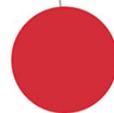




# COMMUNICATION AND SWALLOWING DISORDERS IN PARKINSON'S DISEASE

## Challenges, Treatments, and Resources

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# April is Parkinson's Awareness Month



# Speech Pathology Services

- 1. Focus is on Speech/Communication, Swallowing, Cognition
- 2. Referral to speech therapy best if early in diagnosis of PD.
- 3. Evaluation and treatment : identify the severity level of speech, swallowing, and cognition. Collaboration with Providers, PT/OT and incorporate non-motor symptoms as well such as mood affect, nutrition, sleep, etc.
- 4. Treatment focus to improve, strengthen, and promote strategies to maintain highest level of functioning.
- 5. Make recommendations for compensatory strategies, special treatments, devices, resources, and home programs.



# Speech Disorders – Dysarthria

- Imprecise articulation, unclear speech
- Reduced voice volume
  - Inadequate breath support and coordination of voice
  - Monotone and monoloud
- Breathy and harsh voice quality



# Swallowing Disorder – Dysphagia

- Oral Stage – difficulty with chewing, prolonged chewing
- Pharyngeal Stage -
  - Timing of the swallow is slower
  - Strength of swallow is reduced – larynx does not lift up fully to protect the airway.
  - Throat muscles weaker – results in food residue still in the throat.
- Aspiration Pneumonia



# Cognitive Disorder

- Reduced Attention, Losing train of thought
- Memory
  - Immediate Memory – reduced
  - Delayed Memory – reduced
- Slow processing and need for Repetition
- **Visual-spatial processing** – reduced



# Clinical Practices, Advances, and Resources

- Different treatment options for dysarthria management (see next slide)
- Different treatments available for swallowing treatment. (see next slides)
- Different treatments improve speech: Sound Level meter, Speech apps, software programs, signaling devices, portable voice amplifiers.



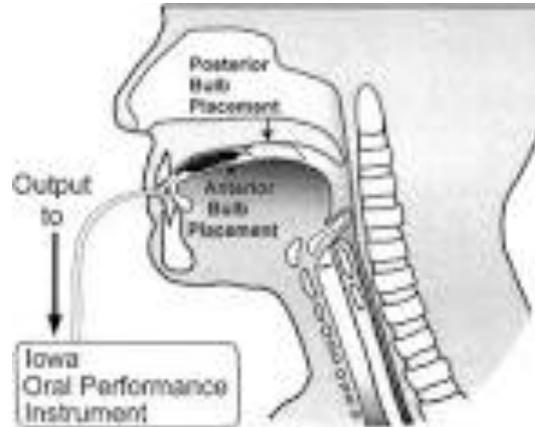
# Swallowing Treatment

1. Evidence shows swallow strengthening exercises can improve swallowing, especially exercises that target tongue strength (especially back of the tongue), throat muscles, and laryngeal elevation.
2. New devices such as IOPI claim to increase tongue strength with research showing positive results
3. NMES – Vital Stimulation - electrical stimulation applied with electrodes to the swallowing muscles. Ongoing research that VitalStim and traditional therapy can accelerate strengthening swallowing muscles.
4. Use of Videofluoroscopic Swallow Study or FEES (flexible endoscopic evaluation of swallow to identify aspiration risk.



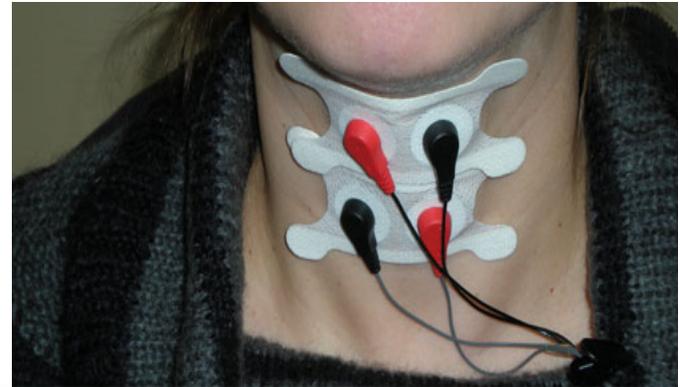
# Iowa Oral Pressure Instrument (IOPI)

Positioning of air-filled IOPI pressure sensor between tongue blade and hard palate. Premise is that with regular treatment and biofeedback, there is improved tongue strength for swallowing.



