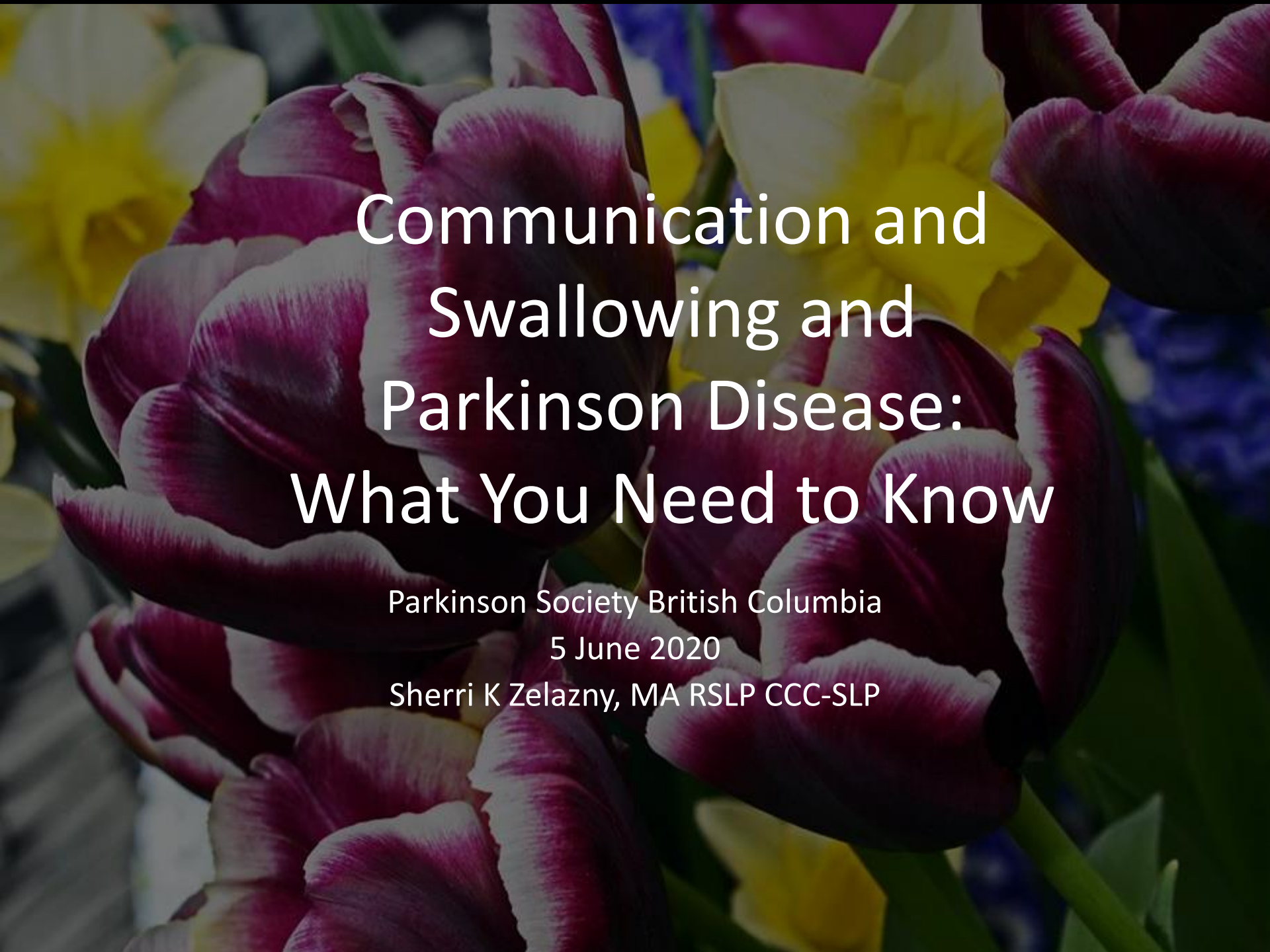


Communication and Swallowing and Parkinson Disease: What You Need to Know

Parkinson Society British Columbia
5 June 2020
Sherri K Zelazny, MA RSLP CCC-SLP

WHO AM I?

Longmeadow, MA

Ithaca College, Ithaca, NY

New York University, New York, NY

Laconia, NH

Madison, WI

Surrey, BC 2011 – present!

Parkinson Society British Columbia

You are not alone. We are here to help.

