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Improving Pediatric Feeding Assessment Skills

Series Presenter: Jennifer Dahms, MS, CCC-SLP, BCS-S

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Improving Pediatric Feeding Assessment Skills - Chewing Skills

Jennifer Dahms, MS, CCC-SLP, BCS-S

Moderated by:
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Improving Pediatric Feeding Assessment Skills – Chewing Skills

By Jennifer Dahms, MS/CCC-SLP, BCS-S

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Learning Outcomes

After this course, participants will be able to:

- Describe the basic areas of oral motor functioning for chewing skills.
- Describe the subtle/more descriptive areas of oral motor functioning for chewing skills.
- Identify characteristics of disordered chewing.
- Describe the possible functional impacts of disordered chewing.

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CONTINUED

Financial and Non-Financial Disclosures

- I am the owner of Valley Pediatric Feeding, LLC in Boise, Idaho and provide therapy services to children.
- I have been paid an honorarium from speechpathology.com for this presentation.
- I donate monetary funds to Smile Train, St. Jude Children's Research Hospital, and the Ronald McDonald House Charities of Idaho.
- I am an ASHA member, ISHA member, a member of the Dysphagia Research Society, a SIG 13 member, and a Board Certified Specialist in Swallowing and Swallowing Disorders.

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CONTINUED

Why are functional chewing skills important?

- Ignatius et al. (2018)
  - This study looked at the differences in jaw motions between typically developing children and those with spastic cerebral palsy, all of whom were oral eaters and did not have clinical reports of issues with feeding.
  - The subjects (n=11 subjects, 11 age and sex-matched controls) were recorded with optical motion caption.
  - The authors recorded the amount of distance traveled by the jaw, the average speed of movement, and the total three-dimensional size of the jaw movements.

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Why are functional chewing skills important?, cont.

- Ignatius et al. (2018), cont.
  - The children with cerebral palsy had greater path distances and three-dimensional size for mechanical soft and solid foods as compared to the controls.
  - The typically-developing children had slower speeds with mechanical soft foods as compared to solids. This was not evident in the children with cerebral palsy.
  - Children with cerebral palsy may need larger and additional movements in order to prepare food via chewing as compared to typically-developing children.

9

Why are functional chewing skills important?, cont.

- Ignatius et al. (2018), cont.
  - How would this impact our assessment with this population?

10

Why are functional chewing skills important?, cont.

- Mason et al. (2005)
  - This study was a review of the literature in regards to the effect of tube feedings on the development of eating and drinking skills.
  - One study by Dello Strologo et al. (1997) revealed that children with renal failure who were weaned from tube feedings had persistent chewing difficulties.
  - Illingworth and Lister (1964) reported on a sensitive period for development of a new skill; however, this has not been tested experimentally.
  - Reilly et al. (1995) indicated that some oral motor skills are texture-dependent.

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Why are functional chewing skills important?, cont.

- Mason et al. (2005), cont.
  - Skills may not emerge if a child doesn't have exposure to particular foods.
  - What do we have to keep in mind when assessing a child's chewing skills?

12

Why are functional chewing skills important?, cont.

- Serel Arslan et al. (2018)
  - This study was completed to determine the reliability and validity of the Karaduman Chewing Performance Scale for children with neuromuscular diseases.
  - The authors used the Pediatric Version of the Eating Assessment Tool (PEDI-EAT-10) for criterion-based validity.
  - n=68 children, age range of 2.5 years to 14.5 years, but the subjects were mostly male
  - There was good correlation between two physical therapists who performed the assessment and good correlation between the two tools.

13

Why are functional chewing skills important?, cont.

- Serel Arslan et al. (2018), cont.
  - Children with neuromuscular diseases had deterioration of chewing function.
  - How do we determine which tests to use with children when assessing chewing skills?

