HEMIGLOSSECTOMY:
THE ROLE OF THE SLP IN THE EVALUATION AND TREATMENT OF PATIENTS FROM PRE OP TO POST OP

TERESA LYDEN, MA, CCC-SLP ▪ ANNA BLAKELY, MA, CCC-SLP ▪ MADISON ERICSON, MA, CCC-SLP
DEPARTMENT OF OTOLARYNGOLOGY, HEAD & NECK SURGERY
UNIVERSITY OF MICHIGAN HEALTH

TONGUE CANCER

TNM Staging System

- T: Primary Tumor (TX to T4b)
- N: Regional Lymph Nodes (NX to N3)
- M: Distant Metastasis (MX to M1)
  - There are subsections within this staging system

Treatment

- Early stage = 1 modality (ie Radiation only)
- Late stage =2/3 modalities (ie Surgery + Radiation or Surgery + Chemo + Radiation)

Oral Cavity Cancer

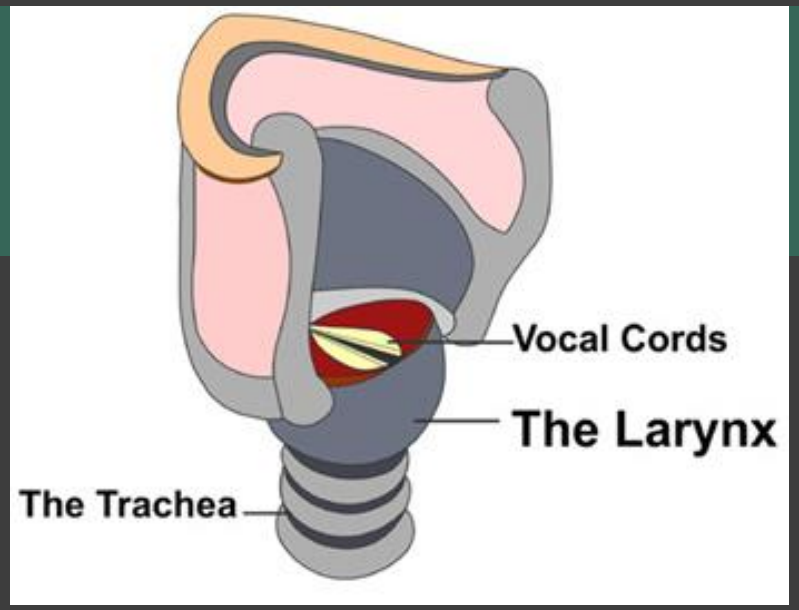
- Primarily Treated with Surgery
  - Reconstructive goal is to return patient to highest level function (speech and swallow outcomes)

