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Denise Dougherty, MA, CCC-SLP

Dysphagia Evaluation and Treatment Recommendations

Denise Dougherty, MA, CCC-SLP

Denise Dougherty owns and operates a private practice in Indiana, PA where she conducts therapy with children and adults. She received her bachelor's in communication disorders from Marywood University and her master's from St. Louis University. Since 2007, Denise has served on the Expert Work Group of the Physicians Office Quality Measure Project for Quality Insights of Pennsylvania working on initiating quality measures for CMS to improve effectiveness, efficiency, economy, and quality of services delivered to Medicare beneficiaries - specifically Medication Review. She is a past president of the American Academy of Private Practice in Speech Pathology and Audiology (AAPPSPA), a past member of ASHA's Health Care Economics Committee and co-editor of Private Practice Essentials: A Practical Guide for Speech-Language Pathologists. Denise works as a forensic speech pathologist and expert witness in litigation involving dysphagia, choking deaths and surgical errors.

- **Presenter Disclosure:** Financial: Denise Dougherty has received an honorarium for presenting this course. Non-financial: Denise Dougherty is on the Board of Directors, Anew Home Health Agency.

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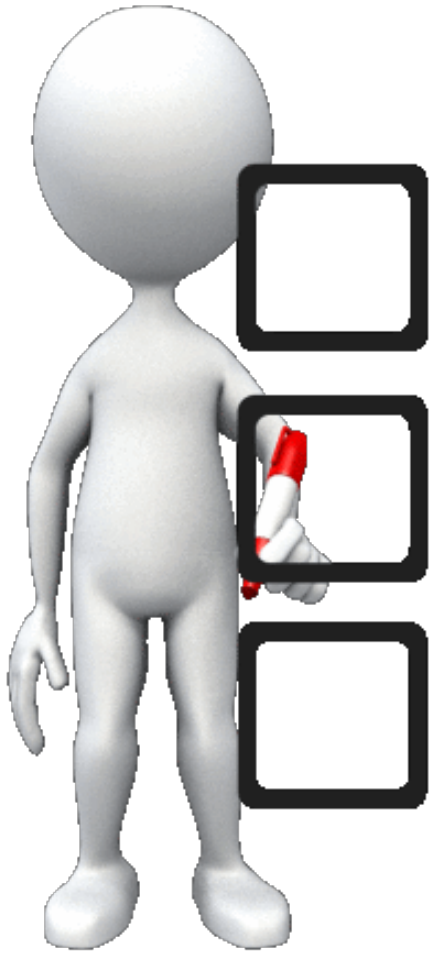
Course Description

Dysphagia is often part of our patient's diagnoses. This course will build on your basic knowledge of dysphagia and provide an overview of red flags, evaluation, recommendations including diets, swallowing strategies and precautions as well as current research on dysphagia treatments



Learning Outcomes

After this course, participants will be able to:

- identify 3 red flags for dysphagia that indicate the need for a dysphagia evaluation.
- recognize the impact of CVA on the phases of swallow.
- identify the use of and rationale behind swallowing precautions and strategies recommended for a safe swallow.


Overview
of the
Swallow

DYSPHAGIA?

Behavioral, sensory & preliminary motor preparation for swallow:

ASSESS IMPACT ON ORAL INTAKE!

- Rosenbeck – swallow starts w smell of food!
  - Aromatherapy!* **Popcorn, bread maker, coffee**
- Level of alertness
- Sensory input to pt.
- Self feed as long as possible
  - Graded assistance
  - Hand over hand
- Increased salivation

Photo by Pylz Works on Unsplash

Oral Stage

Voluntary stage –

- Transit time 1-1.5 sec. for posterior bolus propulsion
- Tippers: tongue cups bolus against anterior portion of hard palate
- Dippers: tongue tip scoops bolus onto tongue before lifting/contacting anterior portion of hard palate.
- Midline tongue groove guides bolus into pharynx
  - striated muscles (tongue & pharynx)
- *Oral stage most likely abnormal in neurological or skeletal muscle disease*
- Involuntary process begins as food moves to pharynx

Oral Stage

Normal swallow requires:

- Good lip closure
- Oral mobility
- Oral strength

Lip closure:

- Orbicularis oris
- Facial VII cranial nerve

Dysfunction causes

- oral leakage
- loss of lip seal
- ineffective plunger action of tongue

Chewing

Requires:

- ADEQUATE DENTITION!
- jaw mobility
- muscle contractility
  - TMJ
  - Masseter
  - Temporalis
  - Pterygoids
  - Trigeminal nerve

Dysfunction causes

- pain
- headaches
- clicking
- decreased jaw movement
- ineffective chew
- prolonged oral phase

CONTINUED Positioning Bolus in Mouth

Requires:

- Tongue mobility
- Contractility of cheek muscles
- Intrinsic/extrinsic tongue muscles, buccinator
- Hypoglossal (XII) & facial (VII) cranial nerve

Dysfunction causes:

- ineffective chew
- prolonged oral phase
- ineffective timing
- ineffective plunger action of tongue

Benefits from exercise, NMES

4 Intrinsic Tongue Muscles – inside tongue

Superior longitudinal

- Turns tip, sides upward
- Shortens tongue
- Channel for swallowing liquids

Inferior longitudinal

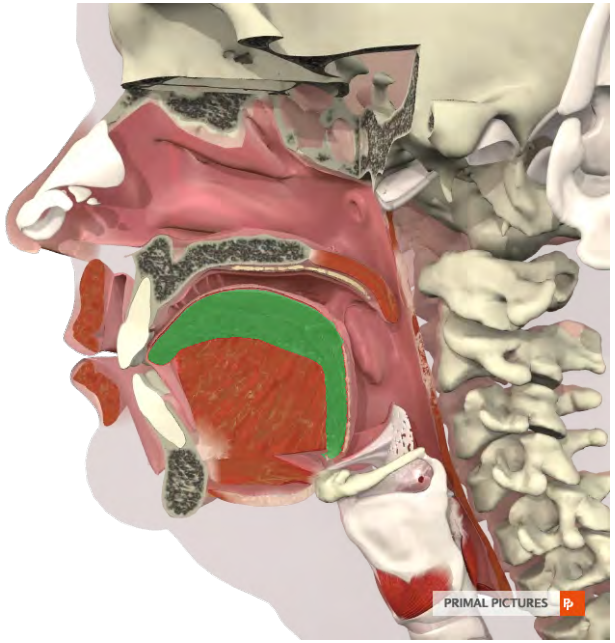
- Shortens tongue
- Turns tip & sides downwards
- Removes residue

Transverse

- Narrows & elongates tongue

Verticalis

- Flattens & widens tongue



4 Extrinsic Tongue Muscles – outside tongue

Genioglossus

- Protracts/ depresses tongue
- Lateral tongue tip movement
- Channel for suck/swallow liquids
- Pulls hyoid up and forward

Hyoglossus

- Tongue depression, retraction

Palatoglossus

- Elevates floor of tongue
- Closes oral cavity from oropharynx
- Pulls velum toward tongue

Styloglossus

- Retracts, elevates tongue
- Pulls tongue in when stuck out

Soft Palate

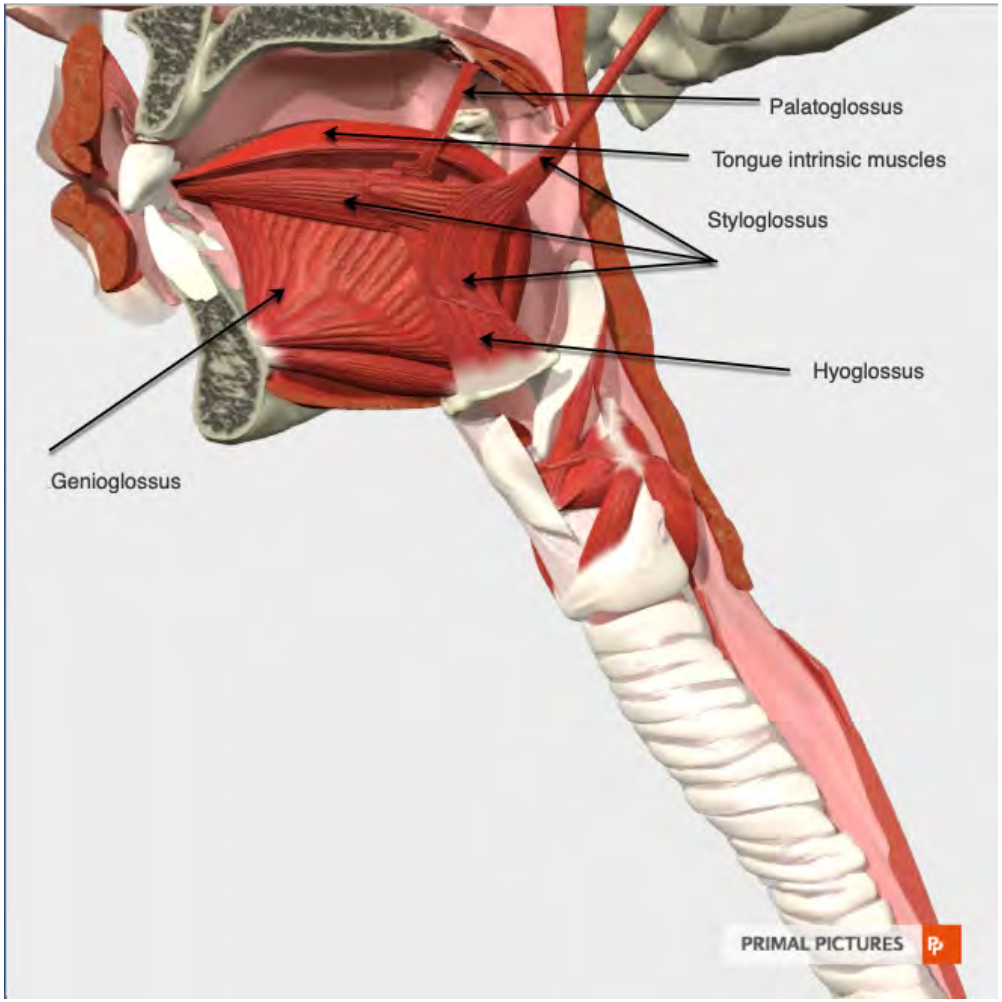
Poor velopharyngeal closure?

- Nasopharyngeal regurgitation
- Will have difficulty puffing up cheeks and holding the air

Prevents pressure generation by pharyngeal tongue during initiation of pharyngeal swallow

- May impact adequate UES opening

Extrinsic Tongue Muscles



Pharyngeal Stage of Swallow – 1 second duration

Pharynx to UES, proximal esophagus

Contraction/relaxation during food transfer while protecting airway

Food in pharynx stimulates sensory receptors

Impulses sent to brainstem

- initiates involuntary responses

UES open approx. **500 milliseconds** (2)

Propulsive tongue force most important factor for driving bolus thru pharynx

Tongue base contacts posterior pharyngeal wall

- soft tissue touches
- close oropharynx
- gives bolus velocity to pass

Involuntary Responses - Pharyngeal Stage

- Velopharyngeal port closure
  - Prevents pressure/bolus loss through nasopharynx
  - Pharyngeal opening limited by palatopharyngeal folds pulling medially

