



LSVT Global® Public Webinar Series

Title: Got a Challenging Case? How LSVT LOUD® and LSVT BIG® Can Help Complex Clients

**Presenters: Heather Hodges, MA, CCC-SLP
Heather Cianci, PT, MS, GCS**

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Got a Challenging Case?
How LSVT LOUD® and LSVT BIG® Can Help Complex Clients



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Presenters



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**Presenter
 Biographies**

Heather Hodges, MA, CCC-SLP
 Ms. Hodges received her master's degree in Speech, Language, and Hearing Sciences from the University of Colorado. She has been part of Dr. Ramig's research team since 2004. Ms. Hodges is a consultant, expert clinician, training and certification Faculty and CE Administrator with LSVT Global. She also enjoys her role within LSVT Global collaborating and presenting on Google's Project Euphonia, which aims to improve voice recognition software for those with dysarthria and dysphonia. In addition to specializing in neurogenic voice and speech disorders, Ms. Hodges worked for 13 years at an outpatient hospital specializing in diagnosing and treating dysphagia, dysphonia, and upper airway disorders. She has presented nationally and internationally on LSVT LOUD, Parkinson's disease, P/FM/VCD, cough, and dysphagia. Ms. Hodges has published articles and a book chapter on speech treatments for upper airway disorders. Educating others on the diagnosing and treatment of upper airway disorders remains a focus and passion for her.

Heather Cianci, PT, MS, GCS
 Ms. Cianci is the Neurologic 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 LSVT faculty have both financial and non-financial relationships with LSVT Global.
- Non-financial relationships include a preference for LSVT LOUD and LSVT BIG as treatment techniques.
- Financial Relationships include:
 - Ms. Hodges and Ms. Cianci are consultants for LSVT Global and receive lecture honorarium.

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Webinar Logistics

- Microphones muted
- How to ask questions
- Handouts
- Survey
- Continuing Education Units (CEUs)


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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 and occupational therapy professionals, but it may be used for self-reported CEU credit as a non-registered/non-preapproved CEU activity.
- If you are a speech, physical, or occupational therapy professional and would like to self-report your activity, e-mail webinars@lsvtglobal.com to request a certificate after completion of the webinar which will include your name, date and duration of the webinar.
- Licensing requirements for CEUs differ by state. Check with your state PT, OT or Speech licensing board to determine if your state accepts non-ASHA registered or non pre-approved CEU activities.
- Attendance for the full hour is required to earn a certificate.



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Learning Objectives


Upon conclusion of this webinar, participants will be able to:

- 1) Identify at least 3 possible etiologies underlying more complex LSVT LOUD and LSVT BIG cases.
- 2) Explain ways to adapt LSVT LOUD for more complex cases.

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Increased Complexity


How LSVT LOUD® and LSVT BIG® can improve function and quality of life in Advanced Parkinson's disease



Most common speech Parkinsonisms


- RSP - Progressive Supranuclear Palsy
- MBA - Multiple System Atrophy
- CBD - Corticobasal Degeneration
- LBD - Lewy Body Disorders

Deep Brain Stimulation in PD



- Connected to a neurostimulator implanted under the skull
- Can be fine-tuned or turned off
- Consists of multiple segments to allow multiple site stimulation

Intensive Therapy for Pediatric Populations: Can LSVT Really Work?



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Poll #1. Who is joining us?

- Person with speech/motor challenges
- Family member, friend, or care partner
- Physical or Occupational Therapist/Assistant (including students)
- Speech-Language Pathologist/Assistant (including students)
- Other

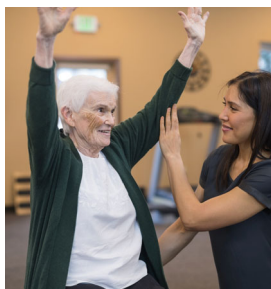
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What is LSVT® and Why is it Unique?

- Lee Silverman Voice Treatment
 - LSVT LOUD® speech therapy and LSVT BIG® physical or occupational therapy
 - Both are standardized therapy protocols
- Prescribed dosage & method of delivery based upon 30+ years of scientific research
- Delivered only by LSVT LOUD or LSVT BIG certified speech, physical and/or occupational therapists
- Considers not only the motor symptoms, but also the non-motor symptoms common to PD.
- Individualized one-on-one intensive training to work on things that matter to the person receiving treatment.
- PD makes movements slower and smaller and the voice softer. LSVT counteracts this by training bigger, more normal movements and a louder, healthier voice.

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Standardized, yet Individualized

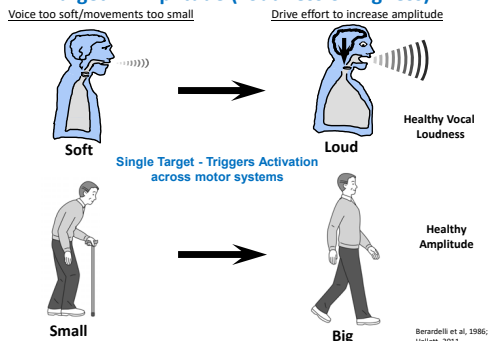


Customized to the unique goals of each patient.

Can be adapted or progressed in order to meet each patient's needs across a range of disease severity and presenting impairments.

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Target – Amplitude (Loudness or Bigness)




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Amplitude as a Trigger
 Clinician shapes and models normal **LOUDNESS** with healthy vocal quality, or... normal amplitude