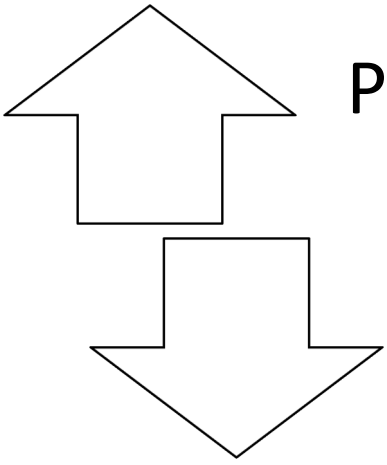
14

Chewing Movements

- Phasic bite and release
- Munching
- Diagonal / Lateral rotary
- Circular rotary

15

Chewing Movements, cont.

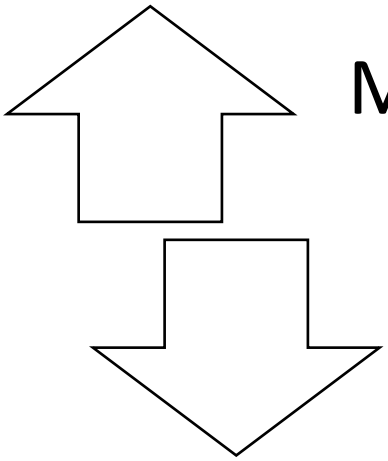


Phasic Bite

And Release

16

Chewing Movements, cont.

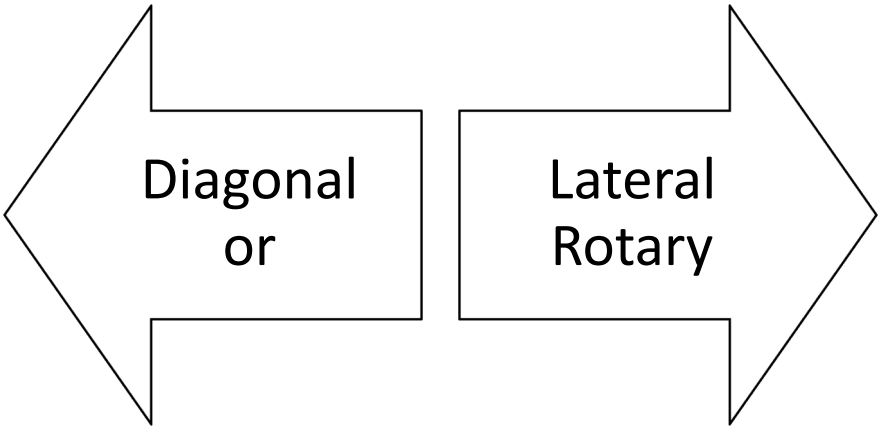


Munching

Movements

17

Chewing Movements, cont.



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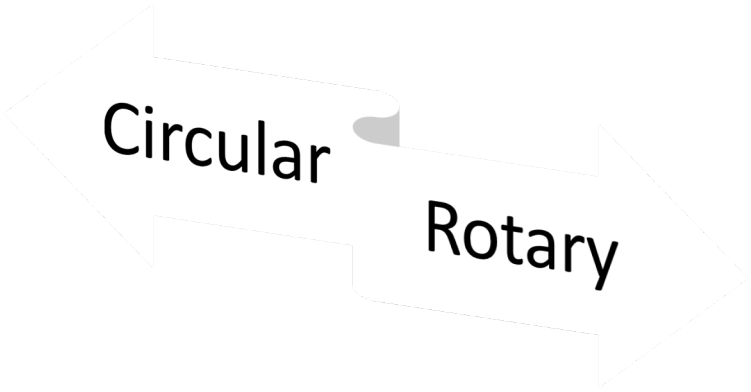
Chewing Movements, cont.



19

The Basics

- Strength
  - Muscle resistance
- Range of motion
  - The distance
- Coordination
  - Smoothness of movement

20

The Basics, cont.