Disclosures

- I am a member of the Parkinson Society of British Columbia Board of Directors.
- I receive no compensation for the preparation or delivery this workshop.
- I am a Registered Speech-Language Pathologist with a private voice clinic in Surrey, BC.
- I am Past President of Speech and Hearing BC

Canadian Guideline for Parkinson Disease 2019

- "Rehabilitation therapists experienced with Parkinson disease can help newly diagnosed patients, and others through all stages."

- "Parkinson specific occupational therapy, as well as speech and language therapy, are indicated for people who are having difficulties with activities of daily living, ***but also early on, for prevention."***

- ***https://www.parkinsonclinicalguidelines.ca/***

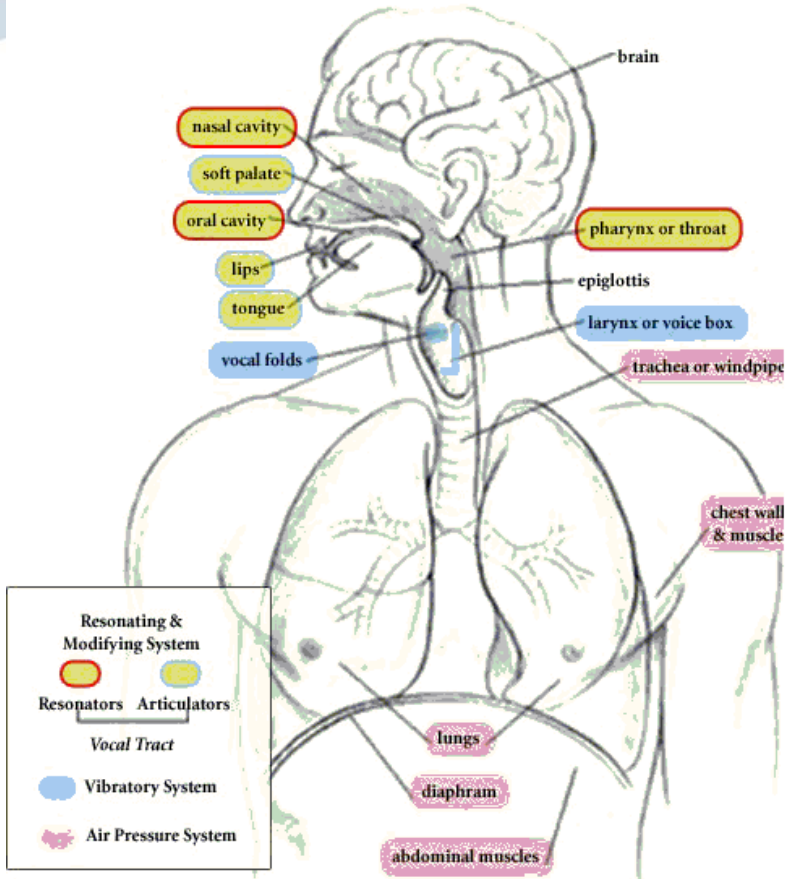
Role of the Speech-Language Pathologist

- Evaluation and treatment of communication and swallowing disorders.

- Promotion, prevention, counseling, and education services to clients, families, caregivers, other professionals, and the public regarding all aspects of human communication, and disorders of communication and swallowing.