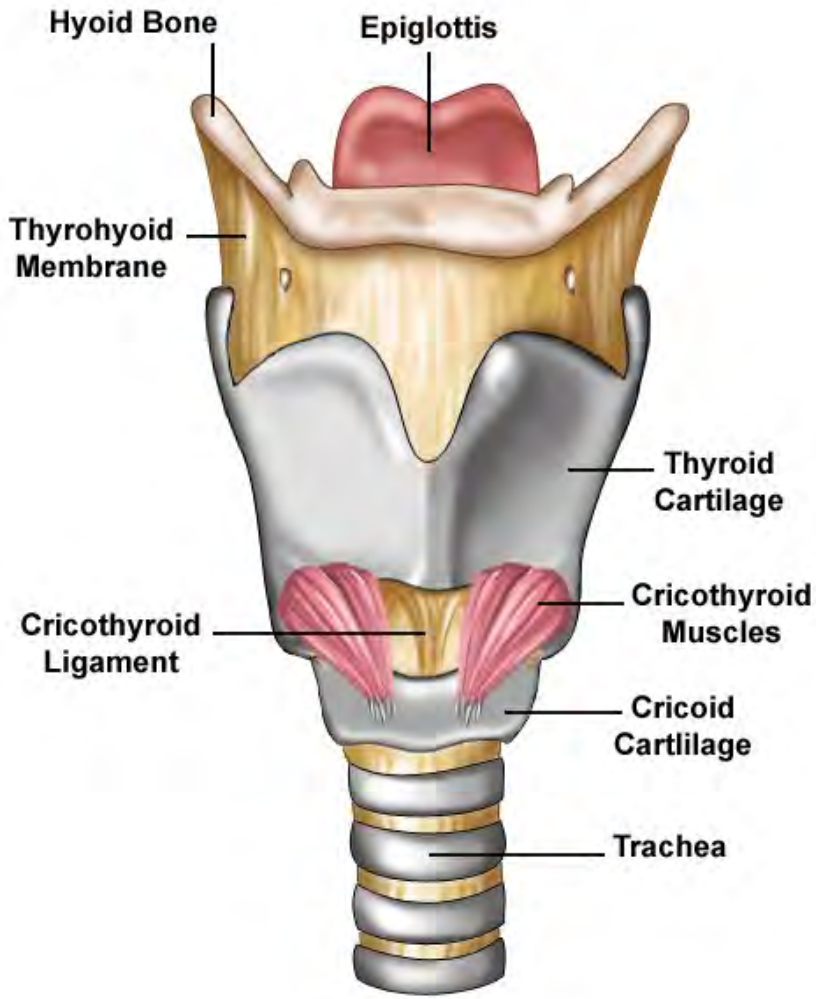
- Vocal fold closure & epiglottic inversion
  - Close off larynx - Larynx pulled up/forward by hyolaryngeal complex which assists w opening UES & esophagus

- Larynx assists in passively opening UES when relaxed
  - Peristaltic contraction in pharyngeal constrictor muscles
  - Force propels food into esophagus

Impaired Epiglottic Function

Types

1. Rigid or absent movement
2. Incomplete inversion or lowering
3. Prolonged inversion or lowering
4. Base of tongue approximation to epiglottis



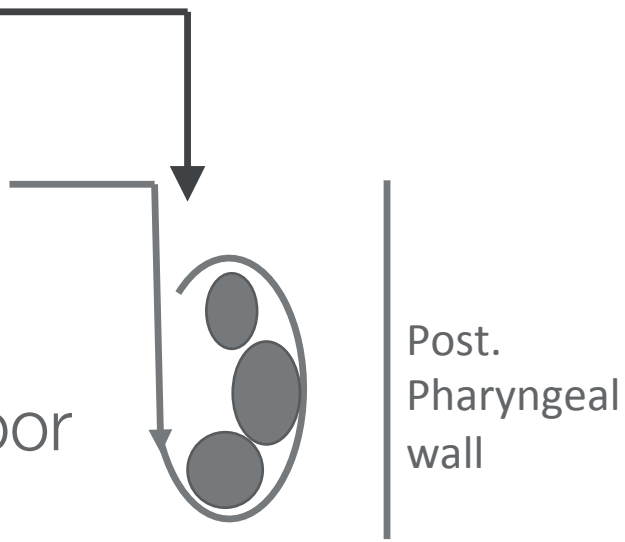
Inverted "C"

Exaggerated curvature of epiglottis into inverted "c"

- Tip of epiglottis comes close to base of tongue
- Material trapped in valleculae

Or

- Bolus may not enter valleculae during swallow
  - Flows down back of epiglottis – poor oral containment
  - Enters laryngeal vestibule before inversion
  - Increases risk of aspiration



Pharyngeal Stage

Raise/close larynx

- Laryngeal musculature contracts
- Pharyngeal constrictors
- Laryngeal mobility
- Thyroid, cricoid, arytenoid & hyoid cartilage
- Intrinsic & extrinsic laryngeal musculature
- Trigeminal (V), Vagus (X) Glossopharyngeal(IX)

Dysfunction causes:

- Residue
- Penetration
- Aspiration
- Piecemeal deglutition
- Ineffective CP relaxation

Benefits from modifying bolus size, exercise, NMES

Muscle Function

Elevate/protract hyoid

- Digastric anterior belly, mylohyoid, geniohyoid

Depress Jaw

- Geniohyoid – most sensitive to radiation, correlate to poor P-A scores!

Pharyngeal Squeeze

- Pharyngeal constrictors

Laryngeal elevation

- Thyrohyoid

Shorten distance between thyroid & hyoid bone

- Thyrohyoid

Elevate/retract hyoid

- Digastric posterior belly, stylohyoid

Depresses hyoid

- Sternohyoid, omohyoid

Depress thyroid

- Sternothyroid

Adduction vocal folds

- Interarytenoids

Constrictors

- Superior pharyngeal constrictor – weakest, creates Passavant's pad, prevents nasal regurgitation
- Middle pharyngeal constrictor – pharyngeal stripping wave
- Inferior pharyngeal constrictor – strongest, part of UES

Large bolus impact on timing

Impacts:

- Oropharyngeal transit
- Onset/duration of UES of opening
- Epiglottic inversion
- Soft palate elevation

NO impact on:

- Pharyngeal transit time
- Hypopharyngeal time
- Hyoid elevation

Esophageal Stage

Contractility esophageal musculature

- Striated & smooth muscles
- Vagus (X)

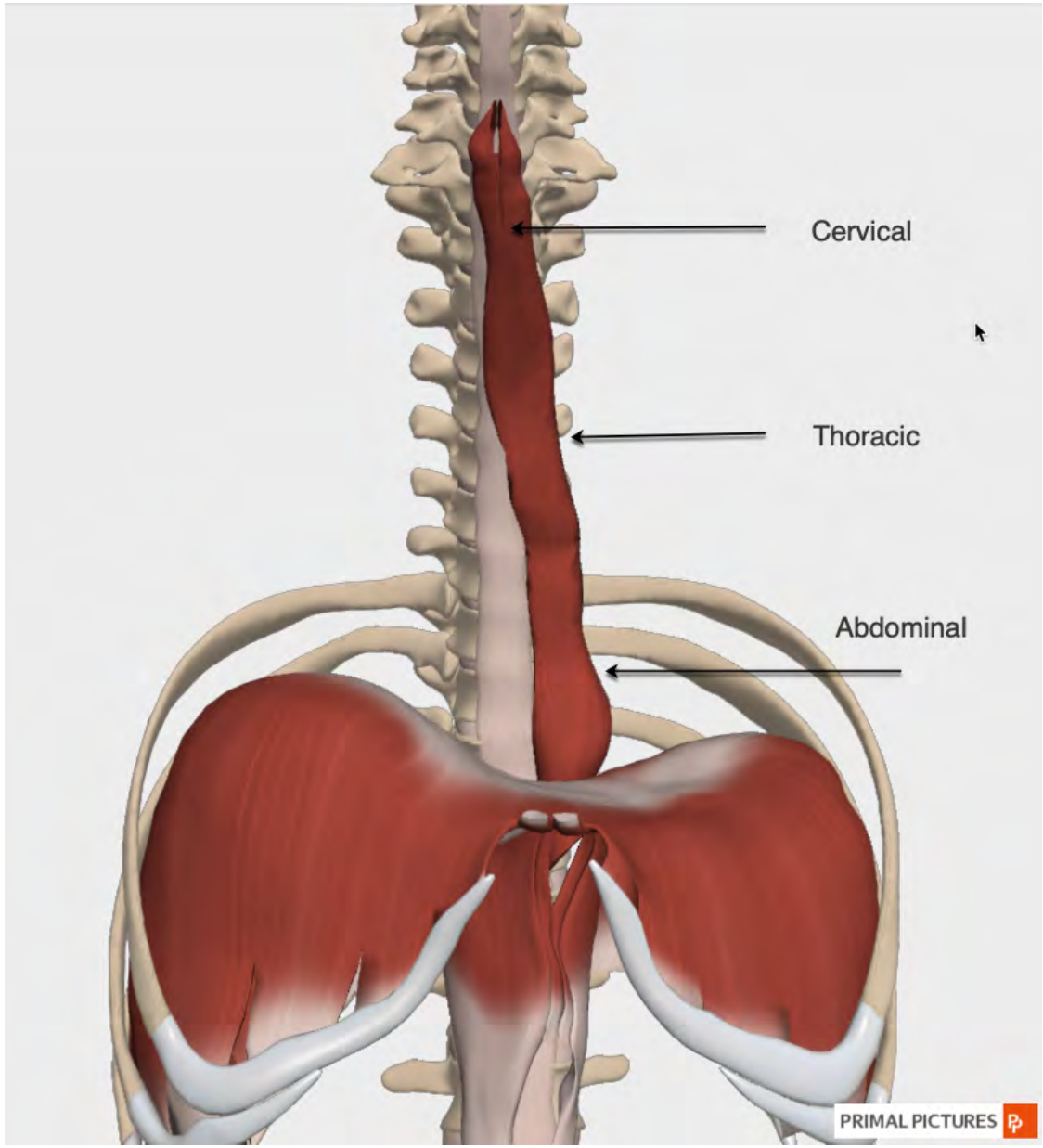
Responds to modification of size/consistency of bolus, rotation of food/ liquid & medication

Dysfunction leads to:

- reflux
- pooling
- penetration
- aspiration
- motility problems

Esophagus

- Cervical - UES to top of sternum, striated, voluntary muscle
- Thoracic - Striated & smooth, voluntary & involuntary muscle
- Abdominal - Terminates at LES, involuntary muscle, most susceptible to motility disorders


Cervical
Thoracic
Abdominal
PRIMAL PICTURES

Esophageal Stage

25% +/- of distal esophageal lesions present w oropharyngeal symptoms (1)

Peter Belafsky noted 30% of pts. w oropharyngeal dysphagia have esophageal dysphagia

Red flagged by thorough chart review IF you know impact of disorders on swallow

Contraction: primary, secondary, tertiary (2)

Primary peristalsis

- circular muscle contraction
- Approx. 8 – 10 sec. to reach distal esophagus
- LES relaxes at onset of swallow
- remains relaxed until it contracts as continuation of progressive peristaltic wave

Secondary peristalsis

- originates in esophagus from distention
- continues until esophagus is empty
- Solids require more than a single primary peristaltic wave for clearance
- Clears ingested material/ material refluxed from stomach

Esophageal Stage – Tertiary Contractions

Identify w barium swallow

Localized segmented indentations of barium column

Non-peristaltic contractile waves – yo-yo pattern

No known physiologic function

Rapid sequential swallowing (10 sec. or less between successive voluntary swallows)

- Peristaltic wave suspended during rapid swallows

- Large clearing wave at completion of swallow.

Peristalsis Influenced By…..

Large Bolus → stronger contraction

Warm Bolus → increased contraction strength

Cold Bolus → decreased contraction strength

Esophagus & LES

Resting pressure changes minute to minute

Factors that change pressure:

- **Food**
- **Smoking – nicotine may relax LES**
- **Hormones**

Reflux = gastric pressure greater than LES pressure

Saliva Studies

Some studies found significant effect of aging on salivary flow

Nonmedicated older adults

- lower flow rate of saliva vs. young adults

May explain xerostomia

<.01-0.2 mL/min (normal is .5 to 1.5 L/min.) (3) (4)

Mastication Changes

Muscles assoc. w periodontal membranes provide perception of attributes

Firmness, elasticity, springiness, chewiness

Oral physiology/ anatomy changes impact chewing

Time/effort to consume meal safely means insufficient food consumed to meet nutritional needs

Changing dental state of older adults responsible for perception of hardness

Jaw muscle activity decreased w age and compression bite forces reduced – prevalent in denture wearers (4)

Impact of Disorders

- CVA
- Parkinson's
- COPD
- Alzheimers
- Eosinophilic Esophagitis
- Rhabdomyolysis

STROKE

- #1 neurologic cause of dysphagia
- **Up to 60% silent aspirators**
- Altered response to oral/pharyngeal residue
- Spontaneous recovery 3 wks. post CVA
- Undamaged hemisphere may take over pharyngeal control
- Additional strokes take toll on swallow
- Acute stroke 2° cardiac complications
- **Pt in respiratory & cardiac distress frequently evidences dysphagia**
  - Swallowing disorder in ICU often ignored 2° acute medical condition (5)

Stroke Pts. and Stage Transition Duration (6)

- Transition between oral & pharyngeal stages & timely initiation of pharyngeal swallow
- Time difference between bolus head passing ramus of mandible & initiation of maximum hyoid excursion.
- Increases w age!!