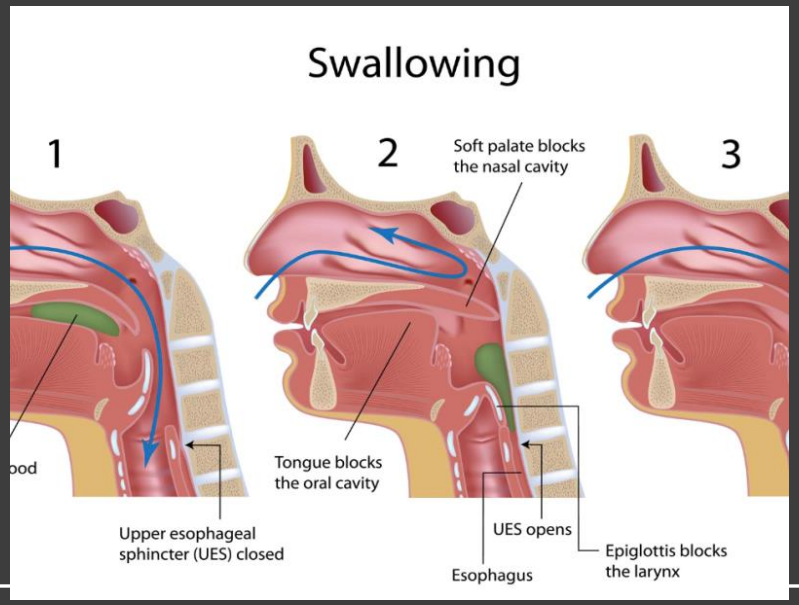
PRE OPERATIVE EXAMINATION

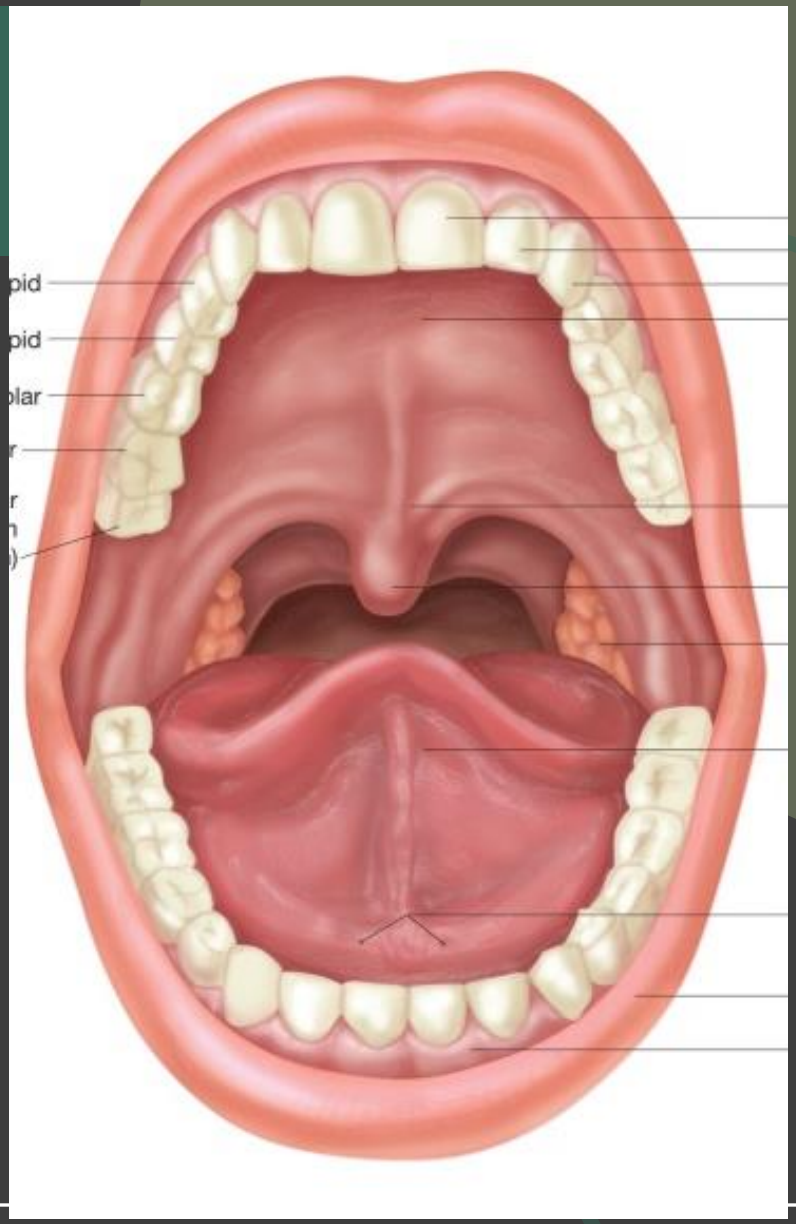
- Typically combined with MD for a portion of the visit
- Oral Mechanism examination
  - Inventory of structures and function of same
  - Assess impact of tumor burden on ROM
- Reading Efficiency
- Writing Efficiency
- Verbal Communication
  - Distortion
  - Intelligibility
- Swallowing
  - Brief CSE with water
  - Current diet level +/- modifications; food avoidance
- Education on pre versus post operative changes [see next slide]

PRE VERSUS POST OP SPEAKING AND SWALLOWING FUNCTIONS

- Speech
  - Sound Source and Sound Shapers
- Swallowing
  - Organized sequence of events
  - Any alteration in this sequence can lead to dysphagia

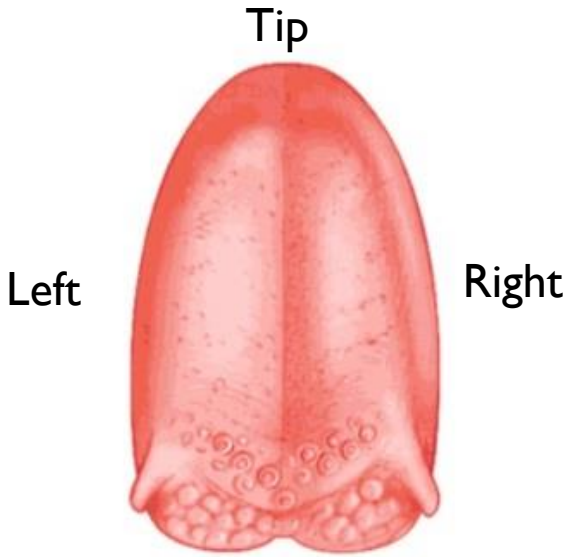






SURGERY

- What is removed?
  - How much tissue is removed?
  - Location of tissue removal?
  - Why is this important?
- Impact on speech/swallowing?