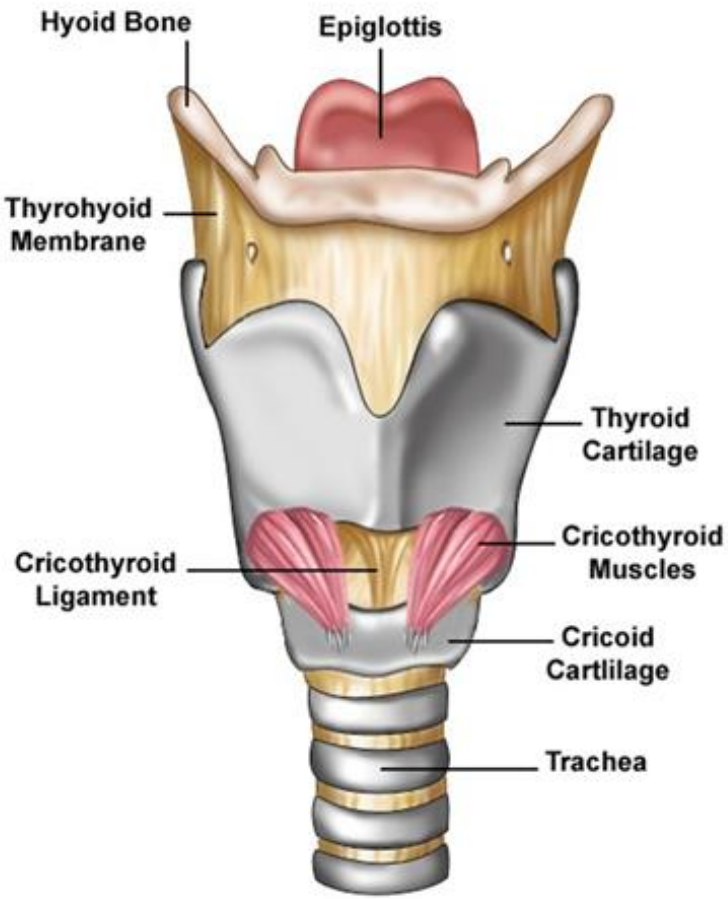
Communication and Swallowing

- Brain – generate ideas and movement
- Respiratory system – breath support, energy, fuel, activate the system
- Phonation – vocal fold vibration, voice, sound source
- Articulators – mouth, lips, teeth, tongue, palate
- Resonant cavities – shape and amplify sound – mouth, sinus', nose – all the space in your face.



Function of the Larynx

- Most primitive
  - Protection of the airway
- Laryngeal reflexes
  - Cough
  - Airway protection
    - Need precise sensory awareness
- Fixation
  - Lift, push, pull
- Sound source/Voice



Sensory Proprioception

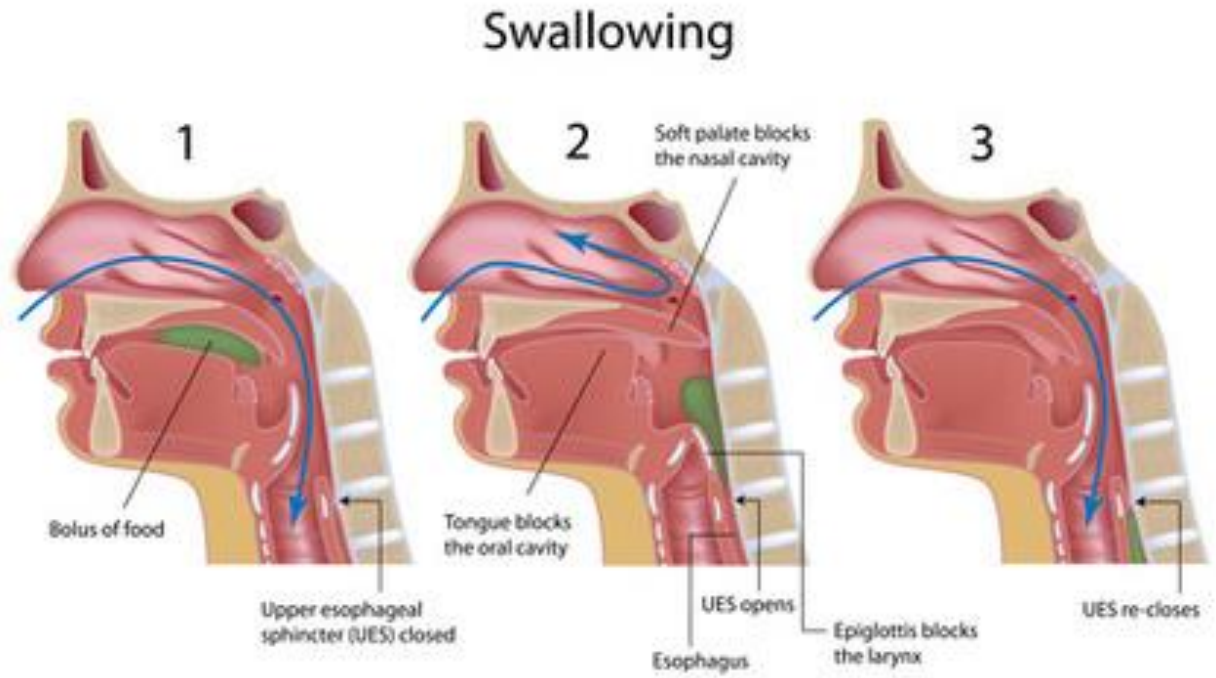
- Perception of body position whether still or moving
- Directly involved in the relationship between space and the ability to move accordingly.
- Disruption leads to impairments in amplitude and speed of movement

