

THE ORAL MOTOR INSTITUTE  
FOR THE SCIENCE OF ORAL MOTOR TREATMENT

**Drooling: Practical Solutions for Home and Therapy**

**MARSHALLA**  
SPEECH & LANGUAGE

Lori L. Overland M.S., CCC, C/NDT, CLC, FOM

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INTRODUCTION

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OUR FOUNDER PAM MARSHALLA

Pam founded the Oral Motor Institute in 2007. She was a strong advocate of correct oral placement and how to achieve it which explains why her techniques were so successful.

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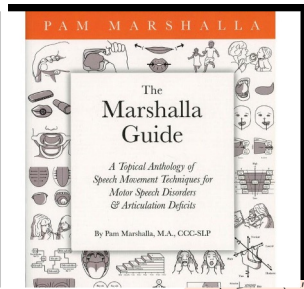
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Overland, L. & Marshalla, P. (2025). Drooling: practical solutions for home and therapy. Virtual Presentation. Marshalla Speech and Language.



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**OMI MISSION STATEMENT**

The Oral Motor Institute's Mission is to support the specialty of oral-motor based therapy approaches that enhance the development of the orofacial complex and the functions of respiration, sleep, feeding, swallowing and speech.

The OMI

- Educates the multi-disciplinary team that assesses and treats oral motor dysfunction throughout the lifespan.
- Advocates for an increased scientific understanding of oral motor assessment and treatment.
- Supports the integrity of oral motor sciences by providing access to research.
- Endorses public safety through assessment and treatment of oral motor disorders within licensure guidelines and professional scope of practice.

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### THE OMI'S VISION

The OMIs' vision is to inspire others to accept, embrace, respect, and advocate for the existing and evolving evidence-based practices, which supports the validity of oral motor assessment and therapy.



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### THE OMI'S AREAS OF FOCUS

#### Ethics

We endorse public safety through assessment and treatment of oral motor disorders within licensure guidelines and professional scope of practice.

#### Education

We educate the multi-disciplinary team that assesses and treats oral motor dysfunction throughout the lifespan.

#### Evidence

Supports the integrity of oral motor sciences by providing access to research.

#### Advocacy

Advocates for an increased scientific understanding of oral motor assessment and treatment.



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### OMI BOARD OF DIRECTORS

- Robyn Merkel-Walsh, Chair
- Kaitlyn Shrum, Social Media Director
- Mary Billings, Secretary



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**OMI BOARD OF DIRECTORS**

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- Jill Rabin

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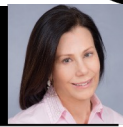
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**OMI BOARD OF DIRECTORS**

- Renee Roy-Hill
- Debra Beckman
- Lori Overland

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**OMI BOARD OF DIRECTORS**

- Meredith Avren
- Toni-Ann Antoniato

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NAME  
FINANCIAL DISCLOSURES

Member of the Talk Tools Professional Enhancement Team	Receives honorariums for lecturing	Receives honorariums for books published
Owner of Alphabet Soup: Pediatric Oral Sensory Motor Feeding and Speech Therapy	Co-owner Mouthes in Motion Mentoring Service	

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NON-FINANCIAL DISCLOSURES

Board Member Oral Motor Institute	Breathe Institute Ambassador
Member of ASHA, LISHA, NYSSLHA, CSHA	Member of ICAP, IAOM



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LEARNER OBJECTIVES

1. Licensed professionals will define drooling.
2. Licensed professionals will list at least 4 of Pam Marshalla's fundamental keys to addressing drooling.
3. Licensed professionals will identify at least 4 strategies to decrease drooling and control oral secretions.

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**PART 1:**  
**What is saliva?**

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**What is Saliva: According to Pam**

Saliva is a naturally occurring substance produced by the salivary glands 24 hours a day. Saliva is Important for:

- Speech-keeps the mouth moist
- Eating-moistens food
- Digestion-begins the process

Marshalla, P. (2014). *How to stop drooling: Practical solutions for home and therapy.* Marshalla Speech and Language.