- Accuracy of Movement
  - Shooting for the correct location
- Speed
  - The time it takes
- Dissociation
  - Movement of one structure in comparison to others

21

The Basics, cont.

- Endurance
  - Length of time a movement can occur

22

What do we see and feel?

- Number of chewing cycles
  - Counting the number of times it takes to chew

- Duration of chewing
  - Determining the amount of time

23

What do we see and feel?, cont.

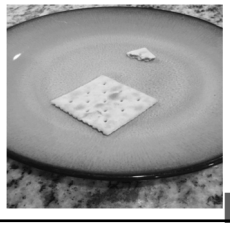
- Position of bolus on the teeth
  - The location of the bolus in relationship to the teeth
- Type of chewing pattern
  - As discussed, but in relationship to the food texture and bolus size

24

What do we see and feel?, cont.

- Bolus texture
  - How consistency affects the overall process

- Bolus size
  - How size affects the overall process



25

What do we see and feel?, cont.

- Jaw compression
  - Jaw strength in comparison to the bolus
- Frontal bite
  - The action of biting vs. chewing

26

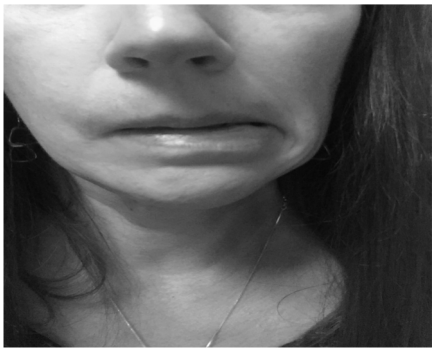
What do we see and feel?, cont.

- Mouth opening
  - The overall oral cavity size for accepting a bolus

27

What do we see and feel?, cont.

- Jaw shifting
  - The movement of the jaw in the lateral plane



28

What do we see and feel?, cont.

- Jaw excursion
  - The width of the jaw opening (beyond range of motion) with a lateral shift

29

What do we see and feel?, cont.

- Pulverizing the bolus
  - How effective is the chewing on the bolus

30

What do we see and feel?, cont.

- Jaw strength vs. chewing strength
  - The measurement vs. the functional use
- Transitional chewing
  - Moving from one developmental stage to another
- Rhythmicity
  - The repetitiveness of chewing

31

The Abnormal Movements

- Jaw clenching
  - Increased tone within the jaw

32

The Abnormal Movements, cont.

- Tonic biting
  - Abnormal pattern for dealing with a bolus

33

The Abnormal Movements, cont.

- Jaw sliding
  - Abnormal movement laterally

34

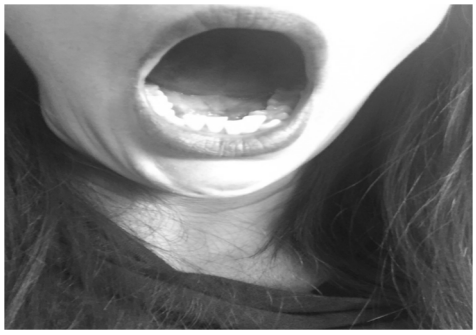
The Abnormal Movements, cont.

- Jaw jutting
  - Abnormal positioning of the jaw anteriorly

35

The Abnormal Movements, cont.

- Jaw thrusting
  - Abnormal opening of the mouth



36

The Abnormal Movements, cont.

- Excessive chewing duration
  - What level of weakness is present
- Disordered tongue movements
  - The correlation with another structure

37

The Process

- Background information about each child
- No information about therapy or previous assessments
- Simulate coming into an initial assessment situation

38

Video #1

- Patient Background

- J. is a 2 year, 8 month-old girl who has been diagnosed with Failure to Thrive and continues to have difficulty gaining weight. She has been prescribed a supplemental formula to assist with her growth, and she has a history of taking an appetite stimulant.
- J. has a history of gagging and choking on solid foods. She continues to breastfeed a couple of times during the day.