- Results – decreased/lack of awareness of physical changes


Swallowing

Phases of Swallowing

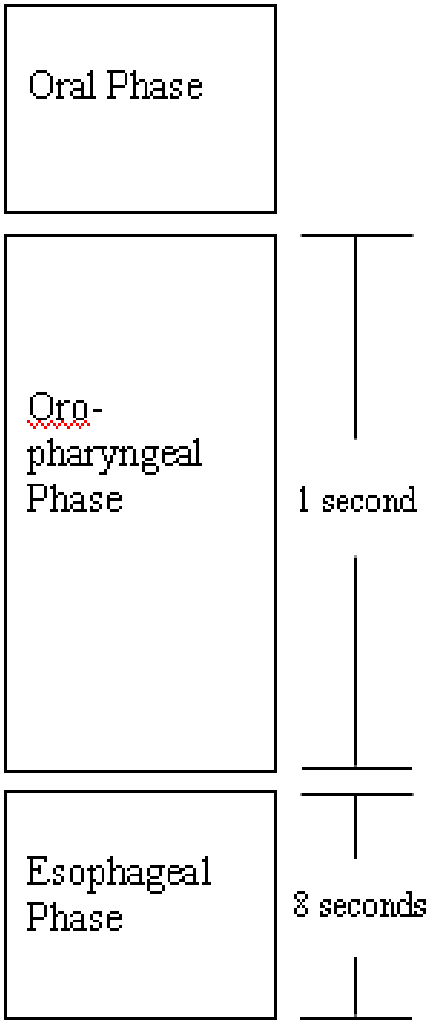
- Pre-oral
- Oral
- Pharyngeal
- Esophageal



Phases of Swallowing

Swallowing Stages by Phase

Food enters oral cavity
↓
Mastication and bolus formation
↓
Tongue elevates and propels bolus to pharynx
↓
Soft palate elevates to seal nasopharynx
↓
Larynx and hyoid bone move anterior and upward
↓
Epiglottis moves posteriorly and downwards to close
↓
Respiration stops
↓
Pharynx shortens
↓
Upper esophageal sphincter relaxes
↓
Bolus passes to esophagus
↓
Esophageal contracts sequentially
↓
Lower esophageal sphincter relaxes
↓
Bolus reaches stomach



Dysphagia
Swallowing Disorder

- Depending on how sensitively ***dysphagia*** is measured and treatments are introduced:
  - Swallowing problems occur in nearly 100% of Persons with Parkinson's **(PwP)** at some time in the disease course, at very different levels of severity;
  - Swallowing changes occur from the earliest stages, even in asymptomatic cases
  - Drooling occurs in about 78% of individuals

Signs of Swallowing Problems

- Difficulty with pills
- Fatigue during eating
- Longer mealtimes
- Nasal regurgitation
- Food sticking in the throat
- Trouble starting the swallow
- Need for change in diet
- Coughing or choking while eating/drinking
- Excessive saliva and drooling
- Recurrent PNA or pulmonary infections
- Unintended weight loss

Dysphagia Symptoms

- All three phases of swallowing are affected due to changes in both striated musculature under dopaminergic control and smooth musculature under autonomic control (Morrell, 1992)
- Oral stage often more involved until later in the disease process
- Pill dysphagia is one of the earliest symptoms reported
- Tongue pumping or backward and forward rocking motion of the tongue is often considered to be a defining feature (Blonsky et al., 1975)

Swallowing Disorder Symptoms

- Pre-Oral Phase
  - Tremor
  - Decreased movement
  - Decreased accuracy of movement
  - Slowness of movement
  - Rigidity
- Oral Phase
  - Tongue pumping
  - Oral residue
  - Premature spillage
  - Piecemeal deglutition

Pharyngeal Phase

- Pooling at base of tongue and opening to the esophagus
- Penetration/Aspiration
- Sensory deficits
- Slow rate of swallowing
- Reduced pharyngeal constriction
- Delay in airway closure
- Decreased palatal elevation (nasal regurgitation)
- Incomplete laryngeal closure
- Weak cough
- Weak tongue base
- Cricopharyngeal dysfunction (muscle that opens esophagus)

Esophageal Phase

- Stricture
- Decrease peristalsis
- Spasm
- Reflux

Summary

- Does the PwP have symptoms of dysphagia? Highly likely.
- Swallowing problems often are under recognized or under reported by PwP (Bird at al., 1994)
- Likewise, practitioners may not identify symptoms
- Swallowing problems do not always match general disease severity
- Careful, targeted, structured interview with both the PwP and their significant other are crucially important