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**Updates: What else do we know about saliva**

Overland, L. (2023) Webinar: Drooling etiology and remediation. Talk Tools

Saliva is made up of water, electrolytes, bicarbonate, bacteriostats, mucous, and enzymes

- Enzymes-salivary amylase, lingual lipase, kallikrein
- Amylase-converts starch and glycogen into simple sugar
- Amylase-begins the process of digestion
- Congestion increases saliva production
- Foamy saliva can be associated with dry mouth
- Mouth breathing results in dry mouth
- Excessive drooling can result in inhaling saliva into the lungs, which can cause pneumonia

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### Salivary Glands

#### Major Salivary Glands:

- Submandibular Glands-65-70% of Saliva Production
- Parotid Glands-20-25% of Saliva Production
- Sublingual Glands-5% of Saliva Production

#### Minor Salivary Glands



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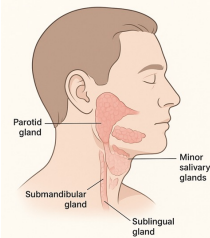
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### Salivary Glands-Picture

MAJOR AND MINOR SALIVARY GLANDS



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### Types of Saliva

- Serous- watery consistency which is more characteristic of anterior drooling
- Viscous-mucoid and sticky saliva which is difficult to clear and may result in choking/aspiration. This is more typical with posterior drooling and may require suctioning



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**PART 2:  
Normal Drooling vs.  
Problem Drooling**

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**Normal Drooling According to Pam**  
Marshalla, P. (2014). How to stop drooling. Practical solutions for home and therapy. Marshalla Speech and Language.

- Drooling is normal during late infancy and during toddler stages
- Excessive drooling coincides with the eruption of teeth
- Excessive saliva production is triggered during teething to ease sore gums
- If saliva is excessive and cannot be managed, it is “drooled”
- Resolves by age 4

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**Update: Developmental and Physiological**  
Overland, L. (2023) Webinar: Drooling etiology and remediation. Talk Tools

- Saliva production is decreased prior to three months of age
- Copious drooling which starts at three months and persists is a red flag
- Drooling secondary to teething should be cyclical
- Decreased saliva control may be observed with upright positioning/motor development
- Drooling can be normal up to two years of age

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**Definition of Drooling**

“Drooling is the unintentional loss of saliva from the mouth”

Johnson, H., King, J., & Reddihoough, D.S. (2001). Children with sialorrhoea in the absence of neurological abnormalities. *Child: Care, Health and Development*. 27 (6), 591-602



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**Why does drooling persist according to Pam**

- Decreased saliva awareness
- Decreased swallowing frequency
- Child has inefficient swallow
- Poor lip closure



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**PART 3:**  
Pam's Keys for Eliminating Drooling



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**Pam's Keys to Success**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Increase oral awareness
- Improve swallowing frequency and efficiency
- Increase closed lip rest posture
- Motivate the client for improvement
- Habituate the new skills

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**Pam's Keys to Success-Increasing Oral Awareness**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Pam defines oral awareness as the conscious and unconscious awareness of sensations related to the mouth
- Oral secretions should result in automatic trigger of a swallow
- Oral awareness allows us to perceive that drooling has occurred or is about to occur
- Children who drool excessively are not aware of the increasing amount of saliva in the mouth and may not have the awareness to trigger a swallow often enough to prevent drooling



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**Pam's Keys to Success-Swallowing Frequency and Efficiency**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Pam defines swallowing as the process of using the tongue muscles to push food or liquid, including saliva to the back of the mouth and into the throat
- Swallowing regularly and skillfully prevents drooling
- The amount of saliva in our mouth changes throughout the day and increases at night
- Typically, we do not have to think about swallowing
- When we have a dry mouth, something gets stuck in the throat or we have a sore throat we have increased awareness of the process of swallowing
- Children who drool excessively are unaware of the process of swallowing



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**Pam's Keys to Success-Lip Closure**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

- According to Pam, children who drool have weaker lip strength
- Children who drool are in habitual open mouth postures
- Lips closed during the swallowing process mitigates drooling
- Children who drool excessively may swallow with their lips open



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**Pam's Keys to Success-Motivation**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

- According to Pam, the final stage of a program to reduce drooling is motivation
- Staying motivated can be challenging as it feels "normal" to be wet
- Motivation starts with learning that a dry face is preferable
- Pam talks about "brainwashing" your way to success!