- Penetration related to prolonged STD 2° delayed response of pharyngeal musculature
- STD values in POST STROKE PTS:
- correctly identified presence of aspiration 75% of time

Stroke Pts. And Laryngeal Closure Duration (6)

- Duration of contact between arytenoids & epiglottis
- Reflects integrity of airway protection to prevent penetration during swallow
- Post-stroke pts exhibit significantly shorter LCD's vs. healthy subjects

Stroke Pts. - Stage Transition Duration (STD) & Laryngeal Closure Duration (LCD) (6)

Modified Barium Swallow Study (MBS):

Aspirators - longest STD values vs. non-aspirators (across bolus consistency, volume)

- Good indicator of potential risk of aspiration
- Compromised safety of swallow
- STD significantly prolonged in post-stroke groups
- Prolonged STD measure of delayed initiation of pharyngeal swallow

Stroke and Malnutrition

47% stroke pts. malnourished @ rehab admission (8)

- Study: hospitalized pts:
  - 16.3% malnourished on admission
  - increased to
    - 26.4% after 1st wk.
    - 35% after 2nd wk. (7)

Assoc. w higher frequency:

- Respiratory & urinary tract infections
- Bedsores
- Increased length of stay
- Greater mortality
- Six-fold increase in risk for poor outcome

Stroke

- ACE inhibitor (blood pressure drug)
  - Zestril
  - Accupril
- Reduced risk of pneumonia
- **May cause chronic cough**
- Increased **Substance P** levels –
  - known muscle stimulant (9)

Substance P
(70)

- Pharyngeal mucosa neurotransmitters respond to stimuli, enhance swallow response & cough reflex
- Oropharyngeal dysphagia related to low SP concentration
- Capsaicin effectively reduced onset time of swallow reflex in older pts. w dysphagia
- ACE inhibitors enhance swallow response - elevate SP levels & cough reflex
- Increased cough reflex & improved swallow may decrease asp. pneumonia risk in pts. w ACE inhibitors
- Saliva SP levels can be ***biological indicator*** of dysphagia
- Saliva SP levels more accurate than serum SP levels

Esophageal impact from stroke (10)

- Altered transit in middle & distal esophagus
- Stroke effects lasts longer on esophageal motility than w oropharyngeal transit!!!!!!!
- Studied w liquid & paste bolus

Sarcopenia

Impacts tongue strength, lateralization & protrusion

- Can begin @ age 30
- Affects 1 in 5 over age 60
- Skeletal muscle loss
  - Age 60: 10-50%
  - Age 75 – 85: 45-50%
  - Age 85: Over 55%

Reduced #/size of muscle fibers, esp. fast twitch fibers

- Type II involved w contractions involving strength (4)

5 Risk factors:

*Unintended wt. loss (10+ pounds in past yr.)

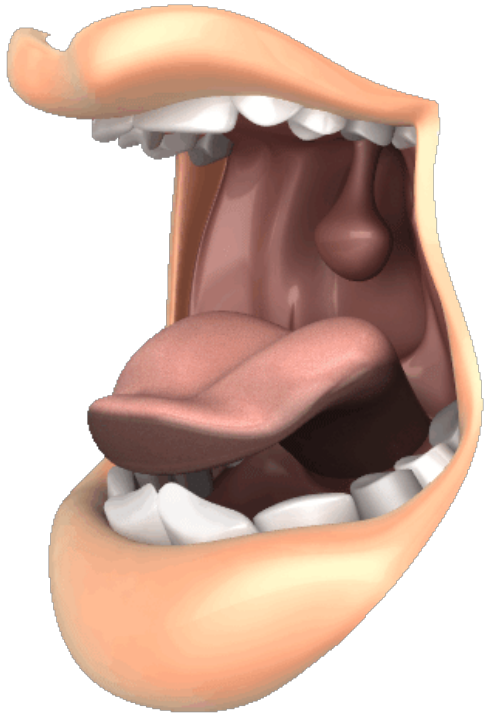
*Generally exhausted 3+ days per wk.

*Muscle weakness

*Slow walking speed

*Low levels of physical activity (11)

Lingual Sarcopenia



Influences:

- Oral containment!
- Bolus manipulation
- Oral and pharyngeal bolus transit

- Training anterior lingual elevation improves swallow function
- Lingual strengthening must include resistance:
  - IOPI
  - SwallowStrong
  - Tongue Press
  - Abilex

Parkinson's (12)

Muscle weakness for cough

Sarcopenia contributes to poor expiratory force for cough

- **ADD Exercise of expiratory muscles to Plan of Care**

Early stages = impaired motor control

Later stages = impaired motor, sensory components of cough affected

Tremors of tongue, chin impact processing

Sensory loss at tongue base accounts for vallecular residue

Aspiration risk increases IF decreased laryngopharyngeal sensitivity to residue

Direct correlation w dysphagia severity & drooling severity on MBS

UES dysmotility may affect dysphagia & drooling

Impaired ues relaxation

Severe hypomimia (unintentional mouth opening),stooped posture, dropped head cause drooling d/t inability to maintain saliva in mouth

Drooling d/t drug induced dyskinesia

Parkinson's (13)

Alzheimer' s Dementia

Resources: Dementia & Modifications, Dining Approaches by Stage, Dining Interventions w Matching Evidence

absent oral motor pattern for mastication

poor sensory awareness/integration

negative reaction to food textures and consistencies

suck-swallow mastication pattern

significant irreversible pharyngeal dysphagia

reduced p.o. intake secondary to behavioral issues possibly related to dementia

Weight loss & dehydration

Agitation w cues or feeding

May not be appropriate for any instrumental assessment – MBS/FEES

CONTINUED COPD

- Poor oral prep, transport
- Delayed pharyngeal swallow
- Decreased appetite
- Excessive fullness & bloating (aerophagia)
- Fatigue from physical demands of eating
- Increased intra-abdominal pressure from chronic cough
- Pulse ox monitor at meals
- Bronchodilators lower LES pressure/increase reflux
- Require more calories 2° increased effort to breath

CONTINUED COPD

Symptoms worsen after meals

- COPD + GI disease
  - **highest rate of pneumonia**
  - 50% incidence rate

- Inspiratory/expiratory ratio won't allow v.c. to close for minimum of 1 sec.
  - May need **1 - 3.5 seconds**

IF respiratory rates 30+ per minute

- can't maintain airway closure to protect airway for bolus passage thru pharynx

- Inhaled corticosteroids for 4+ yrs. leads to increased risk of long bone and vertebral fractures (14)

CONTINUED

COPD

(71)

Negatively impacts lung function

Commonly leads to dysphagia and dyspnea

Dysphagia d/t incoordination of breathing & swallowing caused by weakened respiratory function

Weakening leads to exacerbations, increased risk of aspirations, pneumonia and hospitalizations

Implications w COPD?

Swallow air! Too full to eat
- Fix floppy dentures
  - Wt. loss
  - Xerostomia
  - 50% bone loss 3 yrs. after extraction
- Decrease/eliminate drinking straws
  - Swallow air from straw before liquids
- Eliminate chewing gum
- Decrease/eliminate carbonated beverages

Early PT, bed rest prior to meal
- Less fatigue to begin meal

6 small meals?
- Decreases fatigue
- Assists w emptying

Supplemental oxygen at meals
- Oxygen level to sit in chair may not support apneic pause

Calorie dense foods
- Decrease volume, increase calorie intake

CONTINUED Dysphagia & Obstructive Sleep Apnea syndrome (15)

FEES: 50% w OSAS had impaired swallow

- **28%** piecemeal deglutition w 10 ml liquid bolus
- **64%** spillage w 20 ml liquid bolus
- **12%** spilled to pyriform sinus
- **44%** residue w solid bolus after swallow
- **51%** of snorers leaked to epiglottis
- **35%** penetrated w 20 ml liquid bolus
- **55%** pharyngeal stasis

VFSS of OSAS pts:

- **63% oral abnormalities**
- **25% pharyngeal dysfunction**

Evidence of impaired palatal, laryngeal, soft palate sensory input

Rhabdomyolysis

- Serious syndrome d/t direct/ indirect muscle injury
- Muscle fibers die & contents enter bloodstream
- Cause renal failure
  - Kidneys can't remove waste, concentrated urine
- Can be fatal
- Skeletal muscles atrophy
- **Dysphagia**
- Muscle weakness
- Increased risk if previous hx of rhabdomyolysis

Causes:

- Alcohol/illegal drugs
- Extreme muscle strain
  - dangerous to elite athletes d/t more muscle mass to break down
- Meds - **statins (cholesterol lowering drugs)**
  - Assoc. w risk of diabetes II, decreased memory, cognition
- Duchenne's muscular dystrophy
- Sepsis
- Viral infections

RHABDOMYOLOSIS

- Asian Americans higher risk
- Occurs w doses low as 10 - 20mg per day – cholesterol lowering meds
- Develop symptoms within 4 months
- Toxic levels of potassium and myoglobin released into blood stream
- Decreases amt. of blood circulating
- Kidneys can't maintain electrolyte balance
- Destroys skeletal muscles, causing atrophy
- Grapefruit, grapefruit juice increases risk

Rhabdomyolysis

Symptoms

- Muscle pain: shoulders, thighs, lower back
- Muscle weakness, trouble moving arms, legs
- Dark red/brown urine
- Decreased urination
- ½ of individuals may have NO muscle related symptoms
- Abdominal pain
- Nausea/vomiting
- Fever
- Rapid heart rate
- Confusion, dehydration or lack of consciousness

Eosinophilic Esophagitis (16)

increased 40% over 4 yr. period (2000–2003)

esophageal eosinophilia defined as at least 15–20 eosinophils per high-power field

highest proportions of EoE (above 50%) in pts. presenting w esophageal food bolus impaction

NOW MOST COMMON CAUSE of esophageal food bolus impactions in pts. presenting to ER

Eosinophilic Esophagitis (16)

- rapid trends in EoE incidence indicate role for environmental factors in disease risk
- prevalence increased steadily with age, to a peak value in individuals 30–44 years old
- not clear why foods that were tolerated over the course of human evolution would now induce EoE

Risk Factors

- Food allergens
- H. Pylori bacteria
- Infections
- Oral/sublingual immunotherapy
- PPI
- Cold/arid climates
- Population density – odds increase as population density decreases
- Early life factors – antibiotic use, C section, preterm delivery
- Connective tissue dx


Red
Flags

Predictors of Aspiration Pneumoni

- Medical/health status
- Function status
- Oral/dental status
- GE reflux status*

Clinical Observations

- Coughing
- Multiple swallows w saliva/oral intake
- Wet vocal quality
- Reduced laryngeal elevation
- Significant fatigue
- Poor secretion management
- Symmetry:
  - Drooping, sagging, normal facial creases smooth

Normal Aging Swallow (17)

At Age:

- 45 – slowed pharyngeal phase
- 50 – penetration normal, **15% penetrate** w swallow
- 60 - more dippers
  - increased transit time; **swallow not abnormal**
- 60 – pharyngeal swallow occurs later
  - Bolus past faucial arches to approx. middle of tongue base!
- 70 - significantly slower pharyngeal phase
- 80 – significant esophageal peristalsis changes

Normal Aging Swallow

Xerostomia

- Decreased anterior hyoid movement d/t weak suprahyoid muscles
- Reduced UES opening, increasing pharyngeal residue
- **Lingual pressure reserve declines**
  - Decreased pressure for a-p of bolus
  - Extra chewing time for lingual pressure buildup
- Laryngeal penetration **normal** phenomenon in **53.1%** elderly without dysphagia (17)

Why thick liquids, mixed consistencies? (18)

- Less likely to trigger swallow
  - inadequate bolus volume to stimulate swallow response
- Aspiration
  - increased pharyngeal post swallow residue
- Oral phase w thick fluids
  - more monotonous tongue movements, lower tongue pressure, shorter swallow time, smaller hyoid & laryngeal movements
- Thick liquids/mixed consistencies don't need **mastication**
  - pass to pharynx without further prep.
  - produce more vallecular residue

Why thick liquids, mixed consistencies? (18)

Vegetable soup = more residue

- Lower bolus volume = insufficient tongue movement, pressure, swallow force after 1st swallow
- Not enough time for bolus prep vs. solid foods

Risk of oropharyngeal dysphagia w semi-solid foods d/t

- Decreased oral/pharyngeal sensorial viscosity discrim. abilities & decreased motor function

