



Dysphagia Therapies

A guide for applying motor learning to
dysphagia management

Brought to you by Swallowing Training Education Portal and Swallowing Wellness



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2 Major Goals of Dysphagia Therapy

Reduce the Disability

Training **compensatory** strategies that **facilitate** an impairment to make a function **easier** without challenging the system, thus **reducing the disability**.



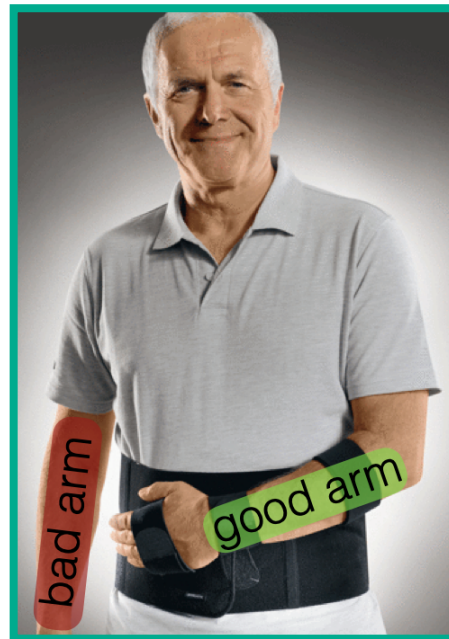
Compensatory Strategies

- Short term
- Reduce disability
- Effects only when in use
- i.e. “crutch”

Challenge **is not** involved / required

Restore Function

Training **rehabilitative** techniques that **challenge** an impairment to make a function **more difficult**, possibly increasing the disability, targeting **restoring function**.



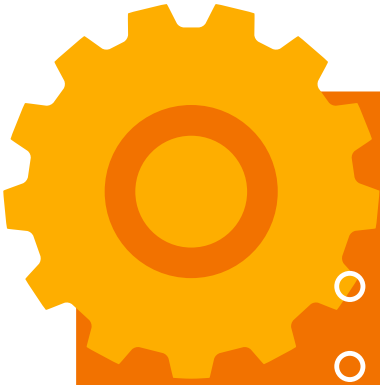
Rehabilitation Techniques

- Long term
- Restore function
- Effects remain after use
- Improved skill or strength

Challenge **is** involved / required

Either can be appropriate depending on the patient's needs, desires, medical status and abilities

*Traditional Classification of Swallowing Postures & Maneuvers



Postures (compensatory)

- Chin Up
- Chin Down
- Head Turn
- Head Tilt
- Body side-lying, reclined, supine



Maneuvers (rehabilitative)

- Effortful Swallow
- Breath Hold Swallow
- Supraglottic Swallow
- Mendelsohn Maneuver
- Masako/Tongue Hold Maneuver



Link to videofluoroscopic images
postures and maneuvers

*The designation of 'compensatory' versus 'rehabilitative' for postures and maneuvers have not been adequately supported in the scientific literature.

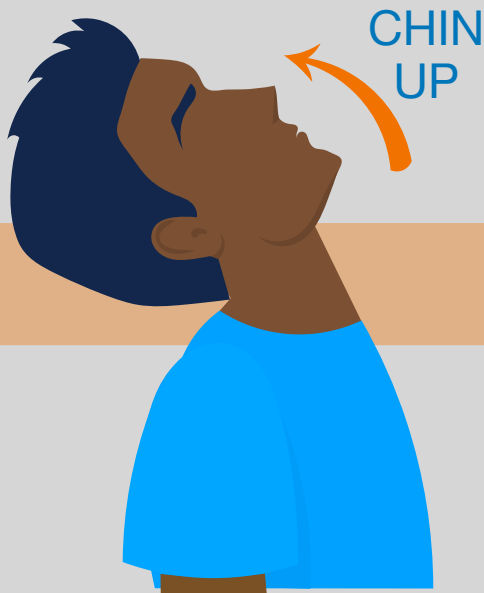
Postures

- Can be either **compensatory** or **rehabilitative**
- Depending on the Impairment

Patient with impaired anterior-posterior bolus transit (within oral cavity)



