



LSVT Global[®] Public Webinar Series

Title: The Impact and Treatment of Non-Motor Symptoms in LSVT LOUD[®] and LSVT BIG[®]

**Presenters: Cynthia Fox, PhD, CCC-SLP
Heather Cianci, PT, MS, GCS**

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The Impact of Nonmotor Symptoms in the Successful Delivery of LSVT LOUD® and LSVT BIG®

LSVT GLOBAL Innovation in Science. Integrity in Practice.

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Instructor Biographies



Cynthia Fox, PhD, CCC-SLP

Dr. Fox received her doctorate degree in Speech and Hearing Sciences from the University of Arizona, Tucson. She is an expert on rehabilitation and neuroplasticity and the role of exercise in the improvement of function consequent to neural injury and disease. She was the first to apply this treatment to disorders other than Parkinson disease (e.g., multiple sclerosis) and pioneered the application to pediatric populations including children with cerebral palsy and Down syndrome. Dr. Fox worked closely on the development of a physical/occupational therapy program, LSVT BIG. Dr. Fox also serves as faculty for LSVT LOUD and LSVT BIG training and certification courses. She has numerous publications in these areas of research and has presented extensively nationally and internationally. Dr. Fox is a Co-Founder and CEO of LSVT Global, Inc.



Heather Cianci, PT, MS, GCS

Ms. Cianci is the Geriatric Team Leader and founding therapist of the Dan Aaron Parkinson's Rehab Center at Pennsylvania Hospital in Philadelphia, PA. She received her Bachelor of Science in Physical Therapy from the University of Scranton, and her MS in gerontology from Saint Joseph's University, both in Pennsylvania. Heather received her Geriatric Clinical Specialist Certification in 1999 and was certified in LSVT BIG in 2007. She is a 2004 graduate of the Parkinson's Foundation's (formerly the NPF and PDF) Allied Team Training for PD, and became a faculty member for the program in 2017. Ms. Cianci has written and lectured for several national PD organizations, on-line CEU providers, and PT programs at Philadelphia area universities. Her research is on falls and bed mobility in PD, and she is also a former board member for CurePSP.

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Disclosures

All of the LSVT faculty have both financial and non-financial relationships with LSVT Global.

Non-financial relationships include a preference for the LSVT LOUD and LSVT BIG as a treatment techniques.

Financial Relationships include:

- Dr. Fox is an employee of, receives lecture honorarium from, and has ownership interest in LSVT Global, Inc.
- Ms. Cianci receives lecture honorarium and travel reimbursement from LSVT Global, Inc.

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Plan for Webinar

- Purpose
- Logistics
 - ✓ CEU information
 - ✓ Handout
- Presentation of Content
- Questions
- Survey

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Information to Self-Report CE Activity

- This LSVT Global webinar is **NOT** ASHA or state registered for CEUs for speech, physical or occupational therapy professionals, but it may be used for **self-reported CEU credit as a non-registered/non-preapproved CEU activity**. That is, the credit can count towards your CE maintenance progress if you choose to self-report your activity.
- In the survey, you will have an opportunity to request a certificate after completion, which will include your name, date of the webinar and the number of hours earned. It may take 1-2 weeks for certificates to be emailed.
 - Live Viewers: Certificates sent automatically if requested in survey
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- For more information on including non-ASHA registered CEUs for certification maintenance, visit ASHA's website: <http://www.asha.org/Certification/Certification-Maintenance-Frequently-Asked-Questions-Earning-Professional-Development-Hours/#earnASHA>
- Completion of the webinar **will not be** reported to the ASHA CE registry by us and cannot be added to the ASHA CE registry by you. It will be your responsibility to retain documentation of completion just as you do with any other non-registered CE activity.



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Polling Question:
Who is joining us today?

Are you a:

- Speech Therapist
- Physical/Occupational Therapist
- Other healthcare professional
- Person with Parkinson's or family member
- Other



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Learning Objectives

1. Identify and describe at least four nonmotor features of Parkinson disease.
2. Explain how nonmotor features of PD may directly or indirectly affect speech, mobility and activities of daily living in people with PD.
3. Provide examples of five strategies that may be used in LSVT LOUD and LSVT BIG therapies to address nonmotor features and potentially improve treatment outcomes.
4. Discuss the potential impact COVID-19 may have on nonmotor symptoms in people with PD who have and have been not infected.

