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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 - Lip Functioning

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

Moderated by:
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Improving Pediatric Feeding Assessment Skills - Lip Functioning

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

Learning Outcomes

After this course, participants will be able to:

- Describe the basic areas of oral motor functioning for lip movements.
- Describe the subtle/more descriptive areas of oral motor functioning for lip movements.
- Identify disordered lip movements via video examples.
- Identify the functional impact of disordered lip movements.

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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 lip movements important?

- Chigira et al. (1994)
  - Lip movements are important for acquiring food and controlling food during chewing and swallowing.
  - This study looked at identifying the developmental aspects of lip strength for closure in regards to children with disabilities.
  - n=11 children with developmental delay, n=10 children with cerebral palsy, and n=104 children in the control group

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CONTINUED

Why are functional lip movements important?, cont.

- Chigira et al. (1994), cont.
  - The median age for children with developmental delays was 4.5 years and 5.0 years for children with cerebral palsy. The age range for the control group was 5 months to 5 years.
  - The researchers used a pressure sensor within a spoon to measure strength.

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CONTINUED

Why are functional lip movements important?, cont.

- Chigira et al. (1994), cont.
  - The results reported included information on increases in lip pressures from 5 months to 3 years of age. Strength continues to increase until age 5 but at a slower rate. Lip pressures in children with disabilities were similar to children in the control group from ages 5 months to 2 years, regardless of their age.
  - How does this impact what we might presume to be true with children with feeding difficulties?

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CONTINUED

Why are functional lip movements important?, cont.

- Van Lierde et al. (2014)
  - These authors looked at lip strength and endurance with boys and girls with unilateral cleft lip and palate.
  - n=25 with a mean age of 10.6 years with unilateral cleft lip and palate with gender and age-matched controls.
  - The researchers used the Iowa Oral Performance Instrument for measurements.
  - There were no differences in lip strength and endurance with the test subjects and the controls.
  - How does this correlate with what we might expect?

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CONTINUED

Why are functional lip movements important?, cont.

- Berggren et al. (2018)
  - This was an exploratory study on orofacial function with children with congenital myotonic dystrophy.
  - n=41 children with CMD, n=29 controls
  - The researchers used the Iowa Oral Performance Instrument to measure lip strength.
  - Lip strength was 7 times less in children with CMD versus the controls.
  - What may we suspect could occur with oral feeding with this population?

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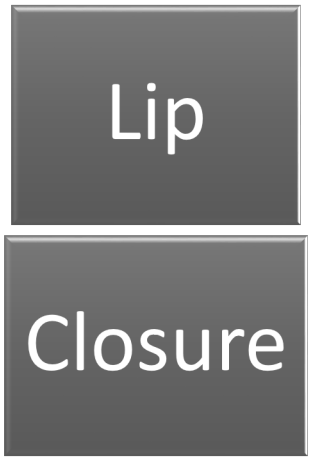
Lip Movements

- Lip closure
- Lip opening
- Lip rounding
- Lip spreading

13

Lip Movements, cont.



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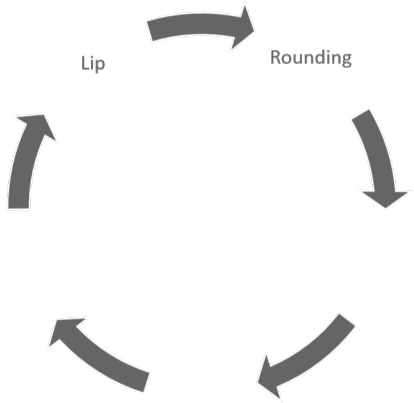
Lip Movements, cont.

Lip

Opening

15

Lip Movements, cont.



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Lip Movements, cont.

Lip

Spreading

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The Basics

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

18

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

19

The Basics, cont.

- Endurance
  - Length of time a movement can occur

20

What do we see and feel?

- Lip tightening (midline and corners)
  - The strength with the completeness of closure

21

What do we see and feel?, cont.

- Lip cleaning
  - Functional movements for clearing residue

22

What do we see and feel?, cont.

- Lip compression
  - The completeness of the seal

23

What do we see and feel?, cont.

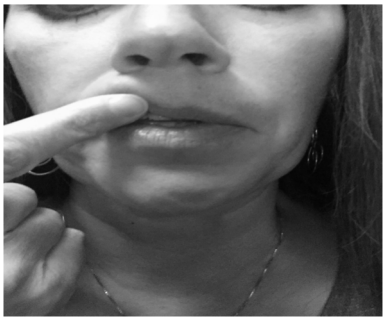
- Bolus intake
  - The lip function surrounding food and utensil / vessel

- Lip closure duration
  - The timing needed for the task

24

What do we see and feel?, cont.

- Tissue displacement
  - In what location and to what degree the structure moves



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What do we see and feel?, cont.