Swallowing Evaluation

- **Clinical Evaluation**
  - Eating observation
  - Oral motor examination
  - Cognitive Assessment
    - The Mini-Mental Status Examination (Folstein, Folstein, & McHugh, 1975)
    - The Montreal Cognitive Assessment (MoCA)
- **Instrumental Evaluation**
  - Modified Barium Swallow (MBS/VFSS)
    - Video x-ray
    - Eating and drinking
  - Flexible Endoscopic Evaluation of Swallowing (FEES)

Swallowing Treatment

- Maneuvers/Compensations
- Postural techniques
- Exercises/Rehabilitation
- Other compensatory strategies
- Medical management

Maneuvers

http://www.asha.org/Practice-Portal/Clinical-Topics/Adult-Dysphagia/

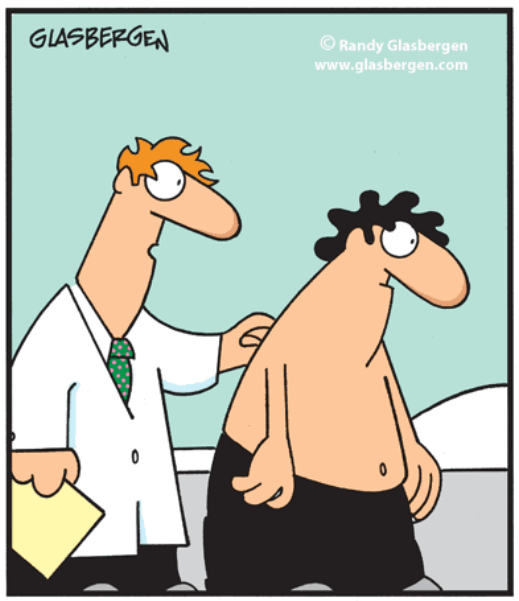
- **Effortful swallow** —increases posterior tongue base movement to facilitate bolus clearance. Swallow and push hard with the tongue against the hard palate (Huckabee & Steele, 2006).
- **Mendelsohn maneuver** —designed to elevate the larynx and open the esophagus during the swallow to prevent food/liquid from falling into the airway.
- **Supraglottic swallow** —designed to close the vocal folds by voluntarily holding one's breath before and during swallow in order to protect the airway. Hold your breath just before swallowing to close the vocal folds. The swallow is followed immediately by a volitional cough.
- **Super-supraglottic swallow** —The super-supraglottic swallow is similar to the supraglottic swallow; however, it involves increased effort during the breath hold before the swallow, which facilitates glottal closure (Donzelli & Brady, 2004).

Postural Techniques

http://www.asha.org/Practice-Portal/Clinical-Topics/Adult-Dysphagia/

- **Chin-down posture** —the chin is tucked down toward the neck during the swallow, which may bring the tongue base closer to the posterior pharyngeal wall, narrow the opening to the airway, and widen the vallecular space.
- **Chin-up posture** —the chin is tilted up, which may facilitate movement of the bolus from the oral cavity.
- **Head rotation (turn to the side)** —the head is turned to either the left or the right side, typically toward the damaged or weak side (although the opposite side may be attempted if there is limited success with the first side) to direct the bolus to the stronger of the lateral channels of the pharynx.
- **Head tilt** —the head is tilted toward the strong side to keep the food on the chewing surface.

Rehabilitative Approaches



"It's not a rash, it's moss. You need to start being more active than a tree."

- Designed to target neuroplasticity
- Designed to improve swallowing mechanism and muscles for long term changes to the system.

Exercises

http://www.asha.org/Practice-Portal/Clinical-Topics/Adult-Dysphagia

- **Laryngeal elevation** —similar to the Mendelsohn maneuver (discussed in "Maneuvers" section above), the patient uses laryngeal elevation exercises to lift and maintain the larynx in an elevated position. The patient is asked to slide up a pitch scale and hold a high note for several seconds. This maintains the larynx in an elevated position.
- **Masako or tongue hold** —the patient holds the tongue forward between the teeth while swallowing; this is performed without food or liquid in the mouth, to prevent coughing or choking. Although sometimes referred to as the **Masako "maneuver,"** the Masako (tongue hold) is considered an exercise (not a maneuver), and its intent is to improve movement and strength of the posterior pharyngeal wall during the swallow.
- **Lingual isometric exercises** —the patient is provided lingual resistance across exercises to increase strength.
- **Shaker exercise, head-lifting exercises** —the patient rests in a supine position and lifts his or her head to look at the toes to facilitate an increased opening of the upper esophageal sphincter through increased hyoid and laryngeal anterior and superior excursion.