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Background on motor and nonmotor impairments in Parkinson disease (PD)

Key Motor Symptoms	Key nonmotor Symptoms
Bradykinesia	Depression, Apathy, Anxiety
Hypokinesia	Cognitive Impairment, Dementia
Rigidity	Impaired Kinesthetic Awareness
Tremor	Pain, Sensory deficits
Postural Instability	Bowel and Bladder Dysfunction
	Sleep Disorders
	Sexual dysfunction

Motor and nonmotor symptoms can negatively impact speech, voice, swallowing, communication, mobility, balance and activities of daily living in people with PD

Goldman & Postuma, 2014; Schapira, Chaudhuri, & Jenner, 2017

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Nonmotor Symptoms Often Precede Motor Symptoms

Motor symptoms are the "tip of the iceberg"

Nonmotor symptoms manifest several years before the classic motor symptoms!



Goldman & Postuma, 2014; Scharfira et al., 2017

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Impact of NMS on communication, mobility and activities of daily living

-  **Appear early in the disease**
-  **Negatively impact performance and participation early in the disease – often more than motor symptoms**
-  **Exacerbate and interact with speech & motor symptoms**
-  **Less well managed by medication**
-  **Often under-recognized**

Shulman, 2002

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Cognition in Early PD

Impairments found in early, untreated PD:

- Impaired processing speed
- Attention deficits
- Visuospatial impairments
- Executive dysfunction
- Memory impairments

Functional impact on process skills:

- Impaired problem solving
- Difficulty multi-tasking
- Decreased mental flexibility
- Decision making
- Difficulty planning and organizing

(Weintraub, et al. 2015)

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Loss of Higher Cognitive Function

- **Slower thinking may result in slower response time to questions**
 - People with PD often are frustrated when people do not wait for them to respond
- **Language challenges**
 - Delayed word retrieval
 - Difficulty shifting communication topics
 - Difficulty initiating and expanding upon language
 - Difficulties with language processing (e.g., to understand non-literal or implied meanings)

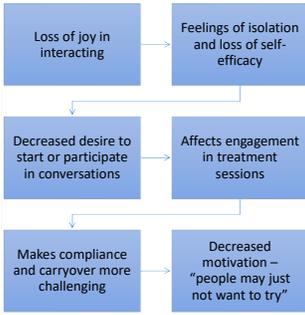
Slower processing, combined with increased levels of distractibility, can lead to loss of train of thought, making longer conversations more difficult and frustrating for both the PWP and the listener



Auclair-Ouellet, et al., 2017; McNamara & Durso; 2018

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Depression




e.g., Han et al., 2011; Manor et al., 2009; Schapira et al., 2017

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Dementia

- Difficulty understanding directions
- Decreased deficit awareness
- Limits new learning and carryover
- Difficulty in understanding utensil use
- Feeding behaviors impacted, swallowing efficiency and safety may be compromised



Goldman & Postuma, 2014; Laurentani et al., 2014;

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Apathy and Anxiety

- Withdrawal from communication and social interactions
- Feeling hopeless that speech/swallowing can change
- Loss of self-efficacy
- Default to low energy despite greater capacity, reduced motivation and compliance with home exercise programs
- Withdrawal from mealtime, feeding, appetite



Pagonabarraga & Jaime Kulisevsky, 2017; Verdonshot et al., 2016

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Fatigue "It makes everything harder."

Fatigue was the most frequently selected problem by people with PD in survey by Schalling et al., 2017

Affects motivation	Reduced engagement in therapy and social communication	Greater risk for aspiration
Interferes with carryover of treatment strategies	Concentration difficulties for conversation	Also impacts freezing of gait and vision

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Sleep Disorders

- Daytime sleepiness/nighttime sleepiness, REM
- Reduced concentration and memory
- Affects levels of alertness, sustained attention for conversation
- Impacts consolidation/retention in terms of motor learning
- Airway clearance during sleep could be impacted by sleep disorders
- Impacts energy for therapy sessions