39

Video #1, cont.

- Video Clip

40

Video #1, cont.

- How would you describe J.'s jaw excursion with chewing in the video?

- A. Normal
- B. Excessive opening
- C. Restricted opening
- D. Incomplete opening

41

Video #1, cont.

- Discussion

42

Video #1, cont.

- What types of chewing did you see with J. as she ate her chips?

- A. Diagonal rotary
- B. Diagonal and circular rotary
- C. Diagonal and circular rotary and munching
- D. Munching

43

Video #1, cont.

- Discussion

44

Video #1, cont.

- What may have impacted J.'s chewing motions with the food that she was eating?

- A. The bolus size
- B. Her likability of the food
- C. The food texture
- D. Both A and C

45

Video #1, cont.

- Discussion

46

Video #2

- Patient Background
- M. is a 9-year-old girl with Down syndrome who has a history of an atrioventricular canal defect, jaundice, a unilateral cataract, and heart surgery. She had an NG tube placed as an infant and ultimately had a G tube placed for many years. She is currently a full oral eater.
- She has difficulties with constipation and weight gain.

47

Video #2, cont.

- Video Clip

48

Video #2, cont.

- What was M.'s primary chewing pattern?

- A. Munching
- B. Diagonal rotary
- C. Circular rotary
- D. Phasic bite and release

49

Video #2, cont.

- Discussion

50

Video #2, cont.

- How would you describe M.'s chewing rate and rhythmicity?

- A. Her rate and rhythmicity are nealy appropriate.
- B. Her rate is slow but rhythmicity is appropriate.
- C. Her rate is nearly typical but her rhythmicity is incomplete.
- D. Her rhythmicity is incomplete and her rate is fast.

51

Video #2, cont.

- Discussion

52

Video #2, cont.

- What do we think about M.'s chewing skills in relationship to the pizza she was eating?

- A. Her chewing is not functional.
- B. Her chewing is limited.
- C. Her chewing is functional.
- D. Her chewing is advanced.

53

Video #2, cont.

- Discussion

54

Video #3

- Patient Background

- E. is a 2-year-old boy with a history of GERD for which he received medication. His weight gain has been slow. He has been taking a supplemental formula for his overall nutrition. He has been weaned from dairy secondary to diarrhea.
- E. has had a slow teething process. He has a history of gagging and choking on solid foods.

55

Video #3, cont.

- Video Clip

56

Video #3, cont.

- How would you describe E.'s overall chewing duration?

- A. Incomplete
- B. Normal
- C. Adequate
- D. Lengthy

57

Video #3, cont.

- Discussion

58

Video #3, cont.

- How would you describe E.'s overall chewing skills?

- A. Normal
- B. Delayed
- C. Abnormal
- D. Non-functional

59

Video #3, cont.

- Discussion

60

Video #3, cont.

- What could occur if E. were presented with a different food, based upon the observation of his chewing skills?

- A. He may have more functional skills with softer textures.
- B. He may be able to have adequate intake of raw fruits and vegetables and meats.
- C. He would have better chewing with larger boluses.
- D. He would have faster chewing with larger boluses.

61

Video #3, cont.

- Discussion

62

Summary

- When assessing a child's chewing skills, we have to look beyond the basics of chewing and be aware of the subtleties or differences that may be impacting his/her ability to manage food.
- It is important to understand the relationship of how all the aspects of chewing fit together for a particular patient and why he is "doing what he is doing".
- In terms of chewing, it is important to determine how a diet recommendation in terms of texture could be highly important for a child's overall success with eating.

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Summary, cont.

- It is also important to understand the ranges of normal and which specific behaviors are actually disordered or delayed. Much of this will come with more exposure to lots of children chewing food.

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Thank you!

- valleypediatricfeeding@yahoo.com

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- **All photos and videos taken by Jennifer Dahms, MS/CCC-SLP, BCS-S

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