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Therapy for the Child with Cleft Palate or Velopharyngeal Dysfunction

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Therapy for the Child with Cleft Palate or Velopharyngeal Dysfunction

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St. Louis Children's Hospital
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Step One: **Always** have parents sign a release allowing you to communicate with the treating team

Send your results
Address your concerns
Don't hesitate to ask questions
(And don't assume the team knows everything!)

Early Intervention: If you treat in the home,

Become familiar with:
Art and Science of the Home Visit:
Stredler Brown, A.
(2005, Jan. 18).
The ASHA Leader, pp. 6-7, 15.

To Sign, or not to Sign?

Maybe….

- If the parent requests it
- If the parent is willing and able to learn the new skill
- If the parent understands the reasons for using it

- **Educate well!**

To Sign, or not to Sign?

- Maybe not….
  - If the parent is stressed or not coping well
  - If the parent may have difficulty learning a new skill
  - If the parent may have trouble understanding the reasons for introducing sign
  - If it may cause the parent to think their baby will not talk

It may be inadvisable to spend time and resources on a skill we will want the child to lose

Teaching parents to be excellent speech and language teachers may be a better use of resources for the child with a cleft palate

Early Articulation Behavior

- If maladaptive/compensatory articulations are present, advise family on extinction techniques
- Don't imitate the troublesome sounds!

What to Teach the Parent to Teach

- Good language stimulation
- Helping the child to listen
- Prolonging Vowels
- Anterior articulation
- Anterior sound making
- Avoid uh-oh!

A Brief Cleft Palate Primer

- 50-75% will require speech therapy in childhood
- 4-38% will require secondary velopharyngeal management
- The most common speech disorder is articulation disorder
- You should expect **normal speech** in the neurologically normal child with a cleft

If I think the child has velopharyngeal dysfunction, shouldn't I be doing strengthening exercises?

NO!

True velopharyngeal dysfunction can only be corrected with physical management, not with speech therapy.

Speech therapy can correct articulation, and is the only thing that will correct maladaptive/compensatory errors

Articulation Error Types

Developmental
Obligatory
Maladaptive
Adaptive

Developmental

- May not necessarily be related to the cleft
- Will respond to the same treatment as non-cleft children on your caseload

Obligatory (passive)

- Distortion caused by a structural anomaly
- Will not respond to therapy
- Some can be tested in evaluation, some can be tested in therapy

Adaptive

- Difference in production caused by structural difference
- May be acoustically appropriate
- Examples: [f,v] with anterior crossbite (underbite)

Maladaptive or "Compensatory"(CMA) "Active errors"

- First described by Trost in 1981
- Further delineated by Peterson-Falzone and others
- Believed to develop as a compensation for defect of mechanism before or after palate repair

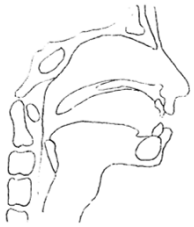
The Glottal Stop [ʔ]

The velopharynx does not close for glottal stops. They cannot be used in a valid instrumental assessment of velopharyngeal function.

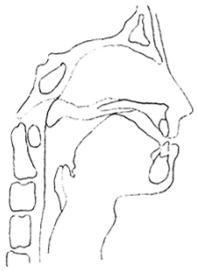
Pharyngeal Stops and Fricatives

(and affricates!)

The velopharynx doesn't close for these, either.



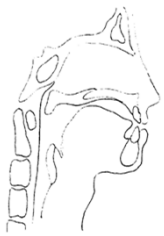
Mid-dorsum palatal stops



Posterior Nasal Fricative

AKA: Learned phoneme-specific nasal emission

The velopharynx doesn't close for these, either.



Other Maladaptive Articulations

- Velar fricatives (voiced and unvoiced)
- Ingressive fricatives

Evaluation

- Oral Mechanism
  - Note occlusion
  - Note tonsils, and adenoid if visible
  - Observe palatal lift
  - Observe for palatal fistula or prior velopharyngeal surgery
  - Test oral volitional movement
  - Diadochokinesis

Evaluate Articulation

- Use the test of your choice, or
- Use an imitative protocol with specific phoneme loads in each utterance
- Compare with spontaneous speech
- Plug nose, or fistulae, and repeat

How to test?
Obligatory vs. Maladaptive

Velopharyngeal:
- Do articulation testing with the nose plugged and unplugged

Fistula:
- Test articulation with the fistula plugged and unplugged

Dental:
- Diagnostic therapy to see if changing tongue placement alters distortion

Form Hypotheses and Develop a Treatment Plan

Developmental: Treat or not? Same guidelines apply as with children without cleft

Obligatory/passive: Do not treat

Maladaptive/compensatory/active: Definitely treat

Adaptive: Probably best left alone

Uncertain: Begin diagnostic therapy

Phonological Cycle?