Schapira et al., 2017

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Pain

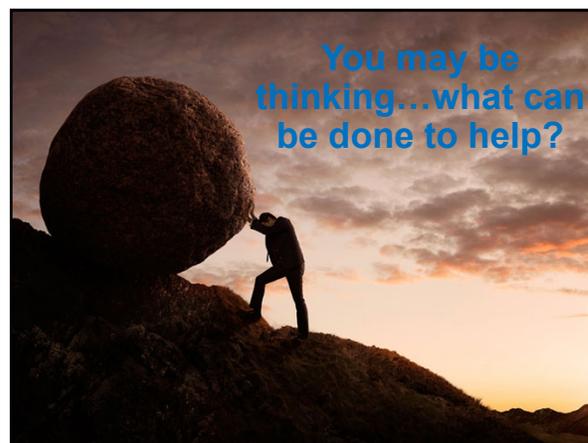
- Can be musculoskeletal (41%), dystonic, neuropathic, or radicular
- 76% of PWP have pain
- Correlates with depression and poorer quality of life

Orthostatic Hypotension

- Can be side effect of PD meds
- Can be an autonomic symptom of PD
- Can lead to falls, fear of falling, and increased mortality
- Estimated prevalence 30% in PWP

Valkovic et. al, 2015; Velseboer 2016

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You may be thinking... what can be done to help?

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Unique Opportunity
Today in the world of PD – we CAN make a difference!



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Treatment strategies related to nonmotor symptoms

- Nonmotor symptoms may impact treatment, but do NOT make people with PD ineligible to receive it
- We just have to figure out opportunities to motivate and address (not ignore) the nonmotor symptoms
- Direct and indirect strategies



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Patient Education for Early to Mid Stage Cognitive Health

Exercise	Exercise according to American Heart Association guidelines
Socialize	Stay socially active; join a support group
Work your Brain	Engage in cognitive training exercises/activities
Cope	Learn coping strategies with an occupational therapist
Eat Well	Nutrition can affect cognition; try a Mediterranean diet
Take time	Take your time when doing tasks

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Loss of Higher Cognitive Function

- Increase dosage of treatment
- Reduce distractibility
- Be patient – allow time for delayed auditory processing
- Model exercises and functional mobility - limit verbal explanations
- Repetition, repetition, repetition!!!
- Keep it simple!



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Dementia

- Many of the same strategies as loss of higher cognitive function
- Require assistance to be compliant with home exercise program
- More care partner training
- Need more familiar reading material
- Need even more repetition of exercises and activities
- Enhanced lighting and table setting contrast during meals
- Assistive devices and equipment may be necessary

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Dementia Case Example LSVT LOUD

You have a person with PD who has significant dementia and as a result has difficulty reading unfamiliar material. This particular person is very involved in place of worship. Thus, you can select familiar readings for him to read to keep the intensity of motor practice going and maintain salient engagement.



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Motivation and Engagement Symptom Complex

Fatigue

Sleep Disorders

Depression

Apathy

Anxiety

Collective strategies overlap to address these issues in treatment!

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Environmental Manipulations/External Support

Schedule initial treatment sessions during "best time" of day for person with PD

Make environment welcoming and motivating – lighting, etc. Minimize distractions, create comfortable environment

Create a schedule
• List day, time, and place

Involve others as appropriate – family, friends, staff

May need more support initially to convince the person with PD to carry over treatment targets

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Positive Reinforcement/Arousal

- Positive reinforcement/Positive spin:
 - Client: "These exercises are a lot of work."
 - Clinician: "Yes, they are! This is what will help you improve your communication/walking/buttoning. You have important things to say and do. The more we practice, the stronger you will get!"
- Positive reinforcement to facilitate feeding
- Encourage energetic participation
- Role of arousal in motor learning



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Salient and engaging tasks

- Incorporate tasks that are meaningful and salient to person – enhances motivation
- Link program to functional goals
- Hobbies and passions should be incorporated and used to achieve self-realization and improved communication, function and participation
- Salience of activities and other environmental factors that facilitate motivation and learning



Family



Work



Hobby

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Physical activity & active practice

- Increase "vigor"
- Increased activity with treatment may help with sleep
- Increase endurance with daily exercise/practice
- Increase engagement and socialization



Cusso, Donald, & Khoo, 2016

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Management of Fatigue

- Exercise!
- Keep mentally and physically active
- Establish good sleep habits/hygiene
- Avoid frequent naps
- Eat well
- Pacing strategies/routine

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Fatigue & Apathy Case Example LSVT BIG

- Admits he does not enjoy activities that were once pleasurable
- Feels unmotivated to do anything
- Feels tired often. Admits he does not sleep well because of restless legs and is up several times to urinate during the night.
- He has chronic low back pain so "takes it easy" a lot.
- He also gets dizzy sometimes when he is standing or walking, so spends much of his day sitting watching TV.
- Admits that he has slowed down some, but also thinks his wife walks too fast.