Tongue
Range of Motion Exercises

- **Forward/backward movement:**
  - *"Stick tongue out as far as you can, hold for 5 seconds, relax."* Keep tongue in middle. Use a mirror.

  - *"Pull your tongue back as far as you can, hold 5 seconds, relax."*

Tongue
Range of Motion Exercises

- **Side-to-side movement:**
  - *"Put the tip of you tongue in your right cheek as far back as you can hold it. Relax. Repeat on left."*
  - *"Smile. Put the tip of your tongue in the corner of your lips on the right then move it to the left."*

- **Circular movement:**
  - *"Stick your tongue out as far as you can and lick your lips in a circular motion."*

Tongue Strengthening

- The Abilex™ device was designed to stimulate and exercise parts of the mouth, targeting tongue strength, side to side tongue movement, and bolus propulsion.
- Website: www.getabilex.com

Tongue Strengthening

- **Therasip Tongue Press** is a resistance exercise instrument designed to increase tongue strength. It uses water pressure to provide resistance to the bulb that is placed in the mouth and pressed against the roof of the mouth with the tongue
- Website: http://www.therasip.com/

Effortful Pitch Glide

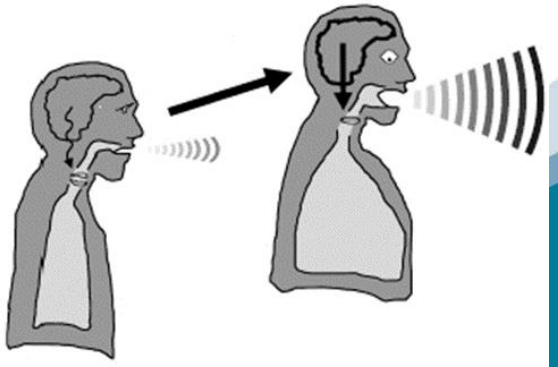
Malandraki, G. A., et al (2011).

- Activates muscles of swallowing in same way as actual swallow
  - Anterior Hyoid Movement
  - Hyolaryngeal Approximation
  - Laryngeal Elevation
  - Pharyngeal Shortening
  - Pharyngeal Wall Medialization
- Pharyngeal Squeeze
- Pitch glide
- Goal: overload swallowing muscles with a non-swallow exercise

LSVT®

Cross-systems Effects

- Improved oral phase (El Sharkawi et al. 2002)
  - Completed LSVT for 1 month
  - VFSS evidence of :
    - » Decreased pooling in the mouth
    - » Increased oral movement
    - » Decreased pooling in throat