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**Pam's Keys to Success-Habituate the New Skill**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

- Habits are hard to change
- According to Pam, changing a habit takes time, determination, motivation, commitment and will
- Successful management of saliva requires making a dry chin a "habit"



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**Other Factors Which Impact Success**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Cognitive functioning
- Neuromuscular status
- Interest/willingness to participate in activities
- Alertness level
- Absent swallow



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**Factors Which Impact Success-Cognitive Functioning**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Pam's program requires a child to be able to comprehend and follow directions
- Children under the age of 4 or with cognitive challenges, who cannot follow directions, can participate in a pre-feeding program (Overland & Merkel-Walsh, 2013), but may not be candidates for this program



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**Factors Which Impact Success-Neuromuscular Status**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Neuromuscular disorders are characterized by dysfunction of peripheral nerves or muscles, or communication between them
- Neuromuscular disorders are often characterized by muscle weakness and decreased sensation
- Muscle weakness and decreased sensation can impact saliva control



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**Factors Which Impact Success-Oral-Tactile Sensitivity**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

If you cannot feel saliva building up in your mouth, and you do not get sensory feedback to swallow, your ability to handle your secretions will be compromised



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**Factors Which Impact Success-Interest/Willingness to Participate**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

Even if your client is motivated you need to make therapy interesting in order to maintain their willingness to participate!



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**Factors Which Impact Success-Absent Swallow**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- An **absent swallow reflex** indicates that **no pharyngeal swallow is triggered** despite adequate bolus presentation and sufficient sensory stimulation
- A **delayed swallow reflex** occurs when there is a **prolonged interval between bolus arrival at the faucial arches/pharynx and initiation of the pharyngeal swallow**



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**Who Can Implement This Program?**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Parents
- Caretakers
- Speech Pathologists
- Occupational Therapists
- Physical Therapists
- Teachers
- Teachers Aides



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**Other Considerations**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- How often should the program be implemented?  
\*Every Day!
- How long does each activity take?  
\*None of the exercises in this program take more than 15 minutes to plan and execute.
- Is there a treatment sequence?  
\*Pam moves from exercises that require minimal control on the part of the child to exercises that require more skill



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**Other Considerations**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- What terms should be used?  
\*Pam suggests using the term "wetness" rather drooling, slobber or spit, which may have negative connotations
- Sanitary procedures?  
\*Gloves, handwashing, sterilizing tools



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**Other Considerations**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

- How long does it take to stop drooling?
- \*According to Pam, “ Eliminating the behavior of excessive drooling is a slow process that typically involves change over a period of time”



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**PART 4:**  
Pam's Suggestions for Home  
and Therapy

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**Oral Awareness**

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

**Teach the Concept of Wet vs Dry**

- Teach the general concept of wet vs. dry before addressing this in the context of the mouth
- Teach wet vs dry chin
- Use daily living routines such as bathtime or playing in the sink or pool to talk about wet
- Talk about getting “dry” in relation to drying your hair, using a towel
- Use naturally occurring situations to reinforce wet and dry, ie: when a spill occurs, cleaning a countertop, transferring laundry from washer to dryer, blowing bubbles etc!



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### Oral Awareness

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

#### Teach Chewing

- Talk about food in your mouth and the child's mouth
- Make chewing sounds
- Use a mirror for visual cues
- Draw attention to the process of chewing

#### Praise Wiping the Chin

- When the child's chin is wet, wipe it dry
- Encourage the child to look in the mirror and identify when the chin needs to be wiped
- Praise chin wiping throughout your snack



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### Swallowing

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

#### Swallowing

- Swallowing is an important key to successful saliva management
- Children with problematic drooling do not swallow often enough or with enough skill

#### Discover your own swallow

- Pam suggests "finding your voice box or "Adam's apple"
- Swallow and feel it move
- Repeat with a sip of cold water
- It may be more difficult to feel the swallow on a child with muscle weakness so practice on yourself or another adult



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### Swallowing

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language.