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Treatment Strategies

- Set a schedule for HEP & Homework Helper DVD
- Meaningful functional goal selection: playing with grandkids, traveling, eating out
- Provided frequent reinforcement of how his effort will improve his QOL
- Educated on difference between muscle soreness vs. pain
- Educated on post exercise fatigue vs. other types of fatigue
- Reinforced education on sleep hygiene
- Highlighted how exercise resulted in boosted energy level and improved sleep
- Discussed OH symptoms with MD and provided basic education on hydration, compression hose, rising slowly, etc.
- Reinforced positive changes in movement so he could begin to internalize what normal movement "feels like"

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Treatment Strategies for Pain & Sensory Changes

Model Well	Model and reinforce good biomechanics and voice quality
Adapt	Adapt for painful movements or joints or vocal quality. LSVT exercises should never cause pain.
Support	Provide support or change position of exercises as needed
Decrease	Decrease hold time and reps if limited by pain or vocal strain
Screen	Screen for conditions which need treatment before or after LSVT BIG or LSVT LOUD

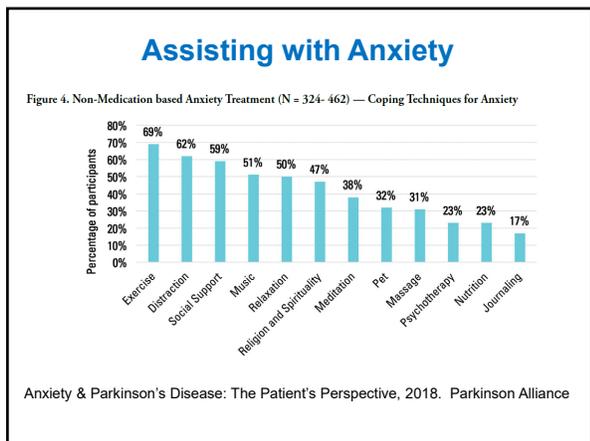
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Treatment Strategies for Orthostatic Hypotension

- Educate in safe postural transition strategies
- Encourage strategies for hydration
- Assess avoidance of toileting
- Discuss medical management and compression wear with MD



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frontiers
in Medicine

MINI REVIEW
published: 17 August 2019
doi: 10.3389/fnmed.2019.00030

The Impact of Physical Activity on Non-Motor Symptoms in Parkinson's Disease: A Systematic Review

Melanie E. Cusso^{1}, Kenneth J. Donald¹ and Tian K. Khoo^{1,2}*

“Global and specific NMS involving depression, apathy, fatigue, cognition, and sleep were significantly improved by some form of physical activity.”

Need for further research to fully clarify the relationships between what types of exercises, dosage of exercise, and other contributing factors most significantly impact NMS.

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1

They are all potential barriers to generalization outside of the treatment room!

2

They are part of the reason high intensity, repetition and salience is so important

3

People with PD need to be viewed as a “whole person”

Why is it important to consider nonmotor symptoms?

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Don't get “lost” in all of the issues people with PD have and diffuse the focus. The target is still Amplitude.

