

ASHA 2023

ORAL MECHANISM EXAMS

THE KEY TO DIFFERENTIAL DIAGNOSIS OF **SPEECH SOUND DISORDERS?**




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DISCLOSURES

The speaker has developed materials available for purchase GrahamSpeechTherapy.com, Bjorem Speech Publications, Teachers Pay Teachers, and Boom Learning, as well as an affiliate relationship with Super Duper Inc. This course features content provided from Graham Speech Therapy Oral-Facial Exam Form.

The speaker has no non-financial relationships to disclose.



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LEARNING OUTCOMES

- 1 Identify key aspects of an oral mechanism exam that should be included in a thorough speech assessment
- 2 Explain how findings during an oral mechanism exam can help with the differential diagnosis of speech sound disorders
- 3 Discuss reasons appropriate referrals to other professionals should be considered

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Biography




- SLP for over 20 years
- Undergrad & grad school at CSUF
- Private practice in Colorado specializing in speech sound disorders
- Resources & Professional Development
- Therapy videos on social media



@grammspeechtherapy  

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Differential Diagnosis of Speech Sound Disorders

 <h3>Articulation</h3> <p>Errors (e.g., distortions and substitutions) in the production of individual speech sounds in the absence of phonological errors</p>	 <h3>Phonology</h3> <p>Predictable, rule-based errors (omissions and substitutions) that affect more than one sound (e.g., FCD, fronting, etc.)</p>	 <h3>Motor Speech</h3> <p>Deficits of motor planning/programming (apraxia) and/or execution (dysarthria)</p>
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(ASHA PRACTICE PORTAL)

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Approaches for the Treatment of Speech Sound Disorders

 <h3>Articulation</h3> <p>Accurate motor production of individual sounds in increasingly complex phonetic contexts</p>	 <h3>Phonology</h3> <p>Suppression of error patterns by teaching rules for how sounds are used in language</p>	 <h3>Motor Speech</h3> <p>Accurate, consistent, fluid movement necessary for intelligible speech</p>
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(ASHA PRACTICE PORTAL)

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Assessment & Analysis



- Obtain all necessary information
- Differential SSD diagnosis
- FREE download on... grahamspeechtherapy.com/freebies

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Why do we do the OME?

Assess the **structure and function** of the oral-mechanism for potential impact on production of the specific sounds in error and reasons to involve other professionals.
(Mason & Simon, 1977; Shipley & McAfee, 1992)

Phonological: ruling out contributors of structure & function

Articulation: identifying contributors to difficulty producing particular phonemes.

Motor Speech: identifying signs of neurological impairment specific deficits of motor execution (dysarthria), motor planning (apraxia)

Structure: identifying signs of cleft palate/VPI that may contribute
(ASHA PRACTICE PORTAL)

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What does it mean for phonology?

Ruling out possible contributors to errors, especially in the case of a mixed speech sound disorder

Consider findings within the context of the specific speech errors... just because we *see* it doesn't mean there's a causal link.

It's okay to **obtain at a later date** for really young kids with obvious phonological errors

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What does it mean for articulation?

Identify Signs of an Orofacial Myofunctional Disorder

What is it? Oral behaviors and patterns in muscle function and poor habits involving the tongue, lips, jaw, and face (e.g., tongue thrust)

Causes: noxious oral habits (prolonged thumb/finger sucking, pacifier use), restricted nasal airway, structural abnormalities, developmental or neurological abnormalities, and hereditary predispositions

For more info: asha.org and iaom.com

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What does it mean for motor speech?

Identify signs of neurologically based SSDs


Motor planning/programming (CAS): difficulties with volitional non-speech tasks, diadochokinetic tasks

Dysarthria: evidence of weakness, asymmetries, diadochokinetic tasks

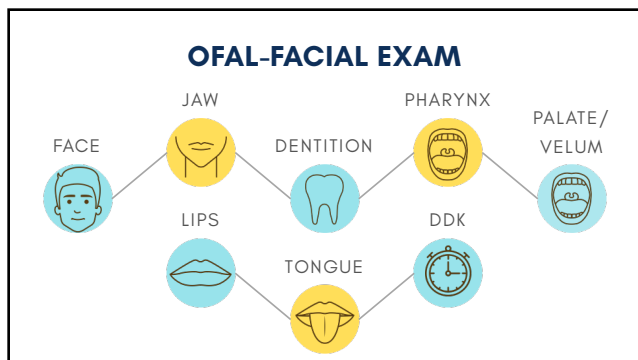
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IMPORTANT CONSIDERATIONS

- Wide variation of "normal"
- ALWAYS consider findings within the context of the child's specific speech errors
- Don't assume causal relationships
- Use tools to make the assessment easier
 - Books/visuals
 - Puppets
 - Throat Scope




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FACE



Symmetry - at rest and during speech. . . asymmetry/drooping a possible soft sign of neurological impairment.