Compensatory



Gravity facilitates moving food/liquid posteriorly in oral cavity

Patient with poor lingual control leading to premature spillage



CHIN DOWN

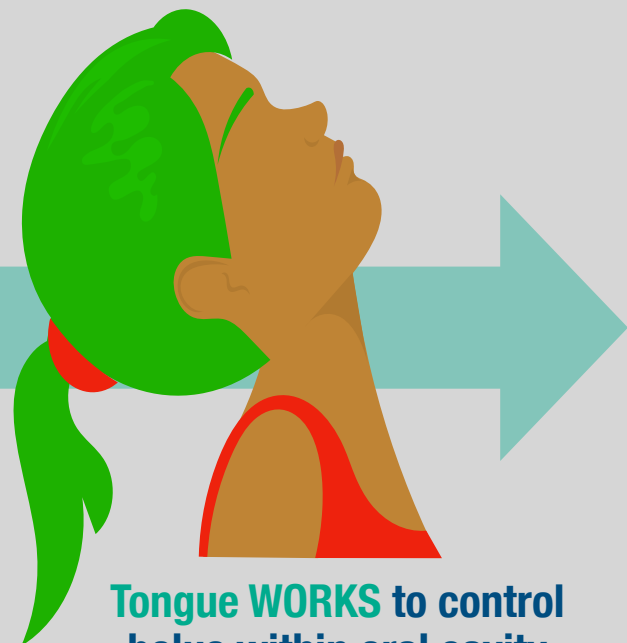


Gravity facilitates keeping food/liquid in oral cavity

Rehabilitative



Tongue WORKS to move food/liquid back within oral cavity



Tongue WORKS to control bolus within oral cavity

Postures

Compensatory Use
Physiology
Bolus Flow

Chin Tuck	Chin Up	Head Turn	Head Tilt	Recline/ Supine
Facilitate delayed swallow onset OR premature Spillage	Facilitate poor lingual posterior oral bolus transit	Facilitate poor unilateral pharyngeal function (turn toward impaired side)	Facilitate poor unilateral oral clearance (tilt toward unimpaired side)	Facilitate Patho- physiology increasing bolus dwell time and/or inter- swallow intervals
Gravity keeps bolus in oral cavity longer / reduce bolus dwell time	Gravity facilitates posterior movement of the bolus in the oral cavity	Prevent unilateral pharyngeal residue by directing bolus to side with better function	Prevent unilateral oral residue by directing bolus to side with better function	Prevent anterior bolus spillage into the larynx before, during, after the swallow

Links to papers:

-  Chin Tuck
-  Chin Up
-  Head Turn
-  Head Tilt
-  Recline, Supine

 **Bolus dwell time:** the time the bolus dwells in the pharynx while the larynx is open (typically during a swallow). Prolonged bolus dwell time increases with age and is more prevalent in swallows with aspiration.

 **Inter-swallow-interval:** the time between swallows, especially when residue is present from the previous swallow. Video link shows patient with long ISI who trained supine swallows.

Postures

Rehabilitative Use

Physiology

Goal

	Chin Tuck	Chin Up	Head Turn	Head Tilt	Recline/Supine
Physiology	Challenge poor lingual posterior oral bolus transit	Challenge delayed swallow onset OR premature Spillage	Challenge poor pharyngeal unilateral pharyngeal function	Challenge poor unilateral oral clearance	Challenge poor pharyngeal function
Goal	Gravity challenges posterior movement of the bolus within oral cavity	Gravity advances bolus into pharynx faster / more bolus dwell time	Directing bolus to side with more residue to challenge impaired pharyngeal function	Directing bolus to side with more residue to challenge impaired lingual function	Gravity challenges downward movement of the bolus though the pharynx

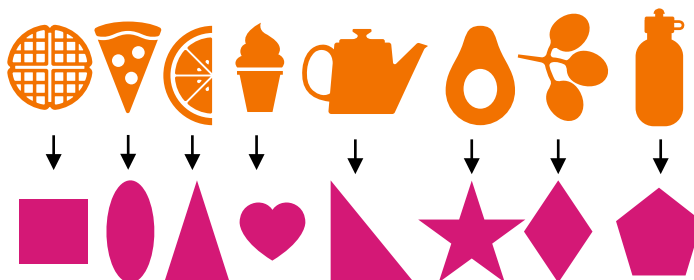


Principles of Neuroplasticity require patients to swallow in order to get better at swallowing - including challenging tasks.