Photo by Gianluca Gerardi on Unsplash

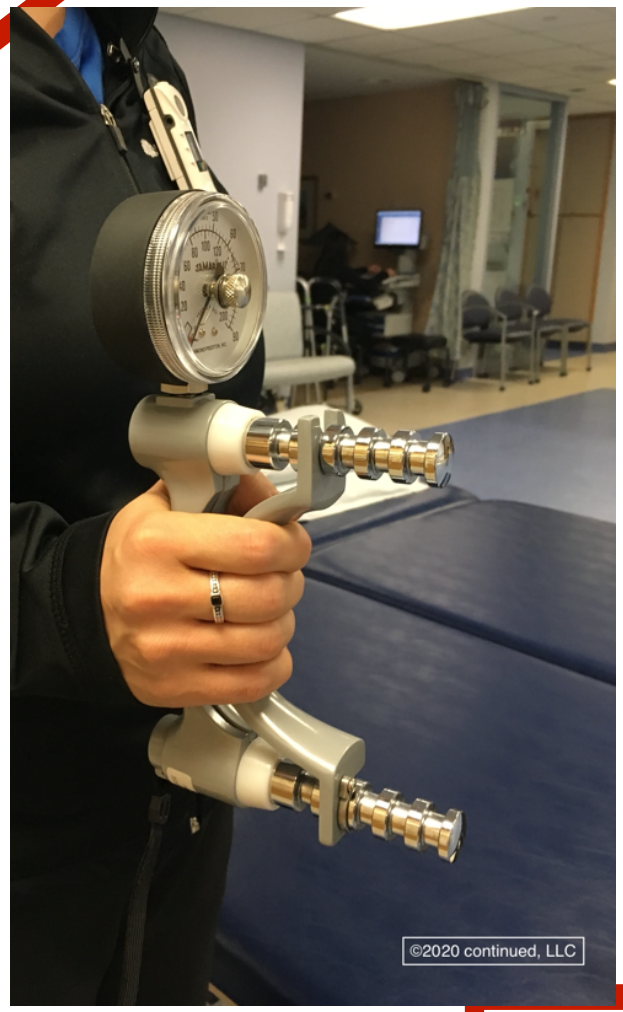
Hand Grip Strength (19)

Objective measure/marker for frailty

Correlation between **posterior tongue strength & handgrip strength** in older adults

Tongue strength

- Decreases w age
- Lower in females
- Same noted w hand strength (20)



Calf Circumference, Sarcopenia, Dysphagia (21)

Calf circumference assoc. w dysphagia in acute care in-pts.

- Independently assoc. w Dysphagia Severity Scale (DSS)
  - Skeletal muscle mass marker
  - Routine pt. screen for malnutrition on admission to acute care hospitals

Criteria for sarcopenia dx?

- Decreased skeletal muscle mass & muscle strength (hand grip)!

Dominant foot measured within 3 days of admission

- Sit, knee at 90° angle, soles flat on ground – measure thickest part of calf

Low muscle mass classified cut off values:

- 33 cm – women/34 cm - men

Which food consistency difficulty is best predictor for oropharyngeal dysphagia risk in healthy older person? (72)

Highest diagnostic ratio w

- Difficulty w thick liquids & mixed consistencies

Dysphagia not just associated w tooth loss & chewing difficulty

Most common problem was chewing & solid foods

Watery Eyes? Runny Nose?

Sternocleidomastoid

- Assists w chewing, swallowing
- May be assoc. w tearing of eye
- Autonomic reflexive response to irritants to eyes, nose
- NOT reliable predictors of aspiration
- Watering eyes, runny nose d/t trigeminal field irritation (irritants to cornea, nasal mucosa, etc.) (22)

- Evaluation
- Instrumental Assessment
- Research

69

3 components of Evidence Based Practice

- Best research evidence
- Clinical expertise
- Pt. values and preferences
- May take 25 yrs. of research to move to new idea to practice
- May have hard time finding pts. similar to yours in research
- *"Informed clinician checks his/her knowledge against best available practice and against informed patient preferences,"* Dr Leslie

(23)

Thorough Chart Review:

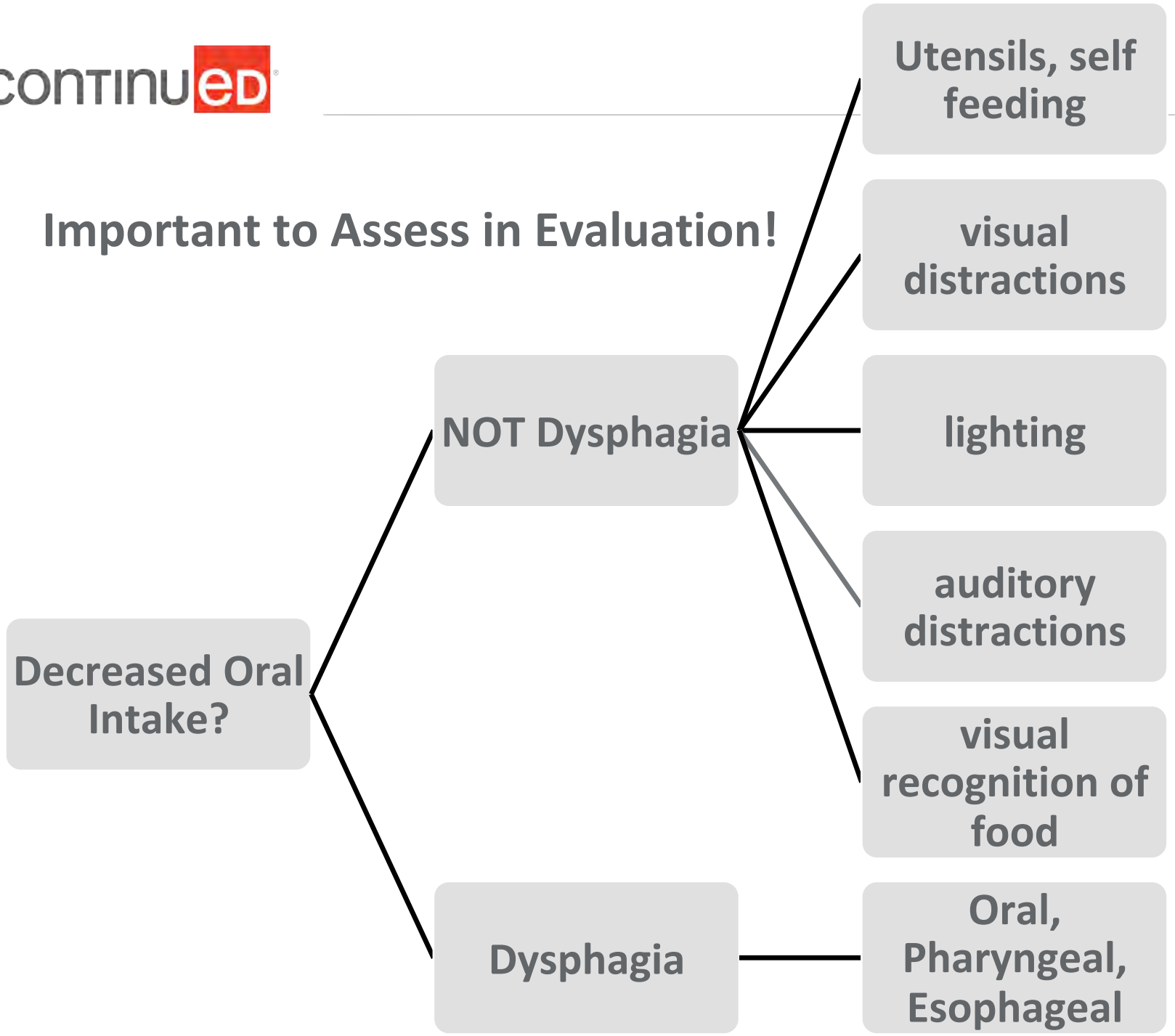
- Disorders?
- Which travel together?
- What phase of swallow disorders impact
  - Process? Not phases?
- Meds?
- Procedures?
- Gives you some idea what to
- expect before you see pt.!

- Peter Belafsky
  - 30% of pts w oropharyngeal dysphagia ALSO have esophageal dysphagia (24)

Resources:

- Drugs and Dysphagia
- EMR
- WebMD
- RXList
- Medscape.com and Drugs.com
    - Drug Interaction Checker
    - Herbs, prescriptions, OTC

Important to Assess in Evaluation!



Aspiration Pneumonia

Greater degree of serious illness, more likely to have gram-negative colonization of oropharynx – identified as harbinger of pneumonia (25)

Aspiration into lungs is common & usually well tolerated

Pulmonary complications of aspiration **seldom occur in otherwise health persons**

People who develop pneumonia from aspiration are **already sick w a serious illness** (26)

Screens

- Eat-10 - www.nestlenutrition-institute.org/Documents/test1.pdf
- Gugging/GUSS – American Heart Association
  http://www.healthnetworks.health.wa.gov.au/docs/TapI_Gugging_Swallowing_Screening_test.pdf
- MMASA (Modified Mann Assessment of Swallowing Ability)
  - 12 pt. screen
  - Antonios, N., Carnaby-Mann, G., Crary, M., Miller, L., Hubbard, H., Hood, K., ... & Silliman, S. (2010). Analysis of a physician tool for evaluating dysphagia on an inpatient stroke unit: the modified Mann Assessment of Swallowing Ability. *Journal of Stroke and Cerebrovascular Diseases*, *19*(1), 49-57.
- BED
  - Chart review plus presentation of puree, liquid & cookie
- Water swallow tests
- TOR-BSST
  - Toronto Bedside Swallowing Screening Test

Screens for Nurses

Gugging (GUSS) and Standardized Swallowing Assessment (SSA)

- High psychometric quality especially w high sensitivity

Nurses perform to

- identify risk
- grade severity of dysphagia and aspiration of NH residents (27)

Goals For Clinical Swallow Exam or Bedside Evaluation (28)

Goals	Identify pts. who warrant instrumental eval
	Develop hypotheses of pathophysiology of dysphagia
	Develop thoughts concerning management program

Model Medical Review Guidelines for Dysphagia Services ASHA, 11-30-2001 (29)

Dr order written

Bedside Eval

- **determine necessity for instrumental assessment**

Instrumental Assessment

- **indicated for suspected pharyngeal dysphagia/high risk for pharyngeal dysphagia (ASHA's SLP Guidelines)**

Dysphagia treatment

- **Oral stage treatment may continue prior to MBS/FEES**

Bedside Evaluation – CAUTION: May look better than they are: trials not real-world feeding

*Frenchay Dysarthria Assessment

*Mann Assessment of Swallowing Ability (MASA)

*Bedside Evaluation of Dysphagia (BED)

*Swallowing Ability & Function Evaluation (SAFE)

Management of Pediatric Feeding and Swallowing

Feeding & Swallowing Disorders in Dementia++

Source for Dysphagia – N. Swigert

Manual of Dysphagia Assessment in Adults – Joe Murray

*MannaQure

Observation

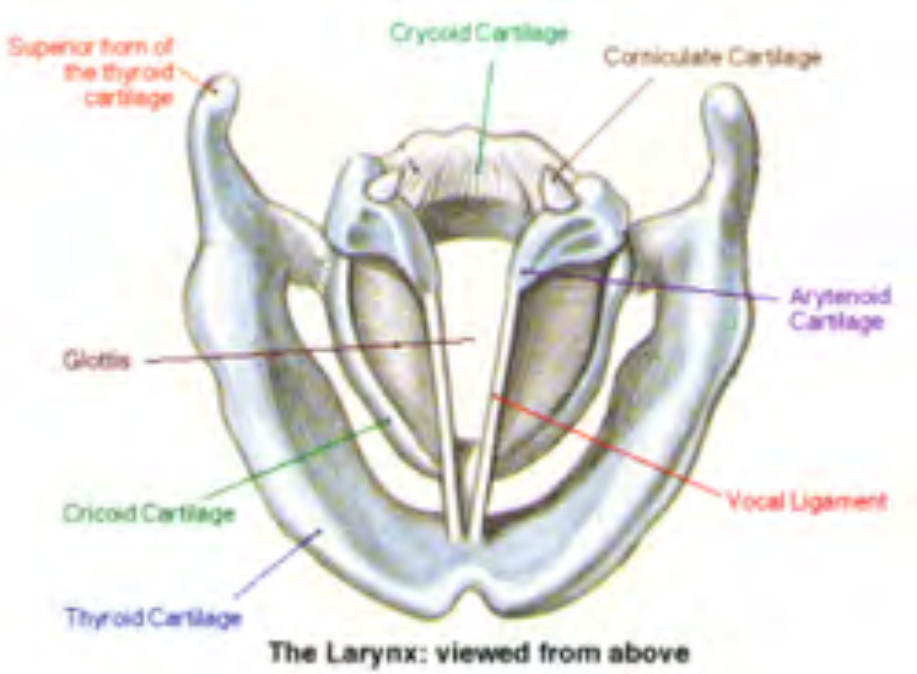
Patients' Perception of Their Dysphagia – 3,668 pts. studied (30)