POST OP CONSIDERATIONS

- Scar formation/fibrosis (prior tx or prior surgery)
- Edema in surgical site and surrounding area
- Altered mastication (bulk of recon flap)
- Altered sensation (fibrosis, reconstructive flap, edema, etc.)
- Altered Fx (removal of structures, ie. Dentition, lingual musculature, bone)
- Altered speech + voice production/verbal communication (bulk of recon flap, trach)

- *Image provided is from the first or second outpatient visit
- *Notice:
  - Suture lines/stitches
  - Location/Bulk of reconstructive tongue
  - Displacement of native tongue due to recon flap
  - Swelling of native tongue
  - Reduced intra oral space
- ***What impact would these have on saliva management and swallowing function in general??? Also what impact would this have on speech production/intelligibility???**

CLINICAL SWALLOW EXAMINATION: *THE INTERVIEW*

- Interview
  - Premorbid diet level
    - Was there pre-existing swallowing issues? Tumor burden? Other?
  - Current means of nutrition
    - Typically DHT/PEG for primary;
  - Tolerance of oral secretions
    - Is patient expectorating secretions versus swallowing?
    - Is there oral stasis +/- anterior loss? How is the patient managing same?
    - Is the location and size of reconstruction impacting management of secretions?

CLINICAL SWALLOWING: *THE INTERVIEW-CONTINUED*

Was patient cleared for water/ice chips or sugar free clears during stay or at d/c from hospital?

If yes, what was consumed and how did the patient tolerate it?

- This can give an idea of overall function
  - Patient is typically on point regarding their level of efficiency
- Tolerance of current trials: Odynophagia; S/S of aspiration; Nasal Regurgitation; Effortful swallow; Multiple Swallows; Oral bolus transfer and clearance; Swallow trigger; Time required to consume trials,; Unable to swallow/expectorating all or portion of bolus
- Use this information to help guide the clinical exam

Always ask the patient if he/she "cheated"

- +/- 50% of the time patients will cheat
- Patient sometimes is hesitant to disclose "cheating" [esp. in front of the surgeon]
- Why is this important?

CLINICAL SWALLOWING: *EXAMINATION OF STRUCTURES*

- Oral Mechanism Examination
  - Oral competency (labial seal, saliva mgmt., etc.)
  - Inventory structures
    - Overall function of lips to the soft palate/ppw
    - Note surgical changes (what's missing/what's new)
    - Visualize Reconstruction flap (if able) location, size and the impact on surrounding structures
  - Assess for changes in:
    - ROM
    - Strength
    - Altered sensation/Intact sensation
  - Dental Status (Dentition, Partial versus full denture)
  - Pain (surgical) and impact on swallowing

IMPACT OF RECONSTRUCTIVE FLAP ON SWALLOWING

- Size
  - Initially built "bulky" w/ goal of "shrink to fit"
  - Can occupy space until atrophy occurs
  - Can take weeks to months to atrophy
  - Sometimes "de-bulking" required
- Sensation
  - Limited feeling
  - Poor to light contact
  - Stasis
  - Reconstructive tongue versus native tongue
- Mobility
  - Reduced
  - Dependent upon remaining structures (Flap is "along for the ride")

MULTI DISCIPLINARY POST OP VISIT: SWALLOWING

- Patient seen in conjunction with surgeon
  - Medical clearance given up to a specific consistency based on healing
  - Common levels of clearance include clear sugar free liquids or full liquids
- Patient seated upright in examination chair
- Begin with water trial via cup drink
  - Provide directive on cup placement and use of head tilt strategy
  - Patient encouraged to start with small bolus volume for initial trial
  - Assess for anterior loss, bolus retention in oral cavity, timeliness of swallow, effort required to swallow, number of swallows per bolus, clinical s/s of aspiration.
    - Strategies employed if warranted
  - Multiple trials completed to assess for safety and efficiency
  - Duration required for completion of trials
- If patient is cleared for sugar free liquid diet, will provide strategy suggestions and trial recommendations at this time. Discontinue evaluation at this time.
- If patient is medically cleared for full liquids, will continue with examination.

