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Orofacial Myofunctional Disorders: The Basics for SLPs

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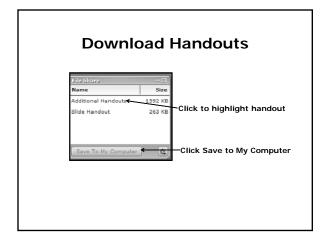
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Orofacial Myofunctional Disorders: The Basics for SLPs

Marsha Lee-White, M.S. CCC-SLP, C.O.M. Speech-Language Pathologist Certified Orofacial Myologist

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Structure Development

- Tongue is adult size by the age of 8 years.
- Maxilla is adult size by age 8
 with some residual growth
 around age 12, when growth
 has been completed.

(Mason, Robert, Ph.D., DMD. Orofacial Myology: Beyond Tongue Thrust, Chapter 2).

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Structure Development

- Mandible shows steady growth until age 8-10 years then goes through a prepubertal or pubertal growth spurt. Some continued growth is noted into the 20's.
- Tonsils and adenoids are maximum size by age 9-12 years. Then they begin to atrophy. At the age of 12, the tonsils are usually 2x the size that will be seen at age 20.

(Mason, Robert, Ph.D., DMD. Orofacial Myology: Beyond Tongue Thrust, Chapter 2).

Typical Occlusion- Class I



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Normal Occlusion



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B. Basic Assessment

- Case History
- Oral-Facial Examination
- Swallowing
- Articulation
- Readiness for Therapy

Assessment - Case History

Focus Areas

- Respiratory
- Miscellaneous Medical history
- Dental
- Eating Habits
- Oral Habits
- Previous Treatment

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Assessment - Case History

- Respiratory Issues
 - Asthma
 - Allergies
 - Sleep apnea
 - Snoring
 - Chronic upper respiratory infections
 - Sinus problem
 - Tonsils/Adenoids
 - Frequent colds

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Assessment - Case History

Miscellaneous Medical History

- Frenectomy
- Hearing
 - Frequent ear infections
 - Placement of pressure equalization tubes

Assessment - Case History

- Dental
 - Development
 - Premature loss of teeth
 - Orthodontics/Appliances
 - Palatal expansion
 - Braces
 - Retainers

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Assessment - Case History

- Eating Habits
 - Excessive liquid intake
 - Resistance to; or excessive chewing
 - Fast/slow eating
 - Digestive problems
 - Tongue thrusting during swallows

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Assessment - Case History

- Oral Habits
 - Thumb sucking
 - Nail biting
 - Extended bottle/pacifier use
 - Lick lips excessively
 - Chew gum excessively
 - Anterior resting posture of tongue
 - Mouth-breathing

Assessment - Case History

- Previous Treatment
 - Speech therapy for articulation
 - How long
 - Which sounds were addressed
 - Orthodontia
 - Palatal expansion
 - Previous appliances

Was it successful?

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Assessment - Oral-Facial Exam

- Facial Features
 - Symmetry/tone
 - Observation of facial 1/3's and 1/5's
- Lips/Tongue/Palate
 - Structure, Position, Movement
 - Inter-labial gap measurement
 - Measurement of upper and lower lip length

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Assessment - Oral-Facial Exam

- Teeth
 - Measurements of centric occlusion and centric relation
 - Measurement of maxillary arch width
- Oral-pharyngeal
 - Observation of velar structure and movement during phonation
- Facial Features
 - Symmetry
 - Tone

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Assessment

- Observations and/or tactile assessment of orofacial muscle change from rest to movement during:
 - Contraction of the masseter and temporalis during hard hiting
 - Swallowing with pureed (applesauce/pudding)
 - Chewing and swallowing with cracker
 - Swallowing with liquids
 - Swallowing saliva

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What is an Oral-Myofunctional Disorder?