- Only accurate in 48% of pts.
- If pts. unable to accurately localize level of dysphagia, important that radiologist or endoscopist is aware of this or they may fail to focus on whole esophagus and miss important pathology
- 11.3% of upper GI cancers have been missed on examination within 3 yrs. of their dx
- Although esophageal lesions account for only 9%, possible endoscopists or radiologists could be misled by pt. symptoms & focus on area of pt. localization

BEDSIDE EVALUATION

Arytenoid Assessment:

- Control movement of vocal cords, phonation, pitch
- **Monotone** = difficulty moving arytenoids



The Larynx: viewed from above

- **Breathy voice**
  - poor vocal cord closure
  - difficulty protecting airway
- Stiffness may cause incomplete airway protection
- Rheumatoid arthritis
- Infer from voice & intonation – sing scale?
- OR ah-ah-ah-ah
  - must be clear/concise

Oral Mech Exam (31)

3919 pts w oral mech then FEES

Score complete vs. incomplete:

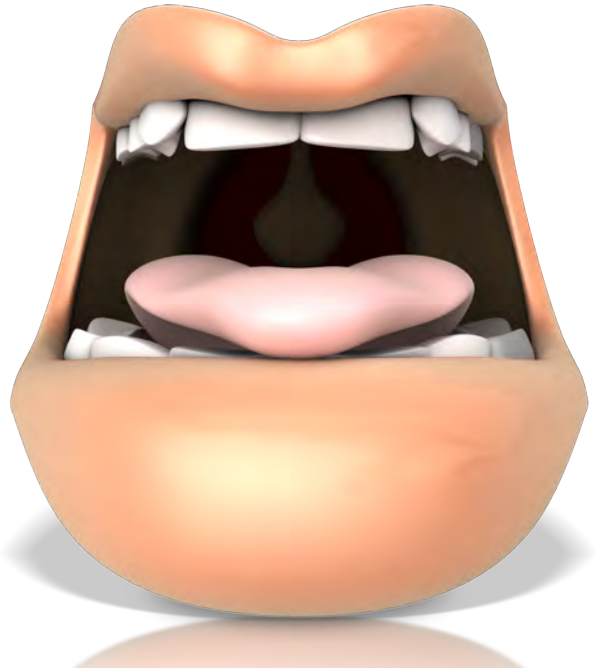
- Labial closure – close lips completely w no gaps
- Lingual ROM– protrude tongue beyond lips, lateralize R/L to labial commissures
- Facial symmetry – smile & pucker symmetrically

▪ 2 components ⬆ odds of asp. w instrumental test

- Incomplete lingual ROM
- Incomplete facial symmetry

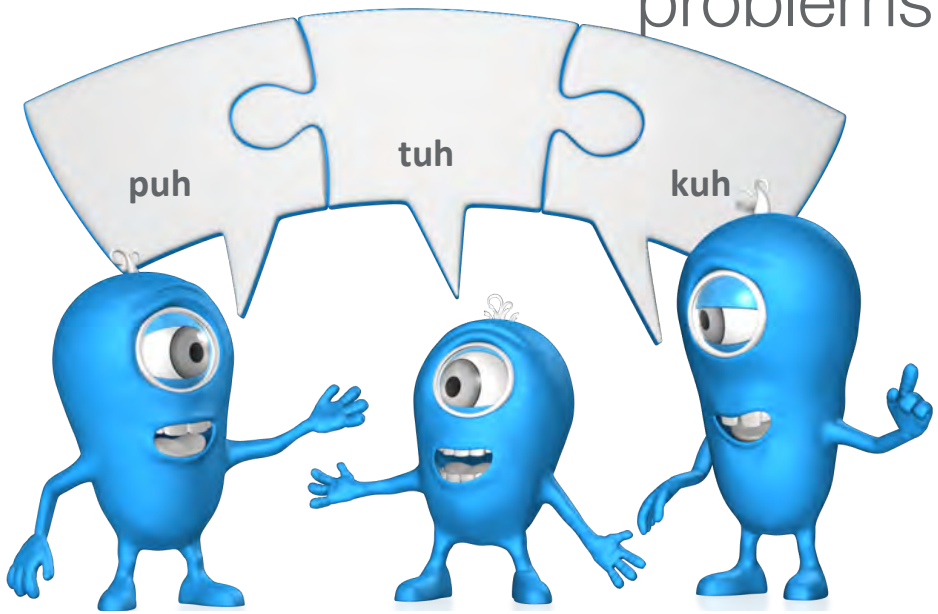
Incomplete:

- lingual ROM = 2.72 x more at risk for asp.
- facial symmetry = .76 x more at risk for asp.
- labial closure did not affect odds of asp.



Diadokokinetic Rates (32)

- Varies 4-6 syllables per sec, w reduction in # of syllables w aging
- Indicates respiratory support is insufficient & velopharyngeal closure problems



Bedside Phonetic Eval - ID dysphagia & aspiration risk (33)

DAST (dysphagia admission screen test)

- Nurse interview, small/large bolus screen
  - Problem? stop screen & NPO w dysphagia eval

Perform within 24 hrs. of VFSS/FEES:

- **significantly assoc. w VFSS/FEES results**

Phonetic eval abnormal IF:

- Puh – <5.0 reps/sec. Tuh – <4.8 reps/sec.
- Kuh –<4.4 reps/sec. Puhtuhkuh – <4.4 reps/sec.

Hard throat clear/cough

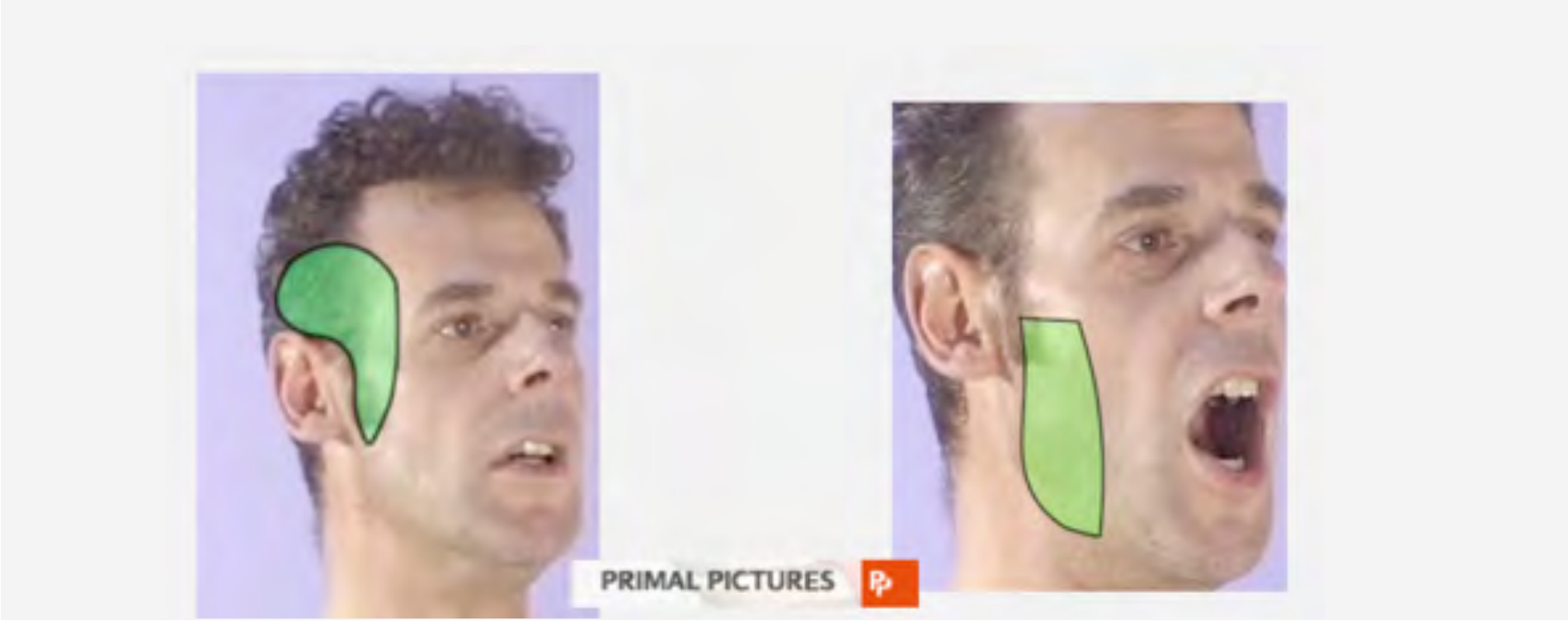
- normal, weak, absent

CAPE-V

- Sustain 2 vowels for 3-5 sec., repeat/read 6 sentences

Study Conclusions (33)

- Abnormal phonation assoc. w dysphagia & aspiration w ICU, intermediate care unit pts.
- Median length of stay, subsequent asp. pneumonia or resp. failure higher in pts. w worse phonetic & swallow scores
- Phonetic component + DAST
  - very good predictive ability for aspiration as observed on VFSS/FEES
- Diadochokinesis
  - strongest predictive ability
  - Predicted abnormal PAS score and aspiration



Bite force strength decreases

Decreased muscle mass, density of

- temporalis
- masseter
- medial pterygoid muscles (4)

Bite Force

- Natural teeth = 162 pounds
- Dentures = 35 pounds (33)
- Removable dentures produce coarser bolus
- Achieve 25% chewing effectiveness of dentate individuals (34)

Mastication

- Bilateral force
- Poor bone for support & stability
- Gums pinched between denture/ bone
- Chewing dislodges denture (34)

Teeth (35)

- Incisors – cutting; smallest force
  - up to 150 N (Newton)
- Canines – cutting & tearing
  - medium force – up to 300 N
- Molars – chewing & shearing
  - between 500 to 800 N
- Maxillary & Mandibular incisors sensitive to vibration
  - why pts. w hearing. difficulty enjoy crispy, crunchy foods
- Teeth move slightly in socket d/t pressure of chewing/biting,
  - stretch periodontal ligaments
  - send info to CNS for texture interpretation

CONTINUED

Studies: determined

- **min. of 20 functional teeth necessary** to guarantee good mastication

- *only* if **antagonist** pairs

12 front teeth & 8 pre-molars required for adequate chewing function (36) (37)

- Fewer than 13 teeth **doubles** risk of dysphagia (34)

- Absent teeth, ill fitting dentures, dental disease correlated on autopsy studies w sudden choking deaths. (38)

CONTINUED

Absent posterior teeth plus decreased tongue strength in elderly

- poor bolus retention in posterior mouth
- food fragments spill into pharynx

Loss of *2* molars induced 1.15-fold greater risk of malnutrition (39)

Loss of **premolar-molar occluding pairs** (POP) :

- decreased chewing efficacy
- atrophy of saliva gland
  - decreased saliva flow
- increased risk for candidiasis or dysphagia (39)

Older adults

- More chewing cycles to break down food
- Longer chewing duration
- More prevalent w dentures
- 50%-85% loss of chewing efficiency if edentulous (4)
- **Extended chewing floods bolus w excessive saliva**
  - Increased distance between food particles Decreased cohesive force makes swallow precarious (35)

Denture Adhesive and Zinc

Overuse of zinc adhesive can cause copper deficiency

- Overdose is *toxic*
- Fixative soluble over time
- Swallow small pellets
- Zinc absorbed in gut (44)

2.4-ounce tube

- Lasts **7-8 wks.** if *upper and lower* dentures (41)

Copper deficiency causes

- Anemia
- Neurological symptoms
- Affects walking, balance
- Numbness, difficulty moving feet, legs
- Rapidly progresses to arms d/t nerve damage
- Limited recovery (40)

Evaluate:

- Diet level
- Self feeding
  - Visual field neglect
- Self monitoring
  - Bite size, rate of presentation
  - impulsiveness
- Respiration change
- Consumption %
- Avoid particular food/texture
- Length of meal
- Response to cues

- Lip function
- Oral leakage, control
- Tongue function
- Chew
- Dentures
- Bolus formation
- Lateralization
- Propulsion
- Cough
- Throat clear
- Pocketing
- Prolonged chew