Expiratory Muscle Strength Training **www.emst150.com**

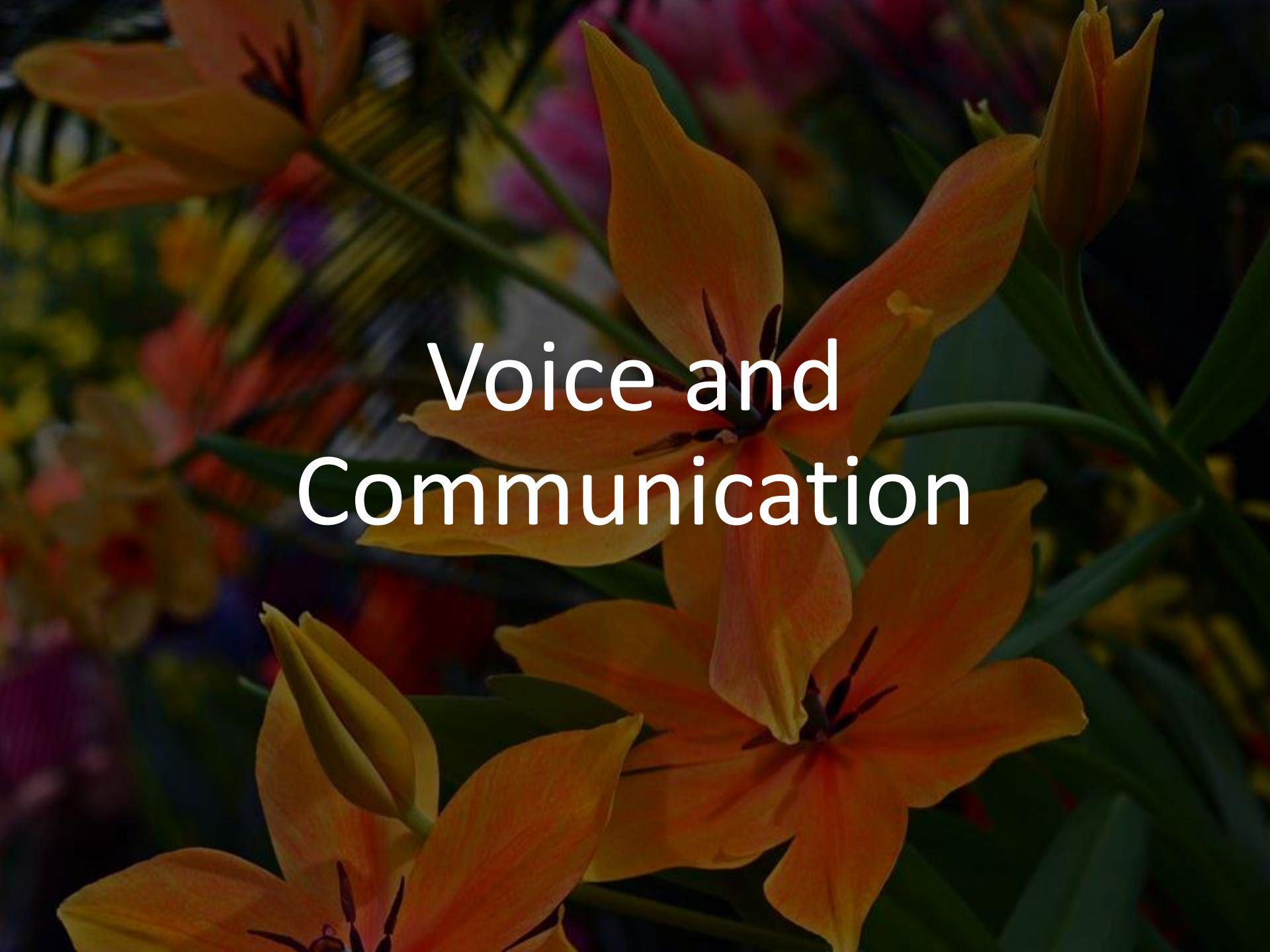
- Calibrated, one-way, spring-loaded valve.
- The valve blocks the flow of air until enough pressure is produced to open the device
- Isometric training 5 days per week, 5 sets of 5 breaths for a total of 25 breaths per day (power of 5)

Expiratory Muscle Strength Training

- Respironics Threshold PEP Positive Expiratory Pressure device
- https://www.healthproductsforyou.com/p-respironics-threshold-positive-expiratory-pressure-device.html

Respiratory Muscle Strength Training

- The Breather
- http://www.alimed.com/the-breather.html
- Inspiratory and Expiratory strengthening


Voice and
Communication

Communication and PD

- 89% of individuals with PD world wide have disordered communication
- Considered one of the most difficult aspects of the disease.
  - Employment
  - Social Activities
  - Self Expression/Wants and Needs
- Can lead to
  - Early retirement/lost income
  - Abandoning activities that contribute to quality of life
  - Higher health care and disability costs
  - Social isolation

Signs of Communication Problems

- Difficulty participating in conversation
- Frequent need for repetition
- Increased frustration with communication
- Decreased desire to participate in social activities
- Decreased effectiveness in the workplace
- Decreased desire to answer the phone
- Decreased ability to express wants and needs

- My husband/wife/partner needs a hearing aid.
- I want to get what I ordered at the restaurant
- I don't answer the phone anymore.
- I used to go for coffee but I stopped because my friends can't hear me.
- I speak but nobody responds. It's like I'm not even there.
- I can't hear you.

Hypokinetic Dysarthria Communication Disorder

- Reduced loudness
- Monopitch
- Mono-loudness
- Reduced melody of speech
- Breathiness
- Hoarseness
- Imprecise articulation
- Hesitant/non-fluent speech
- Vocal tremor
- Decreased amplitude of movement
- Stiffness
- Decreased vocal fold closure