CONTINUED

If patient cleared for full liquid diet and demonstrated good tolerance of water, will then evaluate with nectar thick liquid.

- Commercial grade thickener (SimplyThick Nectar)

Patient seated upright in examination chair

Nectar thickened liquid trial via cup drink

- Provide directive on cup placement and use of head tilt strategy
- Patient encouraged to start with small bolus volume for initial trial
- Assess for anterior loss, bolus retention in oral cavity, timeliness of swallow, effort required to swallow, number of swallows per bolus, clinical s/s of aspiration.
  - Strategies employed if warranted
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- Duration required for completion of trials

FACTORS TO CONSIDER TO RETURN TO ORAL TRIALS OR INTAKE

- Signs/symptoms of aspiration
  - Can experience delayed response OR *NO* response due to sensory changes
    - No response does not necessarily mean no aspiration
    - 3 ounce water challenge*
  - Make sure to monitor for all signs (cough is not the only sign!)
  - Use the trach as a "window"- use of blue food coloring
  - Determination of overall safety of swallow
  - If patient aspirates should he/she remain NPO?
    - Even if patient aspirates-typically will ***minimally*** start on sips of water or ice chips if patient is **ambulatory**
    - **Very few patients are deemed unsafe for oral trials of at least water (less than 1%)**
- Make sure to try strategies, maneuvers, postures that may improve tolerance of consistencies consumed
- Efficiency of the swallow
  - Why is it important?
- Use all information to determine return to oral trials and or intake

DOBBHOFF TUBE: TO REMOVE OR NOT TO REMOVE

- Typically prior to clinical swallow examination, surgeon will either give clearance for removal of the DHT if patient swallows well or indicate that the DHT should remain regardless of outcome of exam.
  - Safety of swallow during exam and efficiency of swallow during exam
  - Maintain caloric and hydration goals

FORMAL EVALUATION

- Is further evaluation indicated now or at F/U?
  - FEES now with MD
  - Repeat CSE at F/U vs formal assessment (FEES/3 Phase)
  - Anticipate oral stage deficits primarily
- At MM, typically do not complete a formal evaluation for this surgical group

GRADUAL DIET ADVANCEMENT

- Typical progression of oral diet at Michigan Medicine
  - Completion of clinical swallow evaluation…
    - Full liquids for 4-5 days
    - Advance to pureed foods 4-5 days
    - Soft mushy foods (minimal chewing) 4-5 days later
    - Advance to general diet by week 2 of oral diet

EVALUATION OF SPEECH

Speech is the most imprecise immediately post op due to bulk of reconstructive flap and overall swelling

At the first post operative appointment:

- Assess speech intelligibility during short utterances and/or conversational speech
  - % of intelligibility with a trained listener in a quiet environment
  - Are repetitions required to increase listener comprehension?
  - Ask the patients' family member or friend how well they understand the patient, how often do they request the patient to repeat themselves, etc.
  - Familiar listener (family member, provider, close friend) versus unfamiliar listener (unknown person)
  - Trach/Digital occlusion?
- Formal assessment not completed at this first visit; however, complete during a subsequent session if and as indicated.
  - AIDS
  - Additional articulation evaluations; however, AIDS is our preferred test.

THERAPY GOALS

Functional swallowing with safe and efficient consumption of oral intake	Fluent and intelligible verbal communication for daily speaking needs.	Set realistic goals	Involve the patient in setting of goals	Modify goals as needed

• Functional swallowing does not necessarily mean "p*erfect*" swallowing OR no evidence of aspiration
• Reassess with formal assessment only if there is additional info that can be gained
	• Instruct patient on speech strategies to improve overall intelligibility
	  • Decreased speech rate
	  • Over articulation
	  • Repetitions (if warranted)
		• Few patients resume a true general diet
		• Speech will not be 'perfect' or 'like it was before'
				• If patient cannot achieve the goals you have set- you have set the goals too high

ESTABLISHING THE THERAPY PLAN

- General considerations
  - Is patient medically cleared to complete a certain task?
    - Jaw mobility tasks-always get MD clearance
  - Is patient able to participate in therapy or does pain impact participation?
  - Participation at MM or locally

