Impact of Oral Motor Impairment in Infants with Poor Feeding

Presented by Debra Beckman, MS, CCC-SLP

Objectives:

Participants will list the benefits of sidelying positioning for oral intake

Participants will list 3 components of a weak suck

Participants will demonstrate the components of the MOMBEST screening tool

Sucking

* Begins in utero – first trimester
* Picture of 11 week gestational age sucking

Muscles of the face

* Small fibers
* Insert primarily into soft tissue
* Several layers
* Many different directions and angles

Sucking

* Positive and negative pressure phases
* Positive – (push) jaw and tongue move toward palate, lips seal
* Negative – (pull) jaw and tongue move away from palate, lips should stay sealed, posterior cheeks and soft palate activate
* Rhythm – one per second for nutritive suck
* Faster or slower than one per second is not nutritive

Where to begin

* Professional Model

Unbalanced muscle function changes alignment

* Muscle function or connective tissue concern
* Cannot determine function based on appearance
* Normalize the muscle function to change the alignment
* Surgery changes structure
* Change in function requires change in the muscle control

Assess oral motor skills

* Lactation Screening
	+ M.O.M.B.E.S.T.
* Beckman Oral Motor Assessment Protocol
	+ Criteria referenced
	+ Minimal competencies
	+ Range - Assisted movement
	+ Strength - Muscle response to displacement

Screening for Oral Motor Impairment by Lactation Consultant

* Screening for mechanical oral motor concerns using the MOMBEST (Manual Oral Motor Breast-feeding Evaluation Screening Tool)
	+ Durational jaw movement of at least 10 vertical movements in 10 seconds on left and right
	+ Midblade tongue elevation to palate 3 out of 3 trials
	+ If failure for either, refer to therapist for full Beckman Oral Motor Assessment Protocol

Beckman oral motor protocol assessed by the therapist

* + Response to pressure and movement
	+ Range of movement
	+ Strength of movement
	+ Variety of movement
	+ Control of movement
	+ Assess these structures
		- Lips
		- Cheeks
		- Jaw
		- Tongue
		- Soft Palate
		- Hard Palate

Beckman oral motor assessment – Case Study

* 4 week old with poor suck
* Video

Considerations in Breast Feeding

* See Handout:
	+ Positioning
	+ Nipple
	+ Flow
	+ Problems and Factors to Consider

Components of weak suck

* Less than 10 seconds of durational jaw movement
* Midblade elevation less than 2 out of 3 trials
* Posterior cheek strength less than 2 contractions out of 5 trials
* Lip strength less than 3 contractions out of 6 trials for upper and lower lip

Stressors which may result in reduced durational muscle strength for the infant:

* Stressors that may impact efficiency of nursing for babies –some of the 175 identified in the Beckman Baby Study thus far:
	+ Maternal Health Concerns: Group Beta Strep, Preeclampsia, Gestational Diabetes, Placenta Previa, Preterm labor
	+ Labor Concerns: Pitocin longer than 4 hours, labor longer than 12 hours, heart rate fluctuations mom or baby, need for oxygen mom, nucal cord, vacuum extraction, forceps extraction
	+ Following birth: need for oxygen, poor temperature regulation, low blood sugar, jaundice longer than 3 days, no BM two or more days, reflux, poor weight gain, sleepy baby

Interventions for babies with poor oral intake

* + Based on assessment
	+ Individualized for each baby
	+ Changes as the baby changes
	+ Multidisciplinary
	+ Oral motor interventions are assessed and directed by the therapist, but carried out by many team members, under the direction of the therapist
	+ Provide intervention
		- Must address many factors including
		- Positioning
		- Utensils
		- Flow
		- Fluid

Goal – Eat safely and efficiently in any position using any utensil

* Positioning
	+ Nursing is ear toward the floor – inclined sidelying
	+ With bottles, the baby is typically positioned nose toward the ceiling
* Inclined Sidelying – ear toward the floor
	+ Gravity sends the fluid to the lower cheek, not the airway (especially important if using assisted flow or faster flow)
	+ Nothing moves past the back of the tongue until the baby actively swallows
	+ Baby can stop to breathe without residue in the pharynx
	+ The tongue is positioned at neutral, so less air swallowing
	+ Subglottic air pressure is greater in sidelying than in upright, due to the impact of gravity on the curvilinear surface of the ribs
	+ Less fatigue
* Nose toward the ceiling
	+ For strong babies, this position is not difficult
	+ For weaker babies, this position may cause difficulty due to impact of gravity on flow of the fluid toward the airway
	+ When the baby compensates with tongue retraction to block the flow, more air swallowing may occur
	+ Breathing for a weaker baby may also be more effortful due to the impact of gravity on the movement of the rib cage, resulting in reduced subglottic air pressure
	+ Head may move into hyperextension, making swallow more effortful