#### Help the child to discover swallowing

- Talk about swallowing
- Encourage them to feel swallowing
- Repeat with a sip of cold water
- Practice with a spray bottle of cold water, popsicle, ice cubes, or a drop of apple juice presented on a toothette, dropper (2-3cc of liquid)



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### Swallowing

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### The Clean Sweep

- Awareness of food spread across the mouth
- Teaching the "clean sweep"
- Eat a small cracker with the child and pool food on your tongue to demonstrate food all over the mouth, ask the child to identify that in their own mouth and talk about cleaning the mouth
- Encourage the child to use their tongue to clean their mouth
- Talk about swallowing the "whole thing!"
- Point out when your mouth is clean




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### Swallowing

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### Discover the Digestive Tract

- Where did the water go?
- Use your fingers to trace food from your mouth to your stomach
- Talk about moving food to your tummy

#### "Dry" Swallow

- Start with small sips of water
- Encourage the child to swallow without taking a sip of water
- You may need to use a dropper of water if the child cannot feel their saliva
- Reinforce swallowing without water during a short activity




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### Swallowing

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### Wipe and Swallow

- Combine swallowing with wiping the lips
- Use a wristband
- Reinforce children for wiping their own lips

#### Watch for the Slurp!

- As children become more aware of pooled saliva, they make suck back their saliva and slurp. Remind them to swallow!




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### Swallowing

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### Cues for Frequent Swallowing

- Play a game or do an activity
- Come up with a signal reminder to swallow
- Signal a reminder to swallow every two minutes during the training program
- Teach persistent swallowing

#### Teach Suction

- Use straws, wet toothette, dropper filled with liquid, NUK brush dipped in applesauce



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### The Lips

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### Discover the Lips

- Activities that help children develop awareness of their lips (blowing, sucking, funny faces, raspberries, lipstick kisses etc)

#### Strengthen the Lips

- Kisses 20x
- Hold lips together at a red light
- Blow up cheeks while keeping lips closed

#### Lip Control

- Hold a straw or tongue depressor between lips for "as long as possible"



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### The Tongue

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

- Keep the tongue away from the teeth
- Elevate tongue to spot
- Lift the bolus (use a stripping action)
- Feel the swallow



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### The Jaw

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### Stabilize the Jaw

- Children who drool are often in a low jaw posture
- Encourage the child to feel your masseter muscle while you clench and relax
- Teach masseter muscle pops-clench and pop!



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### Motivation and Habituation

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

#### Brainwash your way to success

- Withhold negative comments
- Make positive comments
- Praise dryness
- Make positive comments to others

#### Habituation

- Make up a song
- Make a habit of staying dry
- Wipe, wipe, swallow
- Reward system



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### Lori's Note

Marshalla, P. (2014). How to stop drooling: Practical solutions for home and therapy. Marshalla Speech and Language

Pam started the conversation about teaching children to handle their saliva. While this was an important conversation, it is essential to note that this program requires active participation on the part of the child. If you work with children under the age of 4, or clients with cognitive or neuromotor challenges, you may need to use a pre-feeding and therapeutic feeding program to develop these skills.



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**PART 5:**  
Anatomical and Physiological  
Assessment

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**Swallowing Saliva**

- Swallowing involves the oral, pharyngeal and esophageal phases
- Normal volume of saliva in the mouth is low
- Swallowing saliva is reflexive and does not require significant effort
- Awareness of saliva pooled intraorally is dependent on Cranial Nerve V (sensory)
- Sensory awareness is a pre-requisite to initiating collection and transport of saliva

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**Task Analysis of Swallowing Saliva**  
Overland, L. (2024)

- Sensory awareness of pooled saliva
- Collect saliva-Tongue elevation and cupping, contraction of the cheeks, and lip closure
- Oral transport of saliva to oropharynx-Tongue tip elevation, lingual palatal suction, tongue retraction
- Velopharyngeal closure to prevent nasal reflux
- Initiation of pharyngeal swallow
- Saliva is propelled through the pharynx
- UES opens to allow bolus to enter the esophagus

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**Muscles That Support Swallowing Saliva**  
 Overland, L. (2024) and from Gatto, K. (2015) <https://orofacialcomplex.com>

- Tongue cups and elevates; cheeks compress; lips seal
- Tongue presses to palate and moves saliva posteriorly
- Soft palate elevates and seals nasopharynx
- Posterior tongue retraction triggers reflex
- Larynx elevates, vocal folds close, pharynx contracts
- UES relaxes, bolus enters esophagus