The preferred term, as this refers to all facets of this disorder:

- Abnormal tongue placement or lip movement for swallowing, but also.....
- Abnormal lip and tongue resting posture
- Articulation differences or distortions
- Oral/digit habits
- Structural abnormalities

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Tongue Thrust: A Definition

Hanson and Barrett in 1988 defined tongue thrust as follows:

 Habitual resting or pushing of the tongue against at least ½ of the lingual surface area of the incisors or cuspids, or protrusion between the upper and lower anterior teeth.



Tongue Thrust: A Definition

Hanson and Mason in 2003, define tongue thrust as follows:

- When in resting position, the anterior or lateral portions of the tongue contact more than ½ of the surface of either the upper or lower incisors, cuspids, or bicuspids, or protrude between them: or
- when, during the moving or swallowing of any 2 of these 3
 media (liquids, solids, saliva) there is an observable increase of
 (1) force, (2) degree of protrusion, or (3) amount of surface
 area of the teeth contacted by the tongue

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Another definition

The anatomical or physiological differences in the oral and facial structure are primarily related to the maxillary and mandibular muscles and to the skeletal and dental aspects of the face. These differences may be due to hereditary predisposition toward skeletal and dental differences or to environmental or developmental forces that occur postnatally.

(Kellum, Gloria, Ph.D. Orofacial Myology: Beyond Tongue Thrust, Chapter 1)

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Why does an SLP need to know about OMD?

- The majority of speech sound errors for OMD patients are anterior distortions
- Tongue thrust swallowing is an anterior thrusting of the tongue
- Treating the articulation errors without recognizing and treating the biological functions of the tongue (resting posture and swallowing) may frustrate the patient and the clinician with limited success in therapy. (Pierce, 1980)

Prevalence of OMD

- Nearly all newborns
- About ½ of the children in first grade
- The prevalence decreases gradually and inconsistently through childhood but is fairly consistent in adolescence and adulthood at the 30% level.
- In the general population 30-40% of individuals have an orofacial myofunctional disorder

Orofacial Myology Second Edition Hanson and Mason

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Additional points to ponder

- Orofacial myofunctional disorders are of a multifaceted etiological base.
- Orofacial myofunctional disorders are common oral facial differences that may have an adverse impact on a person's dentofacial development, cosmetic appearance, psychosocial well-being, and/or speech.

(Kellum, Gloria, Ph.D. Orofacial Myology: Beyond Tongue Thrust, Chapter 1).

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Causes of Tongue Thrust

- Oral habits: thumb/finger sucking, extended pacifier use
 - Habits that push the upper front teeth outward
 - This can also create an inward pressure on the lower teeth, in particular the molars
- Respiratory issues: tonsils/adenoids, allergies, mouth breathing
 - Possible airway obstruction
 - A low and anterior positioning of the tongue on the teeth and flaccid appearance of the lips is likely

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Causes of Tongue Thrust

- Premature loss of baby teeth
 - May result in the tongue moving forward into the spaces created by the missing teeth
- Lack of lingual coordination
 - Causes difficulty in effective tongue movements and posturing
- Malocclusions/dental treatment

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Causes of Tongue Thrust

- Tongue size: macroglossia
- Hereditary/genetic influence
 - Where a child inherits mouth, jaw, or tooth structure, which may encourage tongue thrust habits
- Neurological: hypotonia, oral sensory deficiencies
- Cranial and body postures

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Dental Structure Review Class I Occlusion- Typical

Normal occlusion where the upper teeth fit over the lower teeth like a lid on a box. The upper arch is slightly larger than the lower arch.



Dental Structure Review Class II

Skeletal problem where the anterior portion of the maxilla is too far forward. The molars are in a good relationship.



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Dental Structure Review Class III

Skeletal problem where the mandible is protruded.
The upper arch is inside the lower arch.



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OMD and Pressure

 The light, consistent pressure of the resting posture, coupled with the heavier but more intermittent pressure of deglutition, mastication, bolus formation, and the lighter intermittent pressures of speech, do affect the dental architectures. Each facet may interact with the others in unknown ways to produce the total effect of dentofacial or structural change.