Beckman Bottle Feeding in Sideling – Beckman Bottle Feeding and Side Lying Video: https://www.youtube.com/watch?v=5e1KBtjYYns

TikTok Link https://www.tiktok.com/@thedebrabeckman/video/7094616235375119662?is\_from\_webapp=1&sender\_device=pc&web\_id=7104241981706782250

Beckman Happy Baby Burping Position Video: https://www.youtube.com/watch?v=VSmUzPGBgEo

TikTok Linkhttps://www.tiktok.com/@thedebrabeckman/video/7094779900766309678?is\_from\_webapp=1&sender\_device=pc&web\_id=7104241981706782250

Trunk elongated and supported

* + Feet touching a surface
	+ Prone orientations (nose toward the floor)
	+ Shoulders higher than hips
	+ No weight or pressure on the belly
	+ Very light pressure
	+ Pat at a rate of one per second

M.O.M.B.E.S.T.

* + Manual
	+ Oral
	+ Motor
	+ Breastfeeding
	+ Evaluation
	+ Screening
	+ Tool

M.O.M.B.E.S.T.

* + Screening tool as a result of requests for an objective measure of oral motor impairment for babies with poor suck
	+ Collaboration between Florida Hospital Lactation Consultants and Beckman
	+ IRB procedures for blind correlation between screening and follow up Beckman Oral Motor Assessment
	+ Results showed greater than 80% correct identification of babies with oral motor impairment using the M.O.M.B.E.S.T.

Hands on practice

* + Head alignment at neutral is critical
	+ 10 jaw movements in 10 seconds on left and right
	+ Placement of gloved finger tip between upper and lower gum at the level of the molar, in line with the end of the eye
	+ Pressure stable under the upper gum
	+ No pulsing, just hold for 10 seconds and count jaw movements, left side and right side
	+ 3 midblade elevations in 3 trials
	+ Not forward back movement
	+ Middle of the tongue lifts upward within a second of pressure to middle of the tongue and the hard palate

Research using Beckman Oral Motor interventions

* Beckman, D., Neal, C., Phirsichbaum, J., Stratton, L., Taylor, V., & Ratusnik, D.(2004). Range of movement and strength in oral motor therapy: A retrospective study. Florida Journal of Communication Disorders, 21, 7-14.
* Biro, J., Coker, P., French, L., Lee, J., Martin, M., Mitchum, K., Nguyen, C., & Williams, K., (2010) Building the Evidence: Using the evidence to create a protocol for infants with feeding issues. OT Practice May 10, 2010, 9-13.
* Clawson, E.P., Palinski, K.S., & Elliott, C.A. (2006). Outcome on intensive oral motor and behavioural interventions for feeding difficulties in three children with Goldenhar Syndrome. Pediatric Rehabilitation, 9(1), 65-75.
* Fucile et al, (2002). Oral stimulation accelerates the transition from tube to oral feeding in preterm infants. Journal of Pediatrics, 141, 230-236.
* Kumin, L., Von Hagel, K.C., & Bahr, D.C. (2001). An effective oral motor intervention protocol for infants and toddlers with low muscle tone. Infant-Toddler Intervention 11, 181-200.
* Lessen, B.S. (2011). Effect of the Premature Infant Oral Motor Intervention on Feeding Progression and Length of Stay in Preterm Infants. Advances in Neonatal Care 11, 129-139.
* Rocha, A. D., Moreira, M. E. L., Pimenta, H. P., Ramos, J. R. M , Lucena, S. L. A (2007). Randomized study of the efficacy of sensory-motor-oral stimulation and non-nutritive sucking in very low birthweight infant. Early Human Development, 83(6), 385-388.
* Additional Information Available on [www.beckmanoralmotor.com](http://www.beckmanoralmotor.com/) : Downloads: Suggested Reading
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