Orbicularis oris, buccinator, transverse, vertical  
 Superior longitudinal, styloglossus, palatoglossus  
 Levator veli palatini, tensor veli palatini  
 Extrinsic Muscles-Hyoglossus, palatoglossus  
 Suprahyoids, pharyngeal constrictors  
 Cricopharyngeus, esophageal muscles

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**PART 6:**  
 Discussion of Medical Interventions

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**Treatment**

Pharmacological

\_\_\_ Botox

Surgical Treatment

Vital Stim

\_\_\_ Therapy

Riva, A., Amadori, E., Vari, M.S. et al. Impact and management of drooling in children with neurological disorders: an Italian Delphi consensus. *Ital J Pediatr* 48, 118 (2022). <https://doi.org/10.1186/s13052-022-01312-8>

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**PART 7:**  
Examples of Muscle Based  
Therapeutic Strategies

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**Overview**  
Overland, L. (2024)

- Assessment-medical issues, safety issues, sensory awareness, muscle tone and postural issues, structural assessment, oral sensory motor skill development
- Task Analysis of Function-See muscles for swallowing
- Use Pre-Feeding Techniques for 0-3 and Special Needs

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**Case History**

- Full term 9lb 2oz, Apgars 9/9
- History of pulmonary valve stenosis/heart murmur
- Peanut allergy
- History of latch issues, gagging/spit up
- Feeding issues-gagging and choking on water, compensatory motor skills for solids, longer than normal mealtimes, stuffing, pooling,
- History of restless sleep/snoring
- Persistent congestion/Mouth breathing
- Difficulty sitting still/ Focusing
- Noxious oral habits-suckles two fingers
- Started drooling at 3 months and never stopped

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**Case History**

- Frenectomy and Maxillary lip release via laser at 8 months of age
- No pre-op therapy
- No notable changes post op
- Referral from Dr. Jessica Levy DDS and Beth Ivonelli IBCLC at 14 months of age



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**Initial Evaluation: Hard Tissue Observations**

- High palatal vault
- Retruded mandible
- Wide nasal bridge
- Overbite
- Inverted mandibular front central incisors,
- Labially inclined maxillary front central incisors,
- Low resting jaw posture



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**Initial Evaluation: Soft Tissue Observations**

- Venous pooling under eyes
- Chapped lips/ habitual open mouth posture
- Deep philtrum/arced upper lip
- Short mandibular labial frenum
- Dimple under lower lip
- Low tone in buccal musculature
- Mentalis strain
- Bulgy/asymmetrical lingual musculature/compensatory resting tongue posture with tip depressed



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**Functional Observations**

- Mouth breather
- Drool copiously
- Reduced upper lip mobility/lower lip retraction to approximate closure
- Strained, labored respiration
- Reduced buccal support for sucking, swallowing, chewing, stabilizing a solid bolus, sound production
- Jaw strength and stability reduced...could not bite through a meltable solid
- Primary lingual movement was a protrusion/retraction
- Tongue humping in retraction

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**Functional Observations**

- Tongue dumping with attempts to facilitate lateral tongue movement
- Bites and suckles to transfer liquid from a straw
- Masticates food on the front 1/3 of the tongue using a munch/suckle pattern
- Swallows food that is not adequately masticated
- Hard swallows
- Residual food on the surface of the tongue and in the lateral sulci
- Uses fingers to assist in controlling a solid bolus
- Compromised oral placement for sound production

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**Initial Recommendations**

- ENT consult to address airway concerns/sleep challenges and tethering
- Consult with a PT/CST
- Consult with an airway centric dentist to assess tongue space
- Oral sensory motor/pre-feeding therapy
- Therapeutic feeding therapy

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**Started Drooling at 3 Months and Never Stopped**



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**Chewing at 14 Months**



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**Addressing Airway Issues Overview**

Overland, L. (2024)

- Airway issues need to be addressed before initiating a functional program
- Referral to an ENT to assess recurrent upper respiratory issues, sinus infections, enlarged tonsils or adenoids, nasal turbinates, small nasal or ear canals etc.
- Referral to Allergist to assess environmental or food allergies

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**Sleep**



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**Addressing Airway Issues**

- Three months after initiating therapy ENT evaluation
- Adenoidectomy, bilateral tympanostomy tubes and lip/tongue revisions in February of 2024
- Sleep improved
- Incremental change in drooling