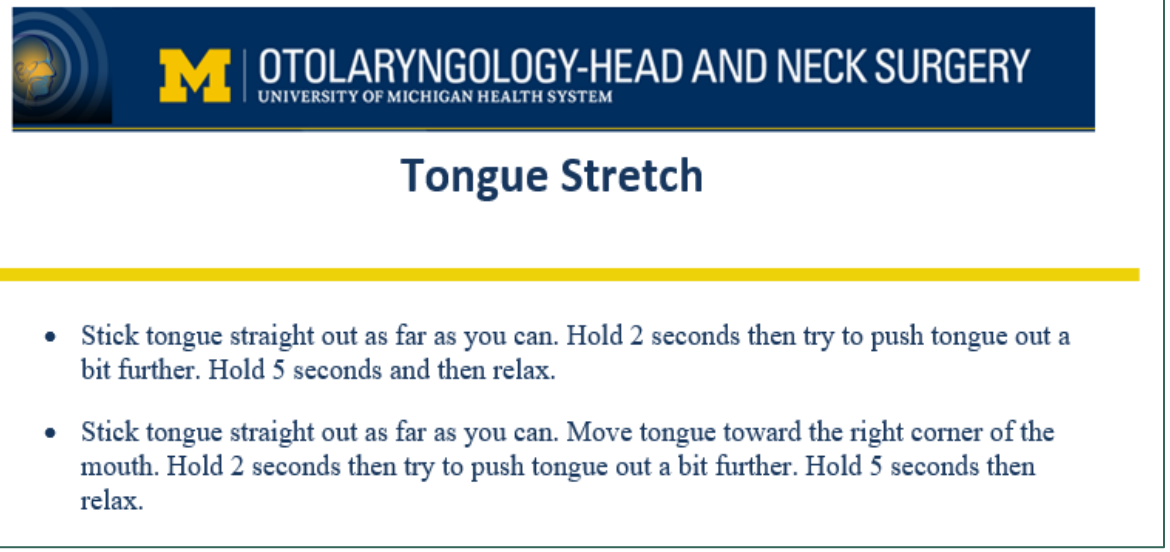
SWALLOW THERAPY PLAN

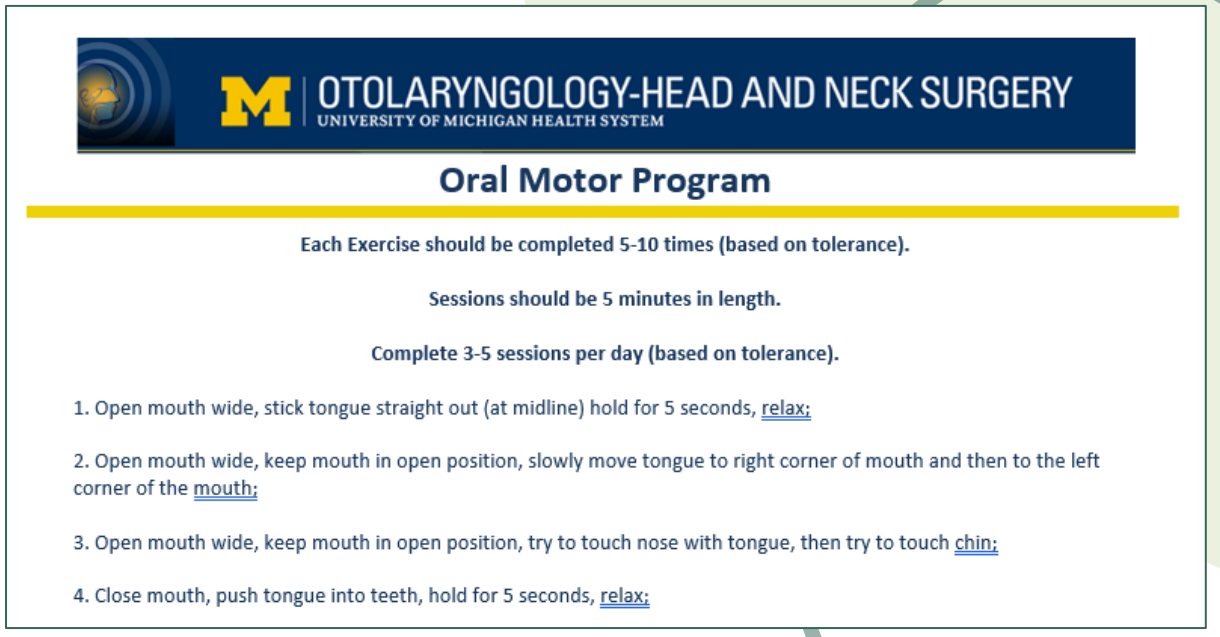
- Oral Intake/Diet Transition
  - Completion of therapeutic oral trials to assess tolerance and advance diet if indicated and with medical clearance.
  - Train on and assess benefit of swallow strategies
    - Implementation of swallow strategies will ensure the patient can accurately use the strategy and understands its purpose.
    - Common strategies: Preferential bolus placement to nonsurgical side, head tilt to nonsurgical side +/- slight chin tuck, liquid wash +/- cheek puff, finger sweep to clear bolus if need be, secondary swallow.
  - Assist patient with diet advancement until he/she achieves least restrictive diet