Orofacial Myology: Beyond Tongue Thrust

Dental Differences

 Dental differences, such as an extreme open bite, may result in lip incompetence or the inability of an individual to keep the lips in contact during rest postures. An open bite may also precipitate an interdental tongue posture for rest and for swallowing. A history of mouth breathing has been closely related to inappropriate development of dental and skeletal structures. Persistent mouth breathing can also contribute to dental and skeletal jaw development changes.

Orofacial Myology: Beyond Tongue Thrust

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Anterior Open Bite



A more prominent opening in the front of the dental structures. Molar occlusion is good.

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Bilateral Open Bite



Open bite occurring on both sides of the dental arch.

- Effects on oral/facial development
 - Lips
 - Cheeks and Chin
 - Tongue
 - Palate



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Low facial tone/lips parted/ messy eater



Cheeks show low tone, upper lip long, lower lip shorter

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Effects on Lips

- Anatomical changes, such as lip incompetence, may be seen due to lack of appropriate lip closure.
- Lip closure may be obtained by individuals with OMD, however muscle strain of the oral/facial muscles is noted.



Low facial tone



Muscles not in use atrophy, lose tone and function inefficiently

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Low facial tone/lips parted



Muscles not in use atrophy, lose tone and function inefficiently

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Effects on Cheeks and Chin

- Occasionally cheeks are more floppy in appearance, rather than appearing to have good muscle tone
- Muscles of the face may not be doing their jobs appropriately or effectively
- There may be an overdevelopment of the mentalis muscle, observed by contraction during swallowing

Open lip and mouth posture/ low facial tone/tongue forward during swallow



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Effects on Tongue and Palate

- Articulation disorders
 - Interdental tongue positioning for sound pattern productions, particularly for sibilants (s, sh, ch, z, and j)
- Dental problems
 - Tongue thrusting interferes with proper growth and development of teeth
- Swallowing problems
 - Ineffective chewing

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Effects of OMD on Dentition

- Form or Function?
 - muscle imbalance versus structural abnormalities

Functional activities Rest posture - Effects on Articulation Effects on Swallow function Tongue on the SPOT • Tongue resting against the upper alveolar ridge - /n/ is the best locator • Typical resting posture for the tongue • Nose versus mouth breathing • Lips are closed most of the time • Some space exists between the teeth (freeway space) Typical tongue tip placement for swallowing Tongue on the SPOT • The tongue does not have to protrude between the teeth to be in an atypical position $\bullet \;\;$ If the tongue is resting on the lingual surface of the teeth, this can also be atypical, yet not as easily detectable The tongue should not touch the lingual surfaces of the teeth for rest, speech, or swallowing • An anterior tongue position in any placement can cause misalignment to dental structures

Articulation

LOOK and LISTEN!!!!!!



- Atypical tongue position may not result in acoustically incorrect speech sound
- Lingua-alveolars that are produced with the tongue as lingua-dentals are incorrect



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Articulation or OMD?

When should you look more closely at an articulation disorder or is it OMD?

- When the defining term is "lisp"
- When sibilants are difficult to correct in treatment
- When the articulation diagnosis is accompanied by enlarged tonsils, open mouth posture, anterior open bite, and/or mouth breathing
- When single word productions are good but connected speech is difficult to master, particularly over a long period of time.

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OMD and Speech

 Inappropriate interdental and linguadental sound productions seem to dominate the speech articulation problems found in OMD. Many patients with OMD may have speech which is characterized by frontal lisping. These patients may also show prolonged need for traditional speech treatment services, unless the musculature issues are also addressed.

Orofacial Myology: Beyond Tongue Thrust

Research

Pierce (1996) found that...

In a survey of 100 patients, 50 who were diagnosed with tongue thrust had articulation errors as well.