# Vital Stimulation intervention

- **Neuromuscular stimulation** - electrical current to stimulate the nerves or nerve endings that innervate muscle beneath the skin. Applied superficially to skin.
- **Primary purpose** is to enhance muscle function for swallowing
- **Research** - ongoing studies showing some promising, yet inconclusive results.



# Treatment Options for Dysarthria Management

## LSVT Loud

16 sessions

Improves breath support

Improves voice loudness

Formalized practice:  
coordination of breath  
& voice in vowels  
and sentences.

Certified therapists.  
80% of patients maintain  
improvement for 12-24 mos.  
“Loud for Life” support group

## Speak Out

14 sessions

Improves breath support

Improves vocal loudness

Formalized practice:  
coordination of breath  
and voice/melody  
in words/sentences.

Certified therapists  
Join a Group Tx  
called “Loud Crowd”

## Dysarthria Therapy

12-16 sessions (or more)

Improves Breath Support

Improves vocal loudness

Focus on coordination of  
breathing and voice

Focus on more precise articulation  
rate, pacing, and overall speech  
intelligibility.

Provided by licensed therapists

Parkinson’s Support Group

## Other

Botox injections

Palatal Lifts

**DBS**



# Cognitive Deficits

- 1. 2014 study, “Source of Memory Impairment in PD..” showed the patients with PD are able to learn and recall but needed the following:
  - a. More effort and time to learn
  - b. More repetitions to learn
  - c. Use of strategies to strengthen learning.
- 2. Evidence shows that patients with PD experience additional barriers:
  - a. difficulty when forced to rely only on internal cueing system. Difficult to improve their performance and self correct unless given external cues.
  - b. Decreased sensory processing so patients may not recognize their errors. Example of not recognizing that they have reduced voice volume. Therapy programs promote the use of overarching big, loud cues to help patient recalibrate.



# Speech Applications Examples: (smart phone/iPad)

- **Speech apps for communication assistance**  
“Proloquo 4 Text” or “Voice4U” gives a voice to those who cannot speak clearly.
- **To facilitate cognitive difficulties**  
“Unus Tactas” app allows a simple set up on smart phone to have one touch photo dialing system to make phone calls using the phone contacts in your phone.
- **To facilitate a swallow**  
“Oral Motor” and “iSwallow” allows patient to use to follow their home program for swallow strengthening exercises.

# Later Stages of Parkinson's Disease

- Focus is on functional communication
- Low tech alternative communication
  - Use of simple gestures
  - Alphabet board to spell words
  - Picture/Word “communication” board
  - Writing (paper/pencil, dry-erase board, “Boogie board”
  - “Text to Speech” apps on smart phone
- Personal, portable amplifier for voice  
Such as ADDVOX, Soni-Vox, ChatterVox and BoomVox.



# Later Stages of Parkinson's Disease

- High tech alternative communication
- Portable speech-generating devices or software on I-Pad
- Tobii Dynavox
- Tobii Eye Gaze



# Clinical Resources

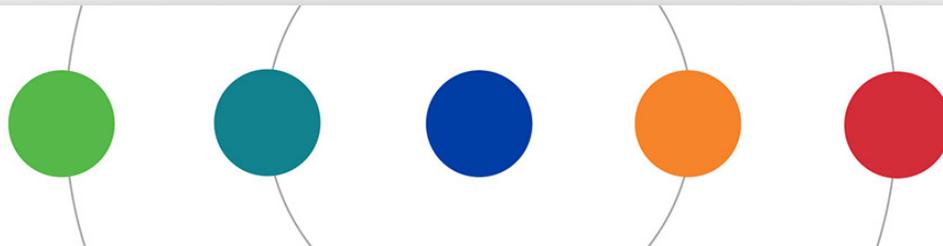
- National Parkinson Foundation
- Michael J. Fox Foundation for Parkinson's Disease
- American Parkinson Disease Association
- Parkinson Disease Foundation
- Mayo Clinic PD Support Group

American Parkinson's Disease Association Care of Mayo Clinic  
(904) 953-7030 Hotline (800) 223-2732





# QUESTIONS & DISCUSSION



**THE MAYO EFFECT**