Tone at rest

- o low vs. high

Mouth breathing - myofunctional issues/upper airway restrictions

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JAW



Range of motion... compensatory for lack of tongue movement in the presence of articulation errors


Symmetry of movement

Non-speech movement - slow or groping?

Movement during speech - reduced or excessive?

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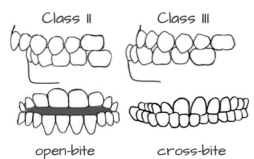
DENTITION



Arrangement/malocclusions

Orthodontia


Signs of noxious habits



Angle's Classification of Malocclusion
Graham Speech Therapy Oral-Facial Exam

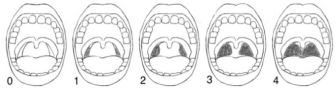
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PHARYNX



Color


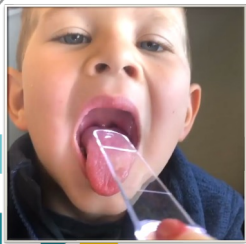
Tonsils - Brodsky scale, consider pediatric ENT referral for 3/4 if hypo nasality observed



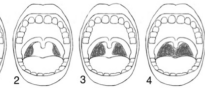
Kumar et al., 2014 - Graham Speech Therapy Oral-Facial Exam

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PHARYNX





Tonsils - Brodsky scale, consider pediatric ENT referral for 3/4 if hypo nasality observed



Graham Speech Therapy Oral-Facial Exam

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PALATE

Color - White or translucent appearance of a portion(s) of the palate may indicate the presence of submucosal cleft, especially if a hyper nasal quality is observed during speech.


Arch height - great variability, but could be indicator of myo deficits

Growths - referral to an ENT or pediatric dentist

Fistula - Possible complication of cleft palate repair. Hyper nasal speech may be observed



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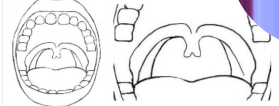
VELUM

Uvula appearance - Presence of a bifid uvula, appears as "forked"

Symmetry at rest


Symmetry upon phonation

Gag reflex - weak or absent gag reflex is frequently observed in normal individuals, so this alone is not a good indicator of neurological impairment (Bensard & Beauchamp, 2012)

Shprintzen et al., 1985 - Graham Speech Therapy Oral-Facial Exam

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LIPS


Pucker & smile

Requires a model?


Range of motion

Symmetry

Strength



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TONGUE


Size

Extraneous movements

Frenulum - Conflicting opinions among professional. Research suggests that restriction from a short lingual frenulum does not impact speech production due to articulatory compensations. (Kummer, 2005)

- Referral to a pediatric dentist with expertise is an option

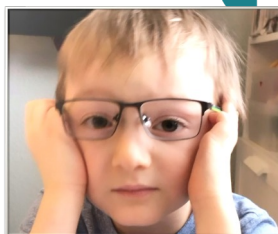
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TONGUE

Range of motion, strength, coordination, dissociation from jaw

- Protrusion
- Retraction
- Lateral Movement
- Rapid side-to-side




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TONGUE

Range of motion, strength, coordination, dissociation from jaw

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TONGUE

Range of motion, strength, coordination, dissociation from jaw

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DIADOCHOKINESIS

Norms in seconds for DDK syllable rates

Task	Reps	Seconds	Age									
			6	7	8	9	10	11	12	13		
/puh/	2.0		4.8	4.8	4.2	4.0	3.7	3.6	3.4	3.3		
/tuh/	2.0		4.9	4.9	4.4	4.1	3.8	3.6	3.5	3.3		
/kuh/	2.0		5.5	5.3	4.8	4.6	4.3	4.0	3.9	3.7		
		standard deviation:	1.0	1.0	0.7	0.7	0.6	0.6	0.6	0.6		
/puh tuh kuh/	10		10.3	10.0	8.3	7.7	7.1	6.5	6.4	5.7		
		standard deviation:	2.8	2.8	2.0	2.0	1.5	1.5	1.5	1.5		

Fletcher, 1972 - Graham Speech Therapy Oral-Facial Exam

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DIADOCHOKINESIS

Childhood Apraxia of Speech
Normal or slower on repeated monosyllables
Poor rhythmicity, segregated, sequencing errors, deletions, groping, false starts on bi-trisyllables

Dysarthria
Frequent taking of breaths, imprecise, weak sounding, strangled vocal quality, slow across all tasks.