Therapy to retrain the muscle for swallowing can result in improvements in articulation



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Dynamic function of the tongue

• If oral mechanism examination indicates some possible OMD behaviors....

....then clinical observations of the placement and function of the tongue and oral structures during chewing and swallowing are necessary



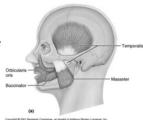
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OMD related to swallowing

 An area of OMD also relates to dysphagia, as orofacial myofunctional differences may have a negative impact on the oral-preparatory or the oral phase of swallowing. These difficulties may manifest themselves in poor bolus formation, poor or uncoordinated posterior transfer of a bolus through the oral cavity, use of extraneous facial muscles for the process of initiating a swallow, and/or in the forward tongue movement during or immediately following the swallow.

Swallowing

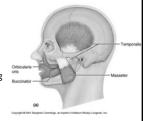
- Normal vs. Abnormal Functioning
- Focus is primarily on the preparatory and oral phase of the swallow
 - Assessing both solids and liquids
 - Various severity levels of disorder



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Abnormal swallowing

- Abnormal Findings
 - Mentalis contraction
 - Lack of masseter contraction
 - Anterior loss of the bolus
 - Excessive or forced swallowing
 - Tongue Pumping
 - Poor bolus formation



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Abnormal swallowing findings from OMD evaluation

- Inappropriate bite size
- Use of liquids to clear foods from the mouth
- Chewing with the mouth open
- Difficulty in isolating the tongue to manipulate the food
- Tongue forward or interdentalized during the swallow

Teaching the characteristics of the "normal" swallow

- Educate patient of appropriate chewing patterns -practice gathering food into a bolus.
- Increase awareness of the masseter/"chewing muscles"
 - clenching, tension, biting to "pop" the muscle
- Teach correct placement of tongue for swallowing
 - sequential positioning of the tip, mid-portion, and back of the tongue

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Habituate the Normal Swallow

- Establishing habitual awareness and behavior by following a hierarchical level of skill development:
 - Individual to consecutive swallows
 - Crackers to more typical diet
 - Sips of liquids to continuous drinking
 - Charting meals and monitoring progress of carryover

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Therapy Goals

Therapy goals should include:

- Habituating a typical rest posture
- Habituating a typical swallow function
- Habituating appropriate tongue movements for speech sounds.

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Contra-indications for Treatment







- Cognitive level
- Motivation/Family involvement
- Severe malocclusion
- Co-existing neurological disorders i.e. hypotonia, CP





What Approach To Treatment Is Most Appropriate?

Generalized remediation programs are available that include specific, structured exercises and or lessons but ultimately......

.....the clinician must determine which interventions would best meet the specific needs of each patient!

Intervention

• Treating the articulation errors without recognizing and treating the biological functions of the tongue (resting posture and swallowing) may frustrate the patient and the clinician with limited success in therapy.

(Pierce, 1980)

Treatment Goals

- Build better awareness and habituation of oral behaviors including correct resting posture
- Reinforce and establish appropriate muscle movements
- Teach typical tongue function for swallowing and chewing
- Modify tongue positioning for accurate speech sound productions

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Beyond the Basics

- ·When to Refer
- ·OMD Specialists/Team
- ·Treatment considerations
- ·Efficacy research
- ·Resources and references



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To Refer or Not to Refer???

Clinical knowledge needs to be the guide

- I think there is a problem, now what???
- Need to decide what works best in your setting

An Orofacial Myologist is......

A person who has undergone specialized training

- to identify dental abnormalities and the impact of these abnormalities on functions of teeth and oral facial musculature
- can provide a more complete habilitative program than any other professional
- a resource for elimination of digit habits

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An Orofacial Myologist is......

