sensory Disorder

- Presents in various ways
- Environment Influence
- Presentation of food/liquid
- Difficulty with specific food groups, textures, colors..
- Utensils

Sensory Disorder

- Prematurity
- Chronic Illness
- Co-exist with neurological condition

May result from:
Tube feeding
Delay in oral feeds
Medical Intervention especially involving head and neck

Behavioral Disorder

- Rarely seen in isolation
- Contributing outside factors:
  - Reinforcing bad habits
  - Poor limit setting
  - Limited expectations for food acceptance

Management

- Taking/understanding medical history
- Being a team player
- Playing detective
  - What influences the feeding difficulty?
    - Motor
    - Sensory
    - Behavior

A Feeding Referral

- Review history!
- Listen to parent concern
- Observe feeding

What Next?

- Observe the total feeding process: before, during and after the feeding
  - Who feeds?
  - Where do the feedings take place?
  - Utensils used?
  - Type(s) of food, liquid
  - Position for feeding

STOP!

- Interpret your initial information
- Discuss your observations
  - Parent
  - Pediatrician
  - Specialist

✓ Know your own skill level

Designing an Individualized Program

- What skills does the child need to develop to be a successful feeder?
- What external factors can be controlled?
  - *Motor: positioning, pacing, food placement*
  - *Sensory: monitor sensory input, evaluate foods accepted and rejected, utensils used*
  - *Behavioral: parental education*

Designing an Individualized Program

- Where do you need to begin for safe, effective feeding?
- Who needs to be part of this child's team to ensure that the motor, sensory, psychological and or nutritional needs are being met?
- What skills does the child need to be a successful feeder?

Case Study #1

- Receive referral: 6 month old
  - Born at 40 weeks
  - Left hospital with mother after 24 hours
  - Parent concern for refusal to eat after several minutes of initial feeding

History and Observation

- Frequent ear infections treated successfully with antibiotics
- Infant interested in bottle feeding
- Infant crying; pulling into extension several minutes into feeding
- Parent demonstrates tension during feeding process

Case Study #2

- 9 month old infant
- Receives physical therapy
- “Eats and drinks well” by parent report

History and Observation

- Born at 28 weeks
- Fed via nasogastric tube until leaving hospital (3 months)
- Frequent upper respiratory infections
- Occasional coughing after bottle drinking
- Poor management of saliva
- Occasionally falls asleep before completing feeding

Case Study #3 Video

- 2 year old with ataxic cerebral palsy
- Severe drooling
- Poor management of thin liquids
- Unsafe with solids

Case Study # 3 Follow-up

- Improved jaw grading and strength
- Improved downward movement of upper lip
- Increased awareness of drooling
- Decrease in upper lip retraction
- Safe management of liquids

Case Study #4

- 15 month old toddler
- Referred for speech therapy
- Parent reports child “eats everything”

History and Observation

- Three surgeries for repair of cleft lip and palate
- Minimal speech production, absence of labial and tip alveolar consonants
- Adverse to tooth brushing
- Independently eats a variety of solids
- Refuses use of utensils
- Refuses assistance from adult
- Child places food into mouth
- Suckles with occasional munching

Follow up: 3 year old Video#4

- Ongoing speech and occupational therapies
- Oral motor concerns
- Impaired articulation

Case Study #5 Video

- 2 year old
- Medical diagnosis
- History of reflux
- Anklyoglossia
- Limited speech development

Conclusion

- Learning normal motor development
- Understand consequences of abnormal movement, medical complications and impaired sensory processing
- Remain a team player
- Address family/child's oral motor and feeding needs