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DIADOCHOKINESIS



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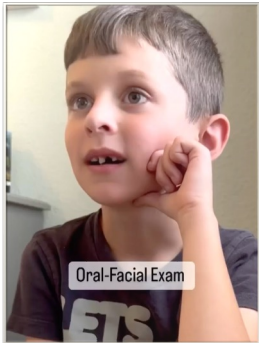


DIADOCHOKINESIS



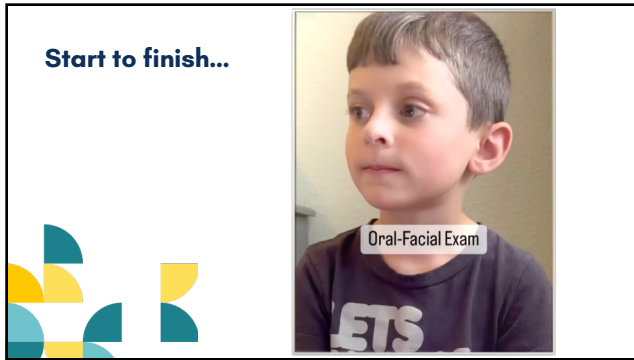
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Start to finish...

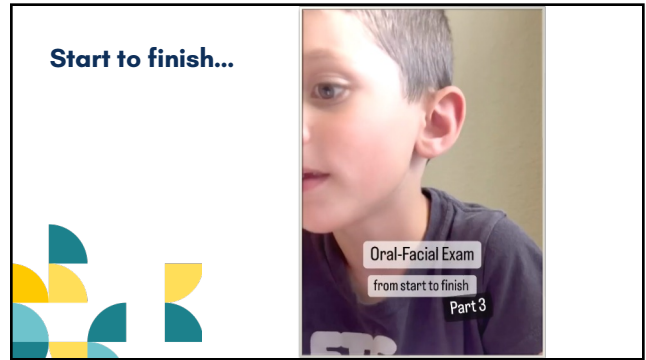


Oral-Facial Exam

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Results:

An oral mechanism exam was administered to assess Hudson's orofacial mechanism and motor control. He had no difficulty with labial speed of motion, strength, or range of movement. His lingual strength, speed, and range of movement were also within normal limits, but he had minimal trouble with rapid side-to-side movement of the tongue as he exhibited mildly extraneous jaw movement. Hudson did not exhibit mouth breathing at the time of the assessment. Upon observation of his oral cavity, Hudson's pharynx and soft palate appeared typical with no nasal emission noted during speech. Adequate posterior and bilateral motility of the soft palate during phonation was also noted. His hard palate was only slightly high and narrow, but well within functional limits for speech production. Tonsils were judged to be grade 2 on the Brodsky scale, not viewed beyond the tonsillar pillars. He had no difficulty with non-speech movements. Dentition was age appropriate, characterized by a few missing and loose incisors. No malocclusions were observed. All oral structures appeared to be symmetrical and judged to be within functional limits for speech. Diadochokinetic rates were age-appropriate, as he was able to produce 20 monosyllables in 6 seconds and 10 productions of tri syllables in less than 10 seconds with no observed difficulty.

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Impressions:

Hudson is a 6-year, 11-month-old male, who exhibits a mild speech sound disorder, characterized by persistent assimilation errors and syllable deletions on multisyllabic words, inconsistent gliding or "r" and "l" sounds, and substitution errors of the "th" sound.

Results of Tx:

Discharged after 6 months of intervention, once a week for 30-minute

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INTERPRETATION

When to **consider** non-speech oral apraxia and a dynamic motor speech assessment for **apraxia...**

- Poor rhythmicity, coordination, or groping during DDK tasks
- Groping upon volitional movements during OME
- Only able to complete OME tasks upon imitation
- Increased difficulty on polysyllabic words, prosody deficits, inconsistent errors

(luzzini-Seigel et al., 2022)

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INTERPRETATION

When to **consider dysarthria ...**

- Weakness upon opposing pressure
- Slow across DDK tasks
- Deficits of respiration/phonation
- Consistent hypernasality
- Imprecise articulatory contacts


(luzzini-Seigel et al., 2022)

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INTERPRETATION

When to **consider myofunction deficits** as possible contributors to articulation distortions

- Mouth breathing observed
- Low and/or forward tongue position at rest
- High/narrow palate
- Malocclusions and/or crowding of teeth
- Other indicators in case history and interdentalized alveolars noted during speech assessment
- Consider referrals to ENT, myospecializing



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INTERPRETATION

When to **consider referral to VPI/cleft palate/craniofacial clinic**

- consistently **HYPER-NASAL speech**
- submucosal cleft suspected or palatal fistula observed
- bifid uvula observed

When to **consider referral to ENT**

- consistently **HYPO-NASAL speech**
- Enlarged tonsils
- Indicators of breathing difficulties in case history

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REMEMBER...

- Consider findings within the context of the child's specific speech errors
- Considerations can support a differential diagnosis
- Referrals vs. informing caregivers of possible concerns or relevant specialists
- It doesn't take that long... just do it!
- Don't assume causation even when you see something atypical

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WHERE TO FIND more info



www.grahamspeechtherapy.com/resources

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STAY connected...



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