Model Medical Review Guidelines for Dysphagia Services (42)

NO Instrumental assessment indicated IF:

- Eval fails to support suspicion of dysphagia
- Findings **suggest** dysphagia BUT
  - Pt. **unable to cooperate**
  - Instrumental assessment **WOULD NOT CHANGE** clinical management of pt.
- Absence of instrumental eval does not preclude pt. from receiving dysphagia treatment

Rationale for VFSS (43)

- Identify normal/abnormal **anatomy/physiology** of swallow
- Evaluate **airway protection** before, during, after swallow
- Evaluate effectiveness of **postures, maneuvers, bolus modifications, sensory enhancements** in improving swallow safety/efficiency
- **Recommend optimum delivery of nutrition, hydration** (oral/non-oral, delivery method, positioning, tx)
- **Appropriate tx techniques (oral, pharyngeal, laryngeal disorders)**
- Obtain info & **collaborate w/educate team members**, referral sources, caregivers, pts re: recommendations for optimum swallow safety & efficiency

Poor Oral Containment, Premature Spillage

Contraindications to MBS

- Unable to position pt.
- Pt. size prevents adequate imaging or exceeds limit of positioning device
- Allergy to barium (15)
- Decreased level of alertness
- Won’ t open mouth
- No response to oral stim at bedside
- Refuses study

- Time restraints d/t radiation exposure
- Limited presentation of mealtime function
- Contrast issues – increasing contrast increases viscosity
- Barium may alter liquid, solid food composition
- Limited eval of fatigue unless ***SPECIFICALLY*** evaluated
- Potential for refusal – unnatural food bolus

Substantial # of pts. who didn’t aspirate on MBS developed pneumonia:

MBS did not capture real world feeding ability

- Microaspirations not detected in MBS
- Fed when too fatigued, lethargic, or sedated

Aspiration
(45)

PA Scale score

- Standard
- Captures depth of airway invasion
- Was material ejected to higher anatomical level of safety (in resources)

Separate eval of aspiration made for each bolus consistency

Explore:

- Was texture modification effective
- Did behavioral maneuvers limit aspiration

Recommended Protocol w NG Tubes

VFSS 1 - immediately after NG removal

VFSS 2 - 5 hrs. after removal

- Overall swallow function better in VFSS 2

Significant differences in

- Valleculae/pyriform residue
- Pharyngeal wall coating post swallow
- PA scores

Timing of VFSS after removal affects swallow function

- to accurately assess: VFSS must be performed in NG pts. after they have rested for certain period following removal (46)

Rationale, Use of Specific Techniques, Strategies, Precautions

- Mouthcare
- Diet
- Mealtime Strategies/ Aspiration Precautions
- 1:1 Supervision
- Therapeutic Exercises
- Adaptive Equipment

continue

Mouth Care and Aspiration Connection

Risk Factors Associated w AP

- # of decayed teeth
- Occasional or no teeth brushing
- Dependent for oral care
- Bacteria - reduced salivary flow w TF

BEST Predictor in oral feeders w teeth: Dependent for oral feeding & multiple medical diagnoses

Best Intervention to reduce incidence of aspiration pneumonia? (47)

Literature review – **best intervention:**

- **Brush** after each meal
- **Clean dentures** once a day
- **Professional oral health** care once a week
  - Dentists or dental hygienists
  - See resources for care of natural teeth, dentures and tongue brushing vs. scraping

- Biofilm sticks to surface of tongue
- Mouth rinse, only destroys outer cells of biofilm
- Cells beneath surface still active

CONTINUED Tongue Coating & Lingual function!

Amt. of tongue coating related to reduced lingual function

- micro-organisms, food residue, abrasive epithelia

Motor function of tongue, lips & saliva secretion decrease w aging & have

- effect build up of coating
- Reduce coating w functional training of tongue (48)

Rinsing mouth?

- Improved hygiene/ frequent professional oral health care reduced AP **40%** in high risk elderly

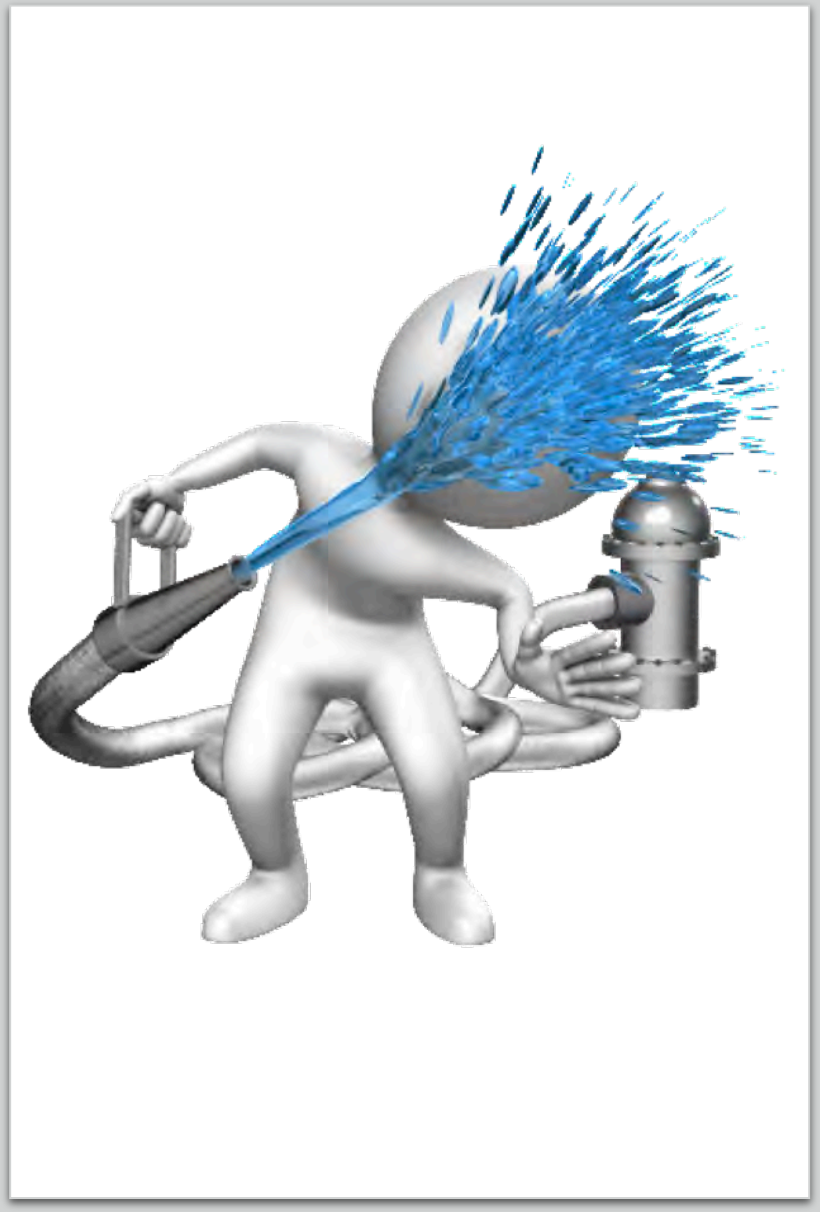
Intensive oral care may reduce AP

- **Improves cough reflex sensitivity** in elderly NH pts. (49)

Tongue Cleaning (50)

Mouthwash (low viscosity) reaches deep between papillae better vs. mouth moisturizing gel

- Moistens dry biofilm for easy removal of microbes
- Cleaning w mouthwash reduces # of microbes on tongue surface longer
- # of oral microbes did not return to pre-oral cleaning levels until 5 hours after oral cleaning IF mouthwash used to clean!



Texture Modified Foods/Diet

- Diet of necessity, not diet of choice!
- Two reasons to modify food texture
  - 80% dysphagia
  - 20% poor dentition
  - Frequently malnourished
- Bolus must be moist & cohesive to trigger swallow reflex (56)
- Impaired pharyngeal contraction?
  - increased risk of aspirating pureed food vs. those w normal pharyngeal contractions
  - may benefit from modified diet (51)
- Pharyngeal residue post swallow
  - poor pharyngeal constriction to clear bolus tail
  - increased likelihood of aspiration after swallow once airway opens

Texture modified meals: What does YOUR facility's puree look like?

Very thick boluses require high tongue driving force, increased pharyngeal pressure to effectively clear pharynx (54)

Thin puree vs. thicker puree? improve swallow safety, minimize pharyngeal residue (53)

Thicker fluids, pudding level consistency produce heightened feelings of satiety vs. thin liquids of same energy content, energy density, volume, macronutrient composition (52)

IDDSI
International Dysphagia Diet Standardisation Initiative
www.iddsi.org

Detailed Descriptors, Testing Methods and Evidence

Drinks: Levels 0-4

Bread

Photo by Rebecca Matthews on Unsplash

Regular food texture

- Bread/sandwiches require biting and chewing
- Not easily broken down into 4mm particles d/t fibrous nature
- Chewing strength, stamina required to make bread swallow safe about **same as peanuts** (55) (56)
- Difficult to chew to small enough size for safe swallow if pt. fatigues easily
- Requires softening w saliva for effective chewing
- Not adequately wetted for swallow if xerostomia present
  - Doesn't dissolve when wet
  - Becomes sticky, sticks in throat
  - Sticky/adhesive foods considered choking risk
- Assess on case by case basis

FRAZIER WATER PROTOCOL

- All pts screened w water
- Postural maneuvers performed during drinking
- NPO pts. have water any time regardless of enteral feeding schedule
- Water intake unrestricted prior to meal & throughout day
- Water allowed 30 minutes after meal
- Pills not taken w water
- Individual protocol varies from Independent to supervision
- Aggressive mouth care provided to pts
- Family education sessions

Importance of Culture & Religion re: Recommendations

Handbook of Patients' Spiritual and Cultural Values for Health Care Professionals – HealthCare Chaplaincy – Updated March 2013

Consult this resource!

- up to 40% of pts don't follow SLPs recommendations for dietary restrictions
- competent individuals have right to choose (accept, refuse) medical treatments
- acknowledge their right to hold views, to make choices, & take actions based on their values and beliefs

General rule:

- Person who *knowingly and voluntarily engages in a risky activity effectively assumes the risk of—and waives liability for—any resulting harm.* *(57)*

Paid Feeding Assistants (58)

2003 – CMS new federal regulation

"Requirements for Paid Feeding Assistants in Long Term Care Facilities" (Federal Register 2003, 68 FR 55528)

minimum of 8 training hrs. provided by licensed nurse

competency testing of skills (written or performance-based)

assignment to residents without complicated feeding assistance care needs

training & supervision provided by licensed nurse

Paid Feeding Assistants (58)

- Significant # NH residents @ risk for under-nutrition, dehydration d/t sub-optimal nutritional care
- Inadequate, poor quality of assistance @ meals
- Nurse aides report insufficient time to adequately help all residents they were responsible for
- Many US NH didn't have sufficient # direct care staff to provide dining assistance to all in need
- Significant # needing assistance @ meals received little/ no attention, especially @ lower staffed facilities

Rothschild Person Centered Care Planning Process (60)

- Process guides staff & clearly demonstrate to residents, state surveyors, family members, & others that care community has done due diligence in:
  - Assessing resident's functional abilities & relevant decision-making capacity
  - Weighing w resident & his/her representative, potential outcomes (positive & negative) of both respecting & aiding resident in pursuit of her/his choices
  - Reviewing potential outcomes (positive & negative) of preventing resident from acting on his/her choices.

Rothschild Process (60)

I. Identify and clarify resident's choice

II. Discuss the choice & options w resident

III. Determine how to honor choice (& which choices not possible to honor)

IV. Communicate the choice through care plan

V. Monitor and make revisions to plan

VI. Quality Assurance and Performance Improvement

Examples include diet modification issues & consumption of alcohol, w completed forms to show process & template for use

Aspiration – when it happens matters!

When?	**Before Swallow**	**During Swallow**	**After Swallow**
Why?	Decreased bolus control and tongue base strength	decreased hyolaryngeal excursion	decreased pharyngeal constriction or hyolaryngeal excursion
Which?	Oral sling Tongue base	supra and infrahyoids	pharyngeal constrictors or supra & infrahyoids

Therapy - Aim for safe swallow on highest appropriate diet/liquid level or least restrictive diet/liquid level

Remember! Highest appropriate diet/liquid level may *NOT* be thin liquids and regular diet!