- Lip opening
  - The grading of movements

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The Abnormal Movements

- Lip Retraction
  - Excessive tightness in the lips the impacts range of motion

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The Abnormal Movements, cont.

- Open lip position
  - Non-functional lip closure

- Lower tone in the lips
  - Flaccidity within the lip tissue

28

The Abnormal Movements, cont.

- Excessive lip protrusion
  - Increased tightness that impacts lip opening

29

The Abnormal Movements, cont.

- Lower cheek tone
  - The importance of supporting the lip musculature
- Increased cheek tone
  - Impacts overall lip range of motion

30

The Abnormal Movements, cont.

- Increased tone in the lips

31

The Process

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

32

Video #1

- Patient Background
- Z. is a 6-year-old boy with Down syndrome. He has a had VSD and ASD repair. He has had several GI related issues such as an imperforate anus, ostomy, C Diff infections, and constipation.
- He had a videofluoroscopic swallow study completed that revealed no aspiration; however, he had decreased oral control of liquids and a delayed swallow.

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Video #1, cont.

- Video Clip

34

Video #1, cont.

- What is the main lip deficit seen with Z.?

- A. Increased tone
- B. Decreased tone
- C. Hypertonic upper lip tissue
- D. Hypertonic lower lip tissue

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Video #1, cont.

- Discussion

36

Video #1, cont.

- What functional deficit in terms of lip functioning was seen when Z. was drinking from a straw?

- A. Oral loss
- B. Incomplete sucking
- C. Incomplete lip closure
- D. Over-compensation of lip movements

37

Video #1, cont.

- Discussion

38

Video #1, cont.

- What could help Z. with obtaining better lip closure on the spout of a cup or straw?

- A. Improving lip strength and endurance
- B. Improving lip range of motion
- C. Improving tongue protrusion
- D. Improving upper lip mobility

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Video #1, cont.

- Discussion

40

Video #2

- Patient Background
- J. is a 4 year, 10 month old boy with global developmental delays. He was born 1 week post-maturely. He has had an adenoidectomy and tonsillectomy.
- J. receives other outpatient therapies.

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Video #2, cont.

- Video Clip

42

Video #2, cont.

- How would you describe J.'s mouth position?

- A. Adequate lip closure with good tone
- B. Lip approximation at rest
- C. Excessive lip retraction with increased tone
- D. Open lips with significantly reduced lip approximation

43

Video #2, cont.

- Discussion

44

Video #2, cont.

- What is the main reason behind J.'s lip position?

- A. Habitual lip hyper-tonicity
- B. Reduced tone in his lips
- C. Overuse of the mentalis muscle
- D. A flattened philtrum

45

Video #2, cont.

- Discussion

46

Video #2, cont.

- Which functional limitation do we see with J.'s lack of lip closure?

- A. Use of the teeth to clear the spoon
- B. Oral loss of food
- C. Timely spoon bowl clearing
- D. Use of a compensatory pattern with the lips

47

Video #2, cont.

- Discussion

48

Video #3

- Patient Background
- A. is a 3 ½ year-old girl diagnosed with Arnold-Chiari syndrome with Spina Bifida, constipation, hydrocephalus, congenital laryngomalacia, agenesis of the corpus callosum, and rhombencephalosynapsis.
- She was born at 26 weeks gestation and spent almost 4 months in the NICU. She has had numerous surgeries surrounding her VP shunt and has a history of GERD.

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Video #3

- Patient Background, cont.
- A. had a G tube placed and had a Nissen fundoplication completed. She receives 100% of her nutrition via her feeding tube.

50

Video #3, cont.

- Video Clip

51

Video #3, cont.

- What is one of the disordered lip movements that was seen with A. in this video clip?

- A. Severe low tone
- B. Upper lip tightness
- C. Hypo-tonicity in both lips
- D. Typical lip approximation

52

Video #3, cont.

- Discussion

53

Video #3, cont.

- What feeding skills might be impacted with A.'s lip difficulties?

- A. Clearing a spoon
- B. Keeping food in her mouth
- C. Drinking
- D. All of the above

54

Video #3, cont.

- Discussion

55

Video #3, cont.

- What may be the reason behind A.'s tone issues?

- A. Underlying increased tone
- B. Weakness
- C. Her neurological diagnoses
- D. Both A and C

56

Video #3, cont.

- Discussion

57

Summary

- Lip functioning is important for a number of different eating and drinking activities. The lips help us bring food and liquid into the mouth and keep the boluses intraorally.
- Even though we presume that the most important aspects of eating, in terms of efficiency and safety, are tongue movements, chewing, and swallowing, the lips play an important role with the overall eating process.
- If the lips cannot control the intake of food or liquid into the mouth, then the other parts cannot function appropriately for a child's overall intake.

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Thank you!

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

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