1. Use it or lose it
2. Use it and improve it
3. Specificity
4. Repetition Matters
5. Intensity Matters
6. Time Matters
7. Salience Matters
8. Age Matters
9. Transference
10. Interference

Exposure to a wide array of bolus types and modes of delivery allow the brain to produce a wide array of responses

The brain has various **motor programs** that correspond to **specific properties of foods/drinks**



Removing certain eating experiences may impact the corresponding motor program



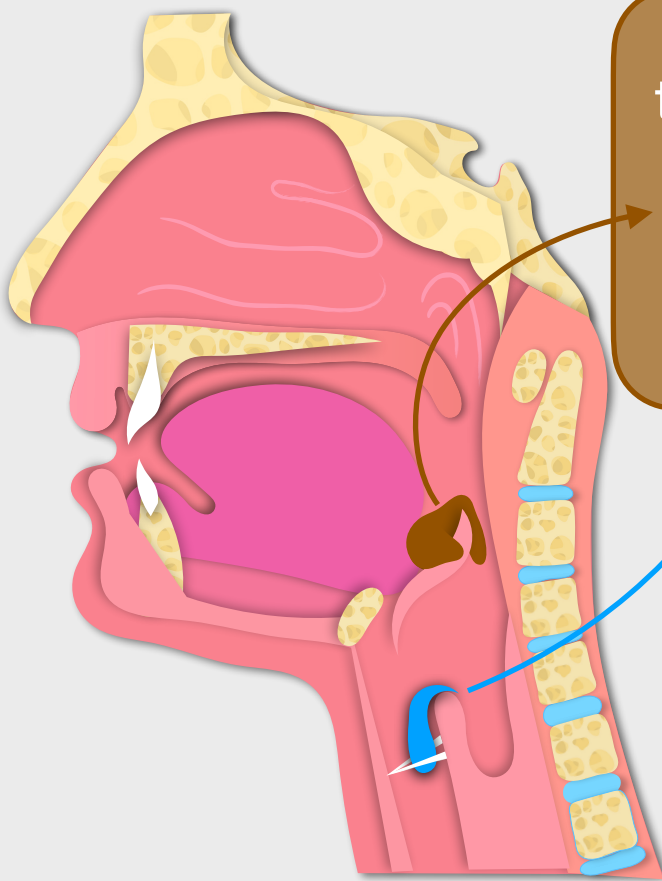
Maneuvers

Theoretically **compensatory** until they become **rehabilitative** because they initially reduce the disability and their effects are only present when in use.... Unless **neuroplasticity** occurs.

Swallowing Motor Learning:

Rewiring the brain to adapt to new experiences by incorporating strength, skill, and coordination to improve swallowing function. This could happen in multiple ways.

Take this example of a post-stroke patient with poor base of tongue (BOT) retraction leading to **vallecular residue** on thicker foods and **aspiration** before the swallow on thin liquids



Patient trains the effortful swallow to encourage better BOT retraction and epiglottic inversion. Re-wiring leads to long-term spontaneous, bolus-relevant increases in BOT force

Patient trains the breath hold to encourage better preventative airway protection. Re-wiring leads to long-term spontaneous, pre-swallow vocal fold closure.

Patient has learned to (seamlessly, spontaneously) incorporate skill and strength that is both structure and bolus specific.

Maneuvers

	Effortful Swallow	Breath Hold	Supraglottic Swallow	Mendelsohn Maneuver	Masako Maneuver
Physiology	Increase lingual and pharyngeal pressure during the swallow	Hold breath just before and during swallow to emphasize airway protection/closure	Hold breath, swallow, then cough immediately. Super Supraglottic: bear down instead of breath hold	Swallow and prolong hyolaryngeal elevation	Swallow with tongue tip extended just beyond teeth while anchored between teeth
Bolus Flow	Reduce bolus residue in the mouth and throat, especially valleculae & pyriforms	Reduce aspiration especially just before the swallow	Reduce aspiration especially just before and after the swallow	Prolonged UES opening during the swallow	Encourage forward bulging of the posterior pharyngeal wall

Links to papers:

-  Effortful
-  Supraglottic
-  Mendelsohn
-  Masako

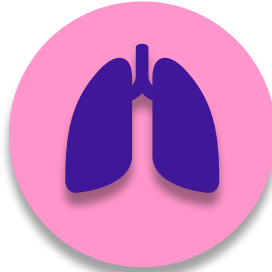


Disuse atrophy refers to reduction in the ability to complete a task when that task is completed infrequently. Sometimes measured in muscle wasting, studies show that age and swallowing severity contribute to **swallowing disuse atrophy**

Think **outside** the voice box

Aspiration is not the ONLY consideration when incorporating eating and drinking into a patient's dysphagia rehabilitation program

Respiratory
System



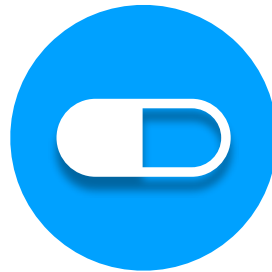
Nutrition

Medical
Condition



Reflux

Dentition



Medication

Saliva
Management



Cognition
Psychological



And don't forget the
wants and wishes of
our **V**ery **I**mportant
Patients



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