Potential Pitfalls

Our greatest gift we can give is

- Improved communication
- Improved swallowing
- Quality of life
- Increased participation
- Improved ease of mobility

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Parkinson's disease and COVID-19 Nonmotor symptoms

Impact of COVID-19 on people with PD not infected

- Psychological stress (anxiety, isolation, uncertainty)
- Reduced access to direct medical care
- Reduction in physical and social activity (speech, physical, occupational therapies, exercise groups, socialization outside of the home)
- These indirect consequences can exacerbate symptoms

Helmic & Bloem, 2020; Papa et al., 2020

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Parkinson's disease and COVID-19 Nonmotor symptoms

Impact of COVID-19 on those with PD who have been infected

- Very limited data on people with PD post-COVID-19
- First report – 10 clinical cases (Antonini et al., 2020)
 - Patients of older age, with longer disease duration susceptible to COVID-19 with high mortality rate (40%)
 - Those on advanced therapeutics (DBS, levodopa infusion) may be even more vulnerable with 50% mortality rate
- PD already requires rehabilitation services- how does that change post COVID-19 recovery?
 - Risk for worse respiratory complications due to pre-existing weak cough, chest wall rigidity, pre-existing dyspnea
 - Stress, self-isolation, and anxiety
 - Prolonged immobility due to hospitalization, isolation and extreme inactivity

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No One Size Fits All...

People with PD are *incredibly diverse* in symptoms, presentation, stage of disease

Impact of COVID-19 is *incredibly diverse* in both acute symptoms and sequelae, and much is still unknown

Therefore, recovery and rehabilitation will vary highly depending on the complexities and interactions of these diagnoses

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Stress & Parkinson's Disease (PD)

Emotional stress can increase motor symptoms

Studies indicate that stress can impinge on dopaminergic control of motor movements

The timing and intensity of stressors may affect the efficiency of exercise being neuroprotective.

PD patients with depression and/or chronic stress may experience a chronic neuroinflammatory environment perhaps linked to exacerbated PD pathology

(Hemmerle, Herman & Seroogy 2012)

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Depression, Apathy, and Anxiety

- Reductions in physical activity and a loss of socialization activities during the COVID crisis increases risk of:
 - Chronic stress → Increased psychological stress → worsening of motor symptoms while reducing the efficacy of dopaminergic medication
 - Dopamine depletion → cognitive and motor inflexibility → impaired ability to successfully cope with new circumstances, causing a sense of loss of control → increased stress, and so on and so on...
- GOOD NEWS!! Online voice and exercise education, classes and therapy are helping!
- Incorporate self-management strategies that reduce stress, increase coping, and increase physical exercise (e.g., LSVT LOUD)
- Consider referrals to psychology and psychiatry

Helmich & Bloem, 2020

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Collective Impact on Communication

- **Weak Voice** exacerbated by:
 - Laryngeal trauma
 - Upper Airway Irritation
 - Chronic cough
 - Post intubation injury
 - Reduced respiratory support
 - Wearing masks
- **Fatigue**
 - Apathy, lack of interest in communication
- **Cognitive challenges**
 - Disoriented
 - Difficult to focus
 - Cognitive challenges specific to COVID-19

Difficulty with communication affects ALL aspects of recovery and rehabilitation: physical, mental, social

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Is my patient ready for a PD-specific therapy now? Which are, by definition, intensive.

<p>NO!</p> <ul style="list-style-type: none"> • Too deconditioned and weak from illness • Unable to participate in full session due to unmanageable increased HR, blood pressure, respiratory rate or low SpO2 • Has more urgent medical or therapy needs to address first • Does not respond to stimulability testing 	<p>YES!</p> <ul style="list-style-type: none"> • GOOD NEWS! Many people can begin intensive programs right away, pending medical approval • Can tolerate 1-hour sessions with rest breaks • Vitals stable with exercise • No longer dealing with active infection • Medically cleared for therapy • Responds to stimulability testing
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Considerations for Treatment Settings

 <p>Home environment vs. clinic setting vs. SNF</p> <p>Where is the patient? Is in home care possible?</p>	 <p>Is in-person treatment necessary or beneficial?</p>	 <p>PPE for you and the patient</p> <p>Can the patient see your face? Can you see their face? How is volume affected? What is the impact of the mask on breathing during exercise? Is intensive exercise safe with a mask on?</p>
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Fatigue Treatment Tips

- ✓ Add additional breaks for rest and hydration
- ✓ Safely progress across exercises
- ✓ Monitor SpO2 levels during exercises
- ✓ Include strategies to help your patient manage and reduce frustration, anxiety and stress levels, which will increase verbal fluency and improve motor symptoms
- ✓ Help patients and families identify and use compensatory attention and memory strategies and AAC when necessary to reduce the impact of cognitive-linguistic difficulties and anxiety associated with communication difficulties