ALL diet & liquid upgrades tax the swallow system and muscles

May not have strength, ROM, tongue pressure, mastication to warrant upgrade

Trials can be misleading

- May not adequately evaluate fatigue level
- BIG difference: ability to tolerate trials vs. entire meal
- May do well w upgrade in AM but increased difficulty in PM
- Trial upgrade w several meals; doc what works/doesn't work before upgrade

Documentation!

- Detail important!
  - Any PRN tx covering caseload needs to know!
  - Dropdown boxes often lack detail
  - EVERY pt. sounds the same!
  - Potential litigation!!!!!!
  - FAMILIES SUE!
- If you didn't **WRITE** it, you didn't **DO** it! ***
- Don't forget about documentation of pt., family, staff **education**
- **Strategies/precautions – what exactly ARE they?**
- **Communicate with all disciplines involved w oral intake – SLP, OT, Nursing, Dietary**

- Upright position -90° when eating/drinking & 30-60 min. after meals
- Small bites -- only ½-1 teaspoon – IDDSI guidelines
- Alternate small bites/small sips
- Eat slowly - may help to eat 1 food at a time
- Avoid talking while eating
- Place food in stronger side of mouth
- Check inside of cheek for any pocketed food
- Mouthcare after meal
- Chin tuck?
- Eat in a relaxed comfortable environment
- Straw?

Swallow Strategies

Aspiration Precautions

- Don't leave food/drink within reach
- 1:1 help at meals
- Needs fed vs. help to feed
- Needs cues/reminders
- Only feed when alert
- HOB upright for meal, 30- to 60 min after
- Oral care – brush & rinse

Supervision (61)

1:1

- assist for total feed or help pt. feed – prevent impulsivity, shoveling, monitor bite size

Close supervision

- frequent checking/cueing to use strategies/maneuvers

Distant supervision

- check pt. at least 2-3 times/have pt. eat near nurse's station

Set up only –

- pt. feeds self but may need assist opening containers

Independent

Treatment vs. Compensation

Compensation

STAY SAFE!

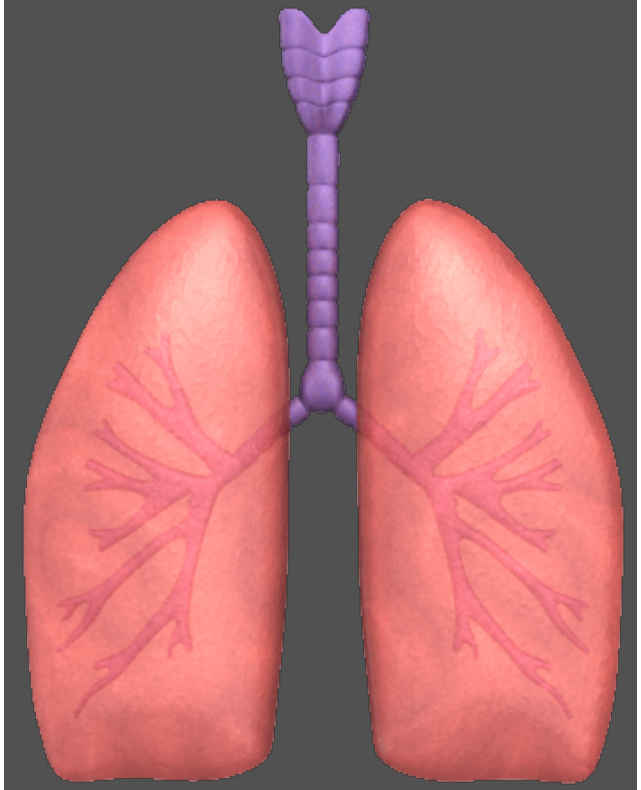
- "here is the dysfunction noted; here is what you need to do to **stay safe**"
- Ex: mech soft, chin tuck
- *Can impede active therapy process*

Treatment

CHANGE DYSFUNCTION!

- "Here is dysfunction and what we will do to **change** it"
- Ex: NPO to Mech soft
- *Goals set for change*

Respiratory Musculature



Aging Changes in respiratory system:

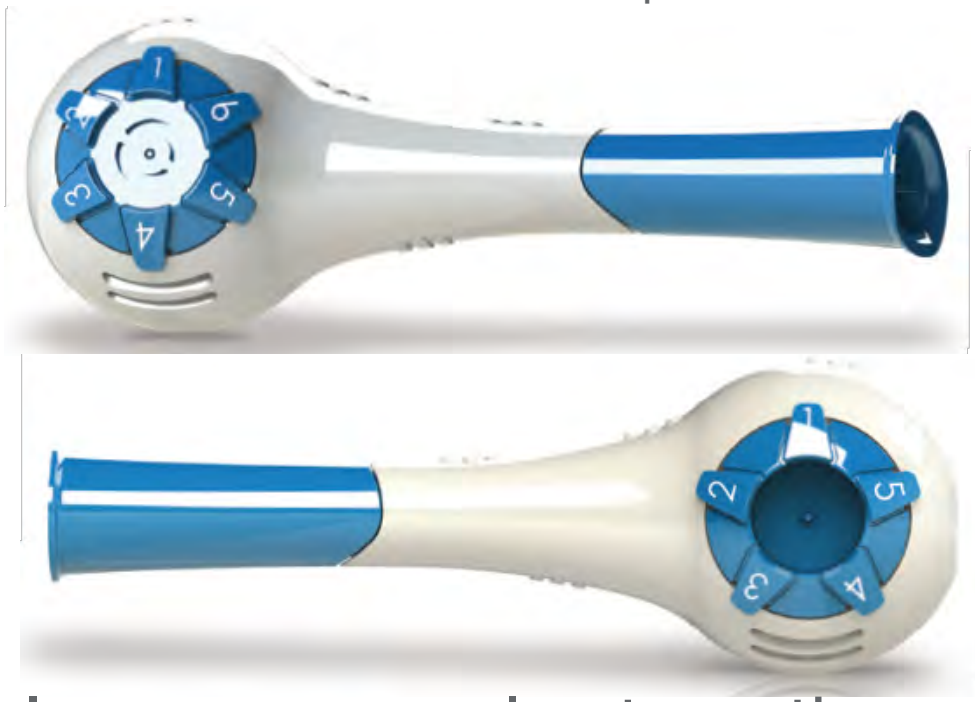
- Reduced lung elasticity
- Increased chest wall stiffness
- Reduced respiratory muscle strength

Resistance Exercises:

- IMST :
- Improves ventilatory capacity
- EMST:
  - Improves nonventilatory functions cough, speech swallow, speech

The Breather – PN Medical

used w permission



Protocol (102)

Inhale Settings

- 1-6

Exhale Settings

- 1-5

Increase muscle strength w resistance training
Breathing against resistance activates/strengthens respiratory muscles
Tool lasts 2 yrs.
Ages 8 & older

EMST-150 (blue) & EMST 75 Lite (green) info@breathespire.com (62)

used w permission

- Exercise at 75% max expiratory pressure
- 5-6 sets of 5 breaths for 3-5 days/wk. for 4-8 wks.
- Improves cough, swallow, speech, PA scale scores on MBS
- Positive results w Stroke, ALS, MS, Parkinson's pts. w dysphagia

Inspiratory Attachment for EMST

used with permission

Used w permission

Improved Breath Support

- Horn hierarchy – party horns seem highly effective to rehab respiratory function in early stage dementia (63)

- Blow out candles
  - birthday candles you can't blow out
- Bubbles
- Blow cotton balls across table
  - increase size of cotton ball

Type II Muscle Fibers for Swallow

Type II fibers weaken w disuse atrophy

Traditional exercise routines strengthen type I fibers

Resistance exercise therapy

- **emphasize type II fiber recruitment**
- **use voluntary exercise**
- **incorporate movement, whole muscle coordination**

Critique of literature – efficacy of exercises to rehab dysphagia

(62)

Swallowing Ex

- Effortful swallow in isolation only****
- Masako****
- McNeill Dysphagia Treatment Protocol****
- Mendelsohn****
- Super-supraglottic swallow****

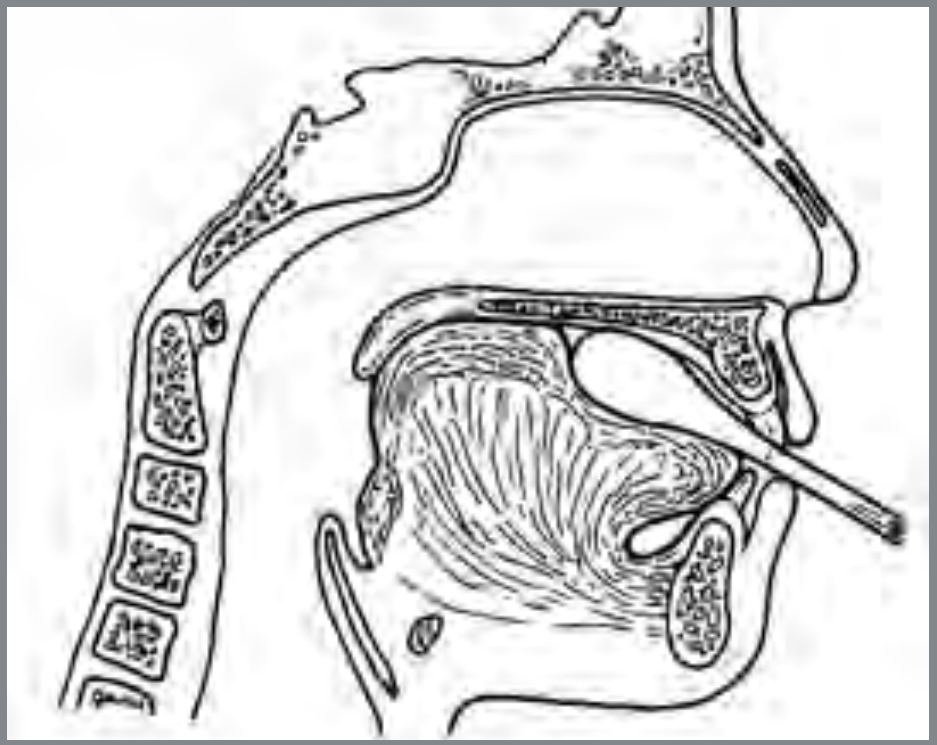
* Insufficient evidence long term

* Positive evidence

NON swallowing Ex

- Shaker Head Lift ****
- Tongue Strengthening
- Lee Silverman Voice Treatment (LSVT)
- Expiratory Muscle Strength Training (EMST) ****

* High quality evidence



IOPI
used with permission

Pt. data sheets, tongue bulb positions handout

available on website iopimedical.com

AbilEx

www.trudellmed.com/AbilEx
used w permission
https://youtu.be/5HgOZ-bW3Nk

Bulb simulates food bolus

- Safe practice of swallow skills
- Specific behavioral training, sensory stim/induce neural plasticity
- Tactile feedback
- Stimulate/exercise oral cavity
- Strengthen lips, tongue, jaw, mouth
- Maintain tongue flexibility & coordination
- Inexpensive tool

Shaker Exercise

- Reduce pyriform sinus residue & backflow aspiration
- Contraindications
  - cervical spine deficits
  - reduced neck movement ability
  - carotid stents
  - heart problems

  Isometric & isokinetic exercise

- Pts. committed to 6 wk. program more likely attain goals vs. those who discontinued within first 2 wks.

Improves

- laryngeal elevation & UES dilation
- strength of suprahyoid muscles over time
- opening of UES
- strength and endurance

Evidence of long-term effects

Strong support in studies (62)

Shaker Exercise

Extended Shaker

- Lie flat w shoulders against firm surface
- Elevate head only & look at feet
- Hold for 60 seconds
- Repeat 3 times
- Perform exercises 3 x day for 6 wks.

Repetitive Shaker

- 30 repetitions
- hold for 1 second then rest

Modified Shaker Exercise

Inexpensive tool
Easy to use
3 different springs
Progressively increase resistance

Easy to disinfect for multi-patient use

CTAR - Chin Tuck Against Resistance used w permission (64)

Google scholar for studies relating to CTAR vs. Shaker

NMES – Several companies, machines

VitalStim

- External stimulation of laryngeal/facial muscles
- Re-education of muscles
- FDA approved
- Certification required
- Improved muscle function, strength & speed of swallow
- Electrical stimulation during oral intake

- BIOFEEDBACK
- Teaches control
- Record “normal” swallow then compare w effortful swallow

Adaptive Equipment (resources)

- Gyenno spoon
- Liftware steady
  - minimize tremors w self-feeding, improve independence at meals

Mit-e spoon

- Colander w a handle!
- Drains liquids from bolus

Suction plates

- Ezpz mini mat – peds
- StaynEat Plate - adult

Placemat w strategies

- Strat mat

Jamber cup

- Good for arthritis, PD etc.
- Easy to hold

Minimize sip size

- Provale
- Wedge
- Rije
- Nutrabalance preset drinking cup
- Safe straw

Take Aways

- Pt's assessment of swallow often unreliable
- Red flags
  - aging changes
  - dentition
  - specific diseases/disorders
- Evaluation & Instrumental Assessment critical!
- INTERDISCIPLINARY COMMUNICATION
- Recommendations
  - MOUTH CARE!
  - precautions, strategies
  - diets
  - resistance exercises
  - adaptive equipment

Resources and Links!