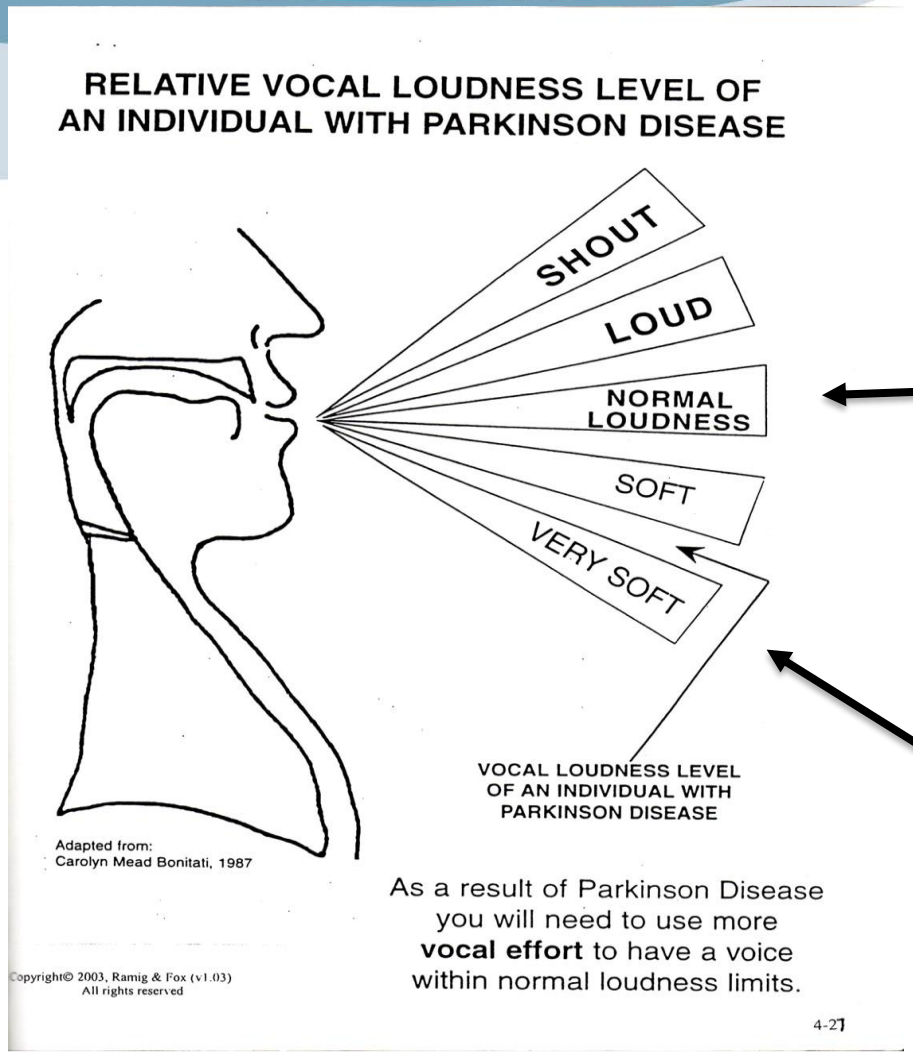
Hypokinetic Dysarthria

What We Hear	What is Happening	What is Missing
Reduced loudness	Reduced amplitude of movement	Sensory feedback
Monopitch	Reduced vocal fold closure	Awareness
Hoarseness		
Imprecise articulation		

Behavioural Treatment

- Lee Silverman Voice Treatment® (LSVT®)
  - **GOLD** Standard
  - Supported by 20+ years of research
  - www.lsvtglobal.com

Levels of LOUD - Then and Now



THEN

NOW

LSVT®

- Intensive therapy
- 4x week for 4 weeks
- Daily home exercise during therapy and beyond
- Exercise matters
  - Dopamine
  - New pathways
  - Strengthening the system
  - New normal

LSVT®
Primary Aspects of Treatment

- Loudness drives the system
  - Stimulation of motor activation across speech and voice centres and other areas of the brain
- Intensity
  - 4x week for 4 weeks
- Calibration
  - Brain learns new motor patterns, habituates, neuroplasticity

- Saliency – focus on the most important aspect – LOUDNESS
- Complexity – interaction of the systems
- Use it or lose it
- Use it and improve it

Other options

- Therapy
  - Speak Out – TX program
  - Group therapy opportunities (still may be considered "exercise")
- Exercise
  - SongShine http://www.songshineforparkinsons.org/
  - Tremble Clefs www.trembleclefs.com
  - Singing Lessons
  - Acting Lessons
  - Community Choirs
  - Toastmasters
  - Reading aloud

Let’s try it!

ROMP Questionnaire

- Increase awareness
- Baseline information
- Monitor symptoms
- Repeat in 6 months
- Share with physician

Resources

- PSBC
  - www.Parkinson.bc.ca
  - Help Sheets (Communication, Swallowing, Drooling)
  - 604 662 3240
  - Toll Free: 1 800 668 3330

- Sherri K. Zelazny, MA RSLP, CCC-SLP
  - sherri@surreyvoiceclinic.com

- https://www.lsvtglobal.com/