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Telehealth

- **5 C's of telehealth** (Bloem, Dorsey & Okun, 2020)
 - Better access to **CARE**
 - Greater **CONVENIENCE**
 - Enhanced patient **COMFORT**
 - Better **CONFIDENTIALITY**
 - Reduced **CONTAGION**
- Con's: Safety; no ability to physically assist patient (PT/OT); more limited assessment options; may not be reimbursable; technology challenges
- New coverage for telehealth services under COVID-19 emergency acts



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Telehealth Resources

For Everyone: [Telepractice Delivery of LSVT LOUD and LSVT BIG: What you need to know](#)

Find LSVT eLOUD providers:
<https://www.lsvtglobal.com/LSVTFindClinicians>

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Know when to refer!

Refer for treatment of nonmotor symptoms when necessary.

Also, we have a lot to learn about COVID-19 and our patient's response to treatment.



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Professional Resources-COVID-19

- [Guide to Free COVID-19 Webinars and Facebook Live Recordings From APTA and Others](#)
- [Recommendations From APTA Components](#)
- [AOTA Resources related to COVID-19](#)
- [Research Information from the NIH](#)
- [CDC information for Health Care Professionals](#)

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SLP Resources-COVID-19

ASHA Coronavirus/COVID-19 Updates
<https://www.asha.org/About/Coronavirus-Updates/>

Enabling ICU Communication During COVID-19
 An interprofessional group of speech-language pathologists and others have created [free materials to aid bedside communication](#) with intubated patients during COVID-19.

Medicare Expands Telehealth Services to Audiologists and SLPs
 The [recently announced expanded coverage](#) will last the duration of the COVID-19 public health emergency and is retroactive to March 1, 2020.

Get Updated COVID-19 Telepractice Resources
 Find the latest on state telepractice regulation changes as well as [tips and guidance for providing telepractice services](#).

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SLP Resources-COVID-19

Get Guidance on Providing Voice Services in the Absence of Endoscopic Evaluation

ASHA's guidance can help speech-language pathologists (SLPs) [make informed decisions about providing voice treatment](#) in the absence of laryngeal visualization during the COVID-19 pandemic.

Guidance on voice Endoscope evaluation during COBID-19

<https://www.asha.org/SLP/healthcare/Considerations-When-Providing-Voice-Services-in-the-Absence-of-Endoscopic-Evaluation-During-COVID-19.htm>

ASHA Guidance for those at home with swallowing disorders

<https://finance.yahoo.com/news/asha-offers-guidance-those-sheltering-134000487.html>

DRS COVID-19 Resource Page

https://www.dysphagiaresearch.org/page/COVID-19Resources?fbclid=IwAR38XAEIqVGhBNDipHC7PdW0I0J69H5Yvx2G3EguC9YK2bu_k8YyAF9nZc

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Resources for People with PD

- [Michael J. Fox Foundation COVID-19 Resource Hub](#)
- [APDA COVID-19 Questions and Answers](#)
- [APDA COVID-19 Information and Resources](#)
- [Parkinson Foundation Coronavirus Information](#)
- [Parkinson and Movement Disorder Alliance Online Resources related to COVID-19](#)
- [Centers for Disease Control and Prevention](#)

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Summary

- Nonmotor symptoms are pervasive in PD at all stages and affect communication, swallowing, mobility, activities of daily living, and quality of life
- We can impact nonmotor symptoms both directly and indirectly with our treatments.
- Strategies you might include in treatments you deliver:
 - Intensity and Repetition
 - Environmental Manipulation
 - Positive Reinforcement and Arousal
 - Salient and Engaging Tasks
 - Physical Activity and Active Practice



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Summary

- View the “whole person” but focus on what we are specialized to improve
- COVID-19 could have a wide range of impact on the nonmotor symptoms in people with PD that may have a direct or indirect impact on communication, mobility and quality of life - especially possible cognitive sequelae in PWP who have had COVID-19.



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How to Ask Questions

- **Type in the question box on your control panel**
- **Raise your hand!**
 - Click on the hand icon
 - Your name will be called out
 - Your mic will be unmuted,
 - Then you can ask your question out loud
- Email info@lsvtglobal.com if you think of questions later!



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THANK YOU!

Please complete short survey

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