CONTINUED

- Exercises Examples
  - Basic Lingual ROM/Tongue Stretch
  - Lingual Sweeps
  - Lingual Resistance (with digit)
  - Bolus cohesion and control (life saver)
  - Tongue taps

EXERCISE EXAMPLES





SPEECH THERAPY PLAN

- Typically see a degree of spontaneous recovery in their speech intelligibility between post op and subsequent therapy visits
  - Initial visit focus on swallowing
  - Varying degrees of intelligibility (60-90%)
  - Most patients come in and are able to verbally communicate with relative efficiency despite speech distortions
- Therapeutic Oral Motor and Speech Exercises to Improve Speech Clarity
  - Articulation drills at the sound/word/phrase/sentence level
  - Articulation tasks with spontaneous interaction
- Train on speech intelligibility strategies
  - Employ strategies in structured tasks with the goal being carry over to spontaneous utterances
  - Common strategies include: reduced rate, over articulation, repetitions, increase mouth opening while talking
    - Happy medium between reduced rate and talking too slow
    - Clear saliva from oral cavity prior to and during speaking

CONTINUED

- Exercise Examples
  - Tongue Twisters
  - /s/ drills: word, phrase, sentence
  - Paragraphs
  - Lingual Sweeps, Tongue Taps, Tongue Stretches
    - Crossover exercises – can benefit both speech and swallow!

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"S" Drills

1. Produce a sustained "S" sound (like air escaping from a tire or a hissing snake). Hold the sound out for 3-5 seconds.
2. Trial different placements of your tongue tip in your mouth while producing the "S" sound. Try moving tongue in slight movements from side to side or front to back (For example: move to the right, midline or left). Listen for the clearest production of the "S" sound. This spot is where you want to keep your tongue placed during your practice sessions. This spot may shift slightly throughout the day and/or from day to day.

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Suggestions to…

Increase Speech Intelligibility:

1. Speak slowly: This allows the lips, tongue, and palate time to move for complete articulation and clear speech.
2. Take a breath prior to speaking.
3. Pause frequently. Say only 3-5 words per breath.
    a. You may wish to read a paragraph into a tape recorder, notice where you normally pause for a breath. Next practice reducing the number of words spoken, per breath. Put a mark on the paper where you should be pausing to take a breath to indicate where new pauses should be taken.
4. Emphasize and exaggerate all sounds to prevent omitting of sounds that would otherwise occur. Be sure to produce final sounds. Example: remember, respect

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Tongue Twisters

Goal: 5-10 minutes, 3-5X per day. The purpose is CLARITY not SPEED.

***Bilabials: b,p,m**

A big badly bleeding blister.
Betty bought a bit of butter.
Buy Bridges British brushes.

Peter Piper picked a peck of pickled peppers.
A pale pink proud peacock pompously preened it's pretty plumage.
Please Paul pause for applause.

Many million mini-motorbikes milling around Miami.
My mailman munches marmalade muffins.
Merry moments make Matt mischievous

***Alveolar: s,t,d,r,l,n**

A sick sparrow sang six sad Spring songs.
Down the slippery slope they slipped sitting slightly sideways.
Seventeen slimy slugs sat on the sand.
Sixty-six slick soldiers.

Typing tapes takes time.
A twin-track tape recorder.
The 20 to 2 train to Trenton tooted through the tunnel.

Do drop in a Dewdrop Inn.

LONG TERM GOALS

- How is the "typical" patient functioning 6-12 months from surgery???
- Speech
  - Primary means of communication
  - Intelligibility: 95+%
    - Subtle distortion may persist does not impact listener comprehension in almost all settings/situations
- Swallowing
  - Tolerating a modified general diet with use of swallow strategies
    - May cut foods into smaller pieces, modify select foods, etc
    - Patient reports:
      - Intermittent oral stasis on or under reconstructive flap (5% or less of the time)
      - Preferential bolus placement to non-surgical side- most patients are able to eat w/o this strategy
      - Select foods may be challenging but the patients are aware of strategies to implement to improve tolerance

THANK YOU!
QUESTIONS?