Pioneer Network Dining Standards Summary

- https://www.eatrightwashington.org/docs/Convention/2016/2016%20handouts/Quiring%20handout%202.pdf

New Dining Practice Standards – full paper

- https://www.pioneernetwork.net/wp-content/uploads/2016/10/The-New-Dining-Practice-Standards.pdf

Tip Sheet Flexible Dining Services

- https://www.pioneernetwork.net/wp-content/uploads/2016/10/Flexible-Dining-Tip-Sheet-1.pdf

Home-style Dining Interventions

- https://www.pioneernetwork.net/wp-content/uploads/2016/10/Home-Style-Dining-Interventions.pdf

Resources and Links!

Examining the Institutional Dining Experience: From Traditional Dining to Person-Directed Dining

- https://www.pioneernetwork.net/resource-library/resource-libraryresource-librarytest-html-resource/

The Role of the Physician Order

- https://www.pioneernetwork.net/wp-content/uploads/2016/10/The-Role-of-the-Physicians-Order-Dining-Symposium-Paper.pdf

The Food and Dining Side of the Culture Change Movement: Identifying Barriers and Potential Solutions to furthering Innovation in Nursing Homes

- https://www.pioneernetwork.net/wp-content/uploads/2016/10/The-Food-and-Dining-Side-of-the-Culture-Change-Movement-Symposium-Background-Paper.pdf

The Deep Seated Issue of Choice

- https://www.pioneernetwork.net/wp-content/uploads/2016/10/The-Deep-Seated-Issue-of-Choice-Dining-Symposium-Paper.pdf

- Mouth Care Guides and Forms*****
  - Bissett, S., & Preshaw, P. (2011). Guide to providing mouth care for older people. Nursing Older People, 23(10), 14-21.
- StaynEat Plate https://stayneatplate.com/ https://youtu.be/peX_jAlxAFY?t=8

Penetration - Aspiration Scale (66)

1 = no penetration or aspiration

2 = penetration but not to level of folds & forced out of larynx

3 = penetration but not to level of folds & not forced out

4 = penetration to level of folds but forced out

5 = penetration to level of folds but not forced out

6 = aspiration but forced out of trachea into larynx or pharynx

7 = aspiration w response but material remains in trachea

8 = aspirated & no response

Functional Oral Intake Scale (FOIS)

1 - NPO

2 - tube dependent w minimal attempt soft food or liquid

3 - tube dependent w consistent intake of liquid or food

4 - total oral diet of a single consistency

5 - total oral diet w multiple consistencies but requiring special preparation or compensations

6 - total oral diet w multiple consistencies without special preparation but w specific food limitations

7 - total oral diet w no restriction (67)

Resources – Dementia & Modifications

Dining Approaches by Stage of Dementia

Breaks approaches down for

- Cognitively Intact, functionally Independent
- Mild Cognitive Impairment, early stage dementia
- Moderate Cognitive Impairment, middle stage dementia
- Severe Cognitive Impairment, advanced stage dementia

Dining Approaches by Stage of Dementia – Clinical Focus Area

- Social Environment
- Tray Set Up & Mealtime Setting
- Diet Consistency Modifications
- Figure-Ground Discrimination
- Self-Feeding Level of Ability
- Use of Utensils
- Attention to Task – Eating
- Amount of Liquids
- Judgment and Safety
- Communication
- Other Concerns and Pride
- Medical Nutrition Therapy
- Skilled Rehab Services Guide
- Food Preparation for specialized recreation program
- Dining. Resources

Dining Interventions for Persons with Alzheimer's Dementia with Matching Evidence

- Guiding Principles
- Approaches for
  - Cognition WFL, mild cognitive impairment
  - Early Stage Dementia
  - Middle Stage Dementia
  - Late Stage Dementia

Area of Dining Focus

- Social Environment
- Mealtime Setting
- Self Feeding Ability
- Diet Modifications
- Other Strategies
- References

Care of Natural Teeth (68)

Brush after breakfast & before sleep

- More difficult to brush own teeth if stroke, arthritis, Parkinson's, dementia

Build up toothbrush handle

- Electric brush easier to hold
- Brush w rotation oscillation more effective in reducing plaque, gingivitis (20)
- Reduces muscle fatigue

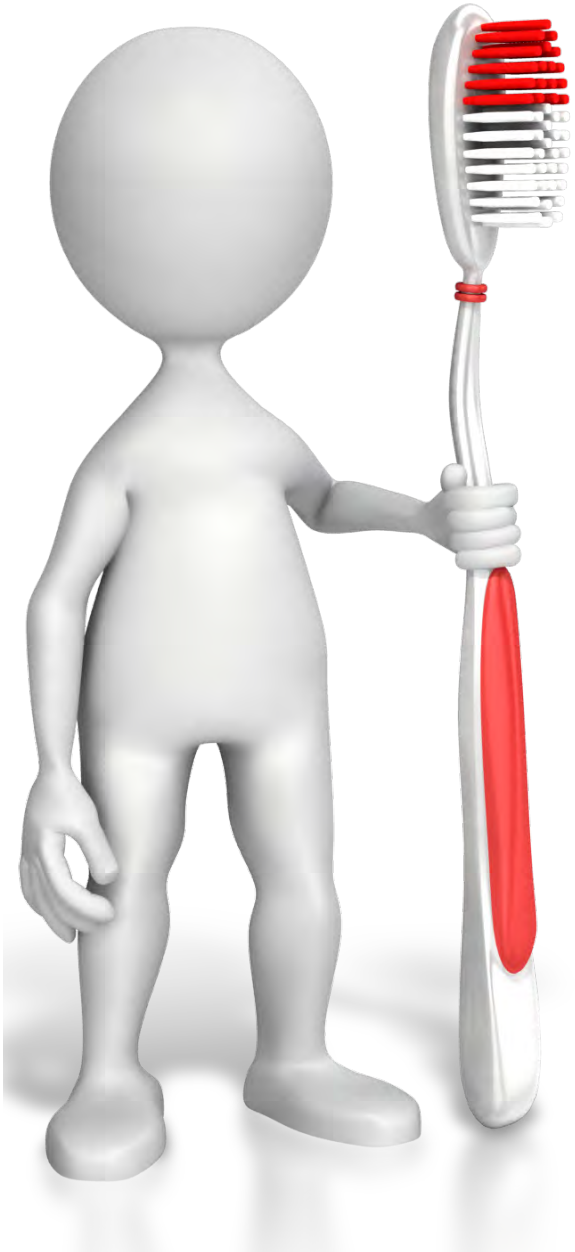
Optimal plaque removal not always possible

- Protective benefits of fluoride & chlorhexidine!
- Brush removes plaque; may not brush d/t discomfort/lack of compliance

Fluoride toothpaste topically w sponge applicator protects teeth despite plaque

- High strength fluoride toothpastes available on prescription

Oral Care for Dentures (69)



- Brush gums, tongue & palate every morning w soft bristled brush **before** inserting dentures
- Increases circulation in tissues
- Helps remove plaque
- Eating balanced diet important to keep mouth healthy

Cleaning Tongue

Brushing

- Toothbrush or tongue brush
- Gently scrub from back to tip w moistened toothbrush
- Do after brushing
  - Toothpaste residue still in mouth

Scraping

- Scraping surface takes off tongues' layer of mucus, bacteria and trapped debris
- Scraper at back of tongue & slide to tip
- Rinse and repeat
- Prior to brushing teeth

Gyenno Spoon
ronl.pmi@att.net

https://youtu.be/xEdur4slWyI ttps://www.youtube.com/watch?v=NEAvPKjDz6w

- Adjusts to the tremor
- Reduces spillage
- Increases ability to self feed independently

Used w permission

Liftware Steady
www.liftware.com/steady/
https://youtu.be/cFHwoOkSj7w

Used w permission

- Starter kit – handle w soup spoon
- Fork, spork sold separately
- Dishwasher safe
- Counteracts hand tremors, stabilizes movement
- Scoop most bite-sized foods, pierce most pre-cut foods
- Not for cutting/ scooping dense foods
- Rechargeable battery

Nutrabalance

Preset Drinking Cup

Provale = thin liquids only

5 cc and 10 cc version

Replacement parts - Amazon

Wedge

Wedge

Used with permission

RiJe

https://youtu.be/pqAdvG4QeD0?t=16

- Thin or nectar
- Not appropriate for carbonated drinks or honey thick
- Adjustable portions from 3ml to 15 ml
- Spill resistant
- Place cup upright to refill after each sip
- Drink from open cup, w spout or straw

Used w permission

Safe Straw

- Single person use, reusable
- Free samples @ website
- NOT for sodas – unable to limit volume w carbonation
- May not have strong enough suck for straw
  - Cut down reg. straw
- https://www.bionix.com/medicaltech/product/safestraw/

Mit-E Spoon

https://youtu.be/deGKJZHseRo?t=29

Common Examples of Mixed Texture Foods:

Soup

Cereal & Milk

Canned Vegetables

Fruit Cocktail

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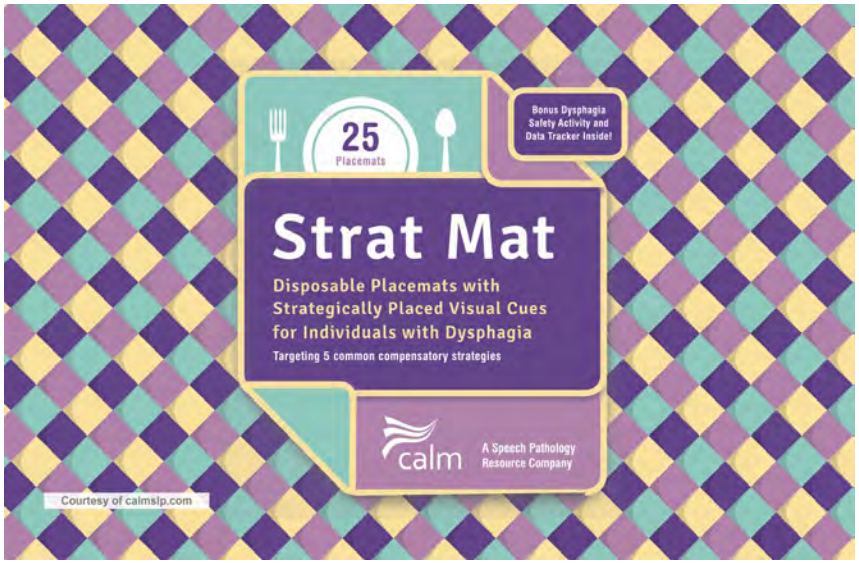

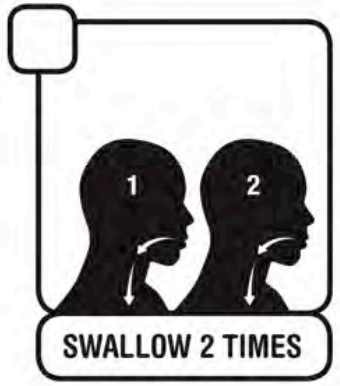

Strategies through pictures on placemats

https://youtu.be/9yjXS07WvEs

http://calmslp.com/

Used w permission

JamberMugs

www.jamber.com

https://youtu.be/bMamfzmzg8s?t=9

- Held by hands of all shapes
- Neutral hand position reduces strain on ligaments, tendons of hand, wrist & forearm
  - Great for arthritis
- Handle kickstand almost eliminates spills
- Industrial grade ceramic
  - Feels lighter -10x easier to hold
- Holds approx. 13 ounces
- Safe for dishwasher, microwave,
- oven, freezer used w permission

EZPZ mini mat
Ezpzfun.com

StaynEat Plate

- Reversible
- Sloped surface w non-skid rim
- Press n hold suction
- E-z load sidewall assist food onto utensils
- Stay neat border

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Questions

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