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**Examples of Pre-Feeding Exercises to Mitigate Drooling**

- Jaw
- Lips
- Cheeks
- Tongue

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Jaw



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LIPS



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Lips



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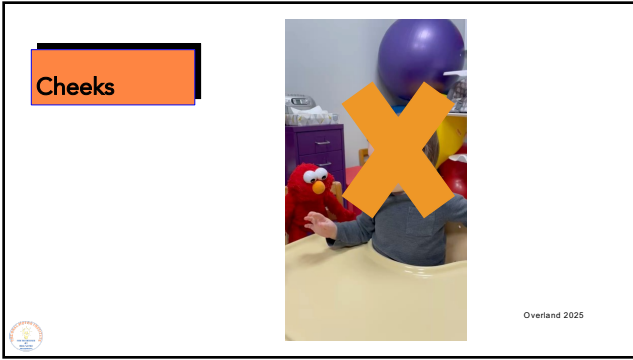
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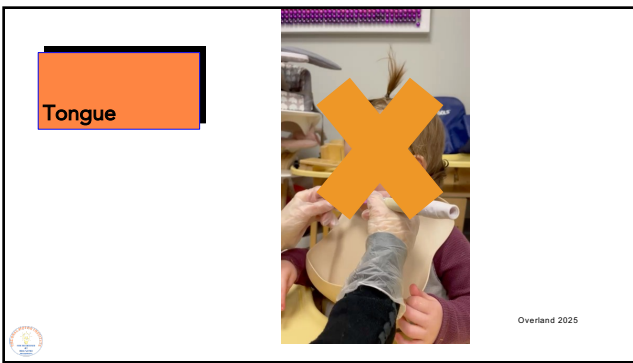
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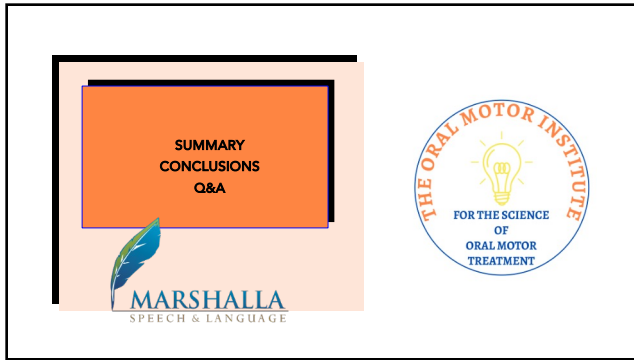
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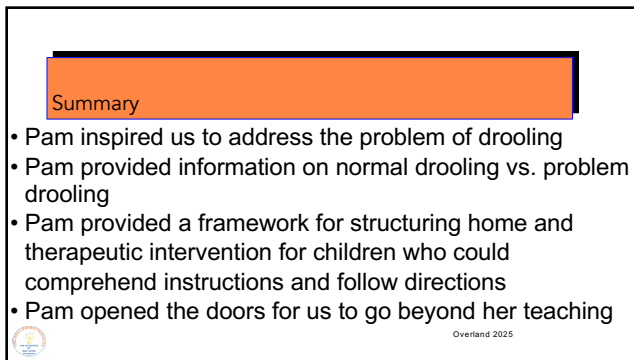
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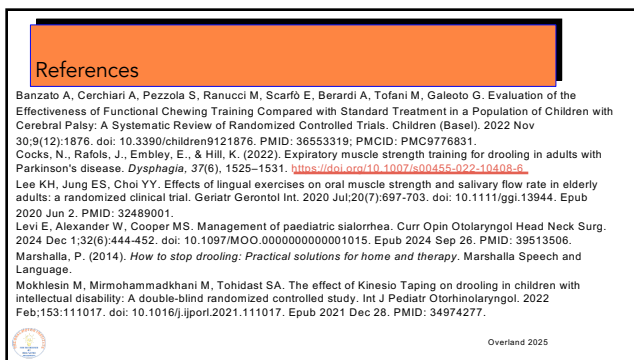
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**SPEAKER CONTACT INFORMATION**



**WEBSITE:**  
www.alphabetsoupomtherapy.com



**EMAIL:**  
loriloverland@gmail.com

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