- OMD specialists may be speech-language pathologists, dental hygienists, dental assistants, dentists, orthodontists, or professionals in other related areas
- Each professional has additional training or experience in at least one of the areas related to OMD
- A certified OMD specialist has completed a written examination and site visit, per the by-laws of the IAOM

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OMD Team

- As in many other facets of speech pathology, this disorder is treated most efficiently by a team, which may contain the following professionals or individuals:
- General/Pediatric dentists
- Allergist
- Speech Pathologist
- Otolaryngologist
- Oral & Maxillofacial surgeon
- Periodontist
- General physicianCertified Orofacial Myologist
- OrthodontistPatient
- Parents/family

International Association of Orofacial Myology (IAOM)

- Began in 1972, pioneered by a small group of speechlanguage pathologists; later joined by other dental professionals
- "set standards for qualification as an oral myo-therapist and to create a profession"
- IAOM publishes an annual journal; articles published are from dental professionals as well as SLPs

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How to get more training?

- IAOM website (www.iaom.com)
 - continuing education courses
 - contact information for orofacial myologists in your area
 - publications and research
- ASHA website



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Efficacy Research

Through a retrospective analysis of over 100 subjects (predominately ages 5-20) dental measurements were used to show that myofunctional therapy can..

- improve dental occlusion, decrease dental open bite, and decrease dental overjet;
- age was not necessarily a factor in predicting success of a therapy program;
- improvement of open bite and overjet can result from OMT without prior or concurrent orthodontic intervention. (Benkert 1997)

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And the research says.....

Hahn and Hahn (1992)

- Subjects: 98 children
- Ages 6-18 years
- Approx. 5 years after discharge from myofunctional therapy..70-80% were still swallowing correctly, maintaining correct lingual resting posture day and night, and had habituated consistent nasal breathing.

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And the research says, continued

In a survey of 100 patients enrolled in a program of traditional tongue thrust therapy, all of the patients were successful in correcting the resting posture of the tongue and lips and in correcting the swallowing pattern in 10-12 treatment sessions.

Pierce, R. (1996)

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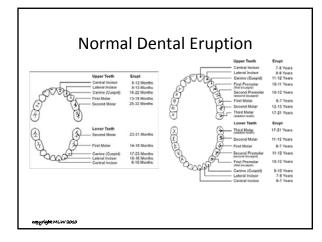
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ASHA- Scope of Practice 1991

- Assessment and treatment of oral myofunctional disorders are within the practice of speech language pathology
- Published research indicates that oral myofunctional therapy is effective in modifying tongue and lip postures and movement
- SLPs who desire to perform oral myofunctional services must have the required knowledge and skills to provide high quality treatment

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ASHA-Scope of Practice

- Appropriate goals should include retraining of labial and lingual resting and functional patterns
- Evaluation and treatment should be interdisciplinary and tailored to the individual
- Further research is needed regarding evaluation and treatment or oral myofunctional disorders.

Orofacial Myofunctional Disorders: Knowledge and Skills

ASHA guidelines developed in 1993:

- Understanding dentofacial patterns and applied physiology pertinent to orofacial myology
- Understanding basic orthodontic concepts
- Recognition of the dynamics of etiological factors (airway, thumb sucking, anterior malocclusion)

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Orofacial Myofunctional Disorders: Knowledge and Skills

- Understanding interrelationships between speech and orofacial myofunctional disorders.
- Demonstrating competence in identifying factors affecting prognosis
- Coordination of the treatment program with other medical and dental procedures

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Orofacial Myofunctional Disorders: Knowledge and Skills

- Demonstrate a clinical environment appropriate to the provision of services
- Demonstrate appropriate documentation of all clinical services
- Demonstrate professional conduct within the scope of practice for speech language pathology

International Association of Orofacial Myology (IAOM)

- Began in 1972, pioneered by a small group of speechlanguage pathologists; later joined by other dental professionals
- "set standards for qualification as an oral myo-therapist and to create a profession"
- IAOM publishes an annual journal; articles published are from dental professionals as well as SLPs

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Wednesday 3/23 Practicing AAC in Acute Care Settings
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