- Hodson BW, Chin L, Redmond B, et al: Phonological evaluation and remediation of speech deviations of a child with a repaired cleft palate: a case study. Journal of Speech and Hearing Disorders 48: 93, 1983
- Pamplona MC, Ysunza A, Espinosa J: A comparative trial of two modalities of speech intervention for compensatory articulation in cleft palate children, phonologic approach versus articulatory approach. International Journal of Pediatric Otorhinolaryngology 49: 21, 1999.

Phonological Cycle?

- Despite two cited studies, most craniofacial SLPs **DO NOT** recommend a phonological cycle approach
- Why?
  - Seen as ineffectual in children returning for subsequent evaluations
  - Most children with cleft have the representations; they use the wrong motor pattern in linguistically appropriate ways.

Children with clefts will **NOT** benefit when these are used as techniques in and of themselves
Don't waste time with these:

- Oral motor exercises
- Icing, brushing, and massage
- Blowing, sucking, and gagging exercises
- Vibratory stimulation
- Thermal stimulation

Specificity!

The best way to treat speech is to treat speech

Use a motor learning approach

Teach Place of Articulation

If you are uncertain as to the velopharyngeal contribution, plug the nose

Work from the front of mouth to the back

(most cleft palate related articulation errors are posterior to target)

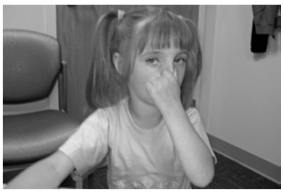
Defer [k,g] until late in therapy

Therapeutic Pedagogy

- Why is therapy needed?
- What needs to be changed?
- What should be known before a consonant is taught?
  - Parts of the mouth and their names
  - Difference between target and error
    - Give the sound a new name!
  - How to imitate

Teach the child to plug the nose!

Teaching photos courtesy Mary Blount Stahl




Best Practice: Nose Plugging Technique


- Fist
- Fingers

Nose Plugging Technique


- “wings”
- Close

Thanks, Mary!

Teach from Similar Place of Articulation

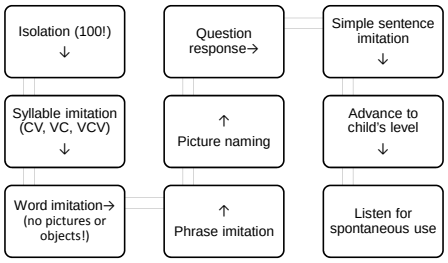
- For [p,b] ⇨ use [m], plug the nose
- For [t,d] ⇨ use [n,l], plug the nose
- For [s,z] ⇨ use [t,d] prolonged
- For [k,g] ⇨ use “ng,” plug the nose

Teach from Excessively Anterior Place of Articulation

- For [t,d] ⇨
  - Teach fully protruded or interdentally
- For [s,z] ⇨
  - Teach from “th”
  - Then, gradually pull the tongue back to the correct placement

Remember that you are teaching a new motor pattern…

100 times is a good start!



Foundational Skills

- Early discrim pedagogy
- Establishment of consonant in isolation
- Advancement to syllable segments
- Use in word imitation and picture naming
- Use in phrase imitation
- Single-word question response

Foundational skills should always be carried to 100% accuracy

Failure to do so may result in problems with carryover later

OK, but can you **really** do this with a two-year old?

YES!!!

Make it fun

- iPad apps
- Puzzles
- Mr. Potato Head
- Hide and Seek
- Bean Bag Toss
- Ring Toss
- Bead stringing
- Angry Birds
- Dot-to-Dots
- Board games
- Card games
- Indoor basketball
- Construction Toys
- Sticker sheets

Home assignments are essential!

Gimme 5
Pick a vowel
Word, phrase, sentence lists

Case Examples

Based on children seen by the
Cleft Palate and Craniofacial Institute
at
St. Louis Children's Hospital

Gabriella

- 24 months old
- Repaired complete unilateral cleft lip and palate
- Age-appropriate receptive language skills
- Previous therapy for language stim, lip massage, sucking/blowing exercises
- Consonant inventory: [m,n,w,h,j] and glottal stops

Gabriella

- Age-appropriate receptive language
- [m,n,h,j,w] and glottal stops
- We don't know yet if she has a functional velpharynx or not
- **Target [p,b] first: Why?**
  - Anterior
  - Visible
  - Likely to achieve success
  - Will need for imaging

Gabriella

- **My objective:**
- …will produce [p,b] appropriately in conversational speech for three consecutive therapy sessions

- **What will she need to know?**
  - Imitate
  - Plug her nose
  - The difference between throat sounds and mouth sounds
  - "Her sound"
  - Therapy is fun

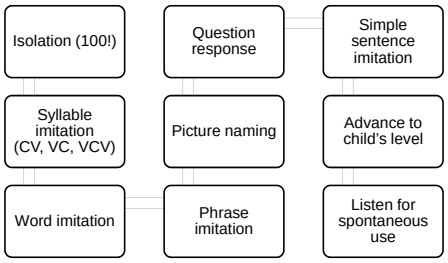
Teach the target consonant

Teach from similar place of articulation:

For [p,b] ⇨ use [m]

Making it fun

- Puzzles
- Mr. Potato Head
- Toy Farm or House
- Hide and Seek
- Bean Bag Toss
- Ring Toss
- Memory games
- Dot-to-Dot
- War
- Board Games
- Indoor basketball
- Construction Toys
- Bead stringing
- Picture making



Foundational Skills

- Early discrim pedagogy
- Establishment of consonant in isolation
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- Use in word imitation
- Use in phrase imitation
- Picture naming
- Single-word question response

Foundational skills should always be carried to 100% accuracy

Failure to do so may result in problems with carryover later

When do I wean from nose-plugging?

After the syllable level…but…
reuse as complexity advances,
to check for coarticulation, or with
new consonant targets

What about language?

- Practice activities can explore a range of content and form
- Introduce linguistic challenge after stability with phrase imitation

What about the velopharynx?

Stay in touch with the team
Learn their imaging requirements
Keep addressing articulation

Passive/Obligatory Errors

- If the articulation is correct and stable with the nose plugged, **MOVE ON**
- You can fix the articulatory placement with therapy, but you cannot fix resonance disorder
- If the articulation does not sound correct with the nose plugged, you still need to work on placement.

Gabriella

- Stabilize [p,b] (as best you can tell)
- Advance to [t,d]
  - Repeat the same process
- Move to fricatives once [t,d] are stable
- Gradually move to more posterior consonants
  - Defer [k,g] to late in the therapy course

Michael

- 5 year old male
- Repaired cleft secondary palate
- Normal resonance
- Previous therapy used phonological cycle approach in classroom push-in model
- Mid-dorsum palatal stops for [t,d]; all sibilants are lateralized

Michael

- Objective:
  - …will produce [t,d] appropriately in conversational speech for three consecutive therapy sessions
  - **Why?**
- What will he need to know first?
  - Difference between anterior and mid-dorsum stop
  - Vocabulary you will use for cues: parts of tongue, parts of mouth

Teach the Target

- Teach from a similar place of articulation
  - Look carefully at [n,l]
- Teach from an excessively anterior place of articulation
  - Use an interdental placement, then gradually pull the tongue back once the target is established in isolation

Establish Foundational Skills

- Anterior/middorsum discrim
- Knowledge of parts of tongue
- [t,d] isolation
  - Syllables
  - Words
  - Phrases
  - Picture naming
  - Question response…..etc

Advance to [s,z] when [t,d] are stable

Repeat same sequence

[t,d] provide excellent foundation for teaching central [s]

Kelli

- 4 y/o female with no history of cleft palate
- Referred for VP imaging/surgery by SLP
  - No response to therapist's attempts to get her to imitate [s]
- Normal articulation, resonance, plosion, stridency, except for nasal snorting of [s,z]
- No nasal emission, turbulence, or grimacing

Kelli

- Objective: Will appropriately articulate [s,z] in conversational speech for three consecutive therapy sessions
- What does she need to know first?
  - Oral/nasal discrimination
  - Imitation
  - Nose plugging

Kelli

- Teach from a similar place of articulation
- Prolong [t] ⟹ [s]
- Prolong [d] ⟹ [z]
- Teach from excessively anterior place of articulation
  - Begin with "th," then gradually retract the tongue

Teach the target…
but be sure the nose is plugged!

- Teach from a similar place of articulation
- Prolong [t] ⟹ [s]
- Prolong [d] ⟹ [z]
- Teach from excessively anterior place of articulation
  - Begin with "th," then gradually retract the tongue

Careful data collection in each therapy session is the best practice

Consider using PICA scoring instead of a **+/-** technique

The PICA Categories for Scoring Responses
The Porch Index of Communicative Ability
Bruce E. Porch

Score	Category	Dimensional Characteristics
16	Complex	Accurate, responsive, complex, prompt, efficient
15	Complete	Accurate, responsive, complete, prompt, efficient
14	Distorted	Accurate, responsive, complete or complex, prompt, distorted
13	Complete-delayed	Accurate, responsive, complete or complex, delayed
12	Incomplete	Accurate, responsive, incomplete, prompt
11	Incomplete-delayed	Accurate, responsive, incomplete, delayed
10	Corrected	Accurate, self-corrected
9	Repeated	Accurate, after instructions are repeated
8	Cued	Accurate, after cue is given
7	Related	Inaccurate, almost accurate
6	Error	Inaccurate attempt at task item
5	Intelligible	Comprehensible, but not an attempt at the task item
4	Unintelligible	Incomprehensible, but differentiated
3	Minimal	Incomprehensible and undifferentiated
2	Attention	No response, but subject attends to the tester
1	No response	No response, no awareness of task

Thank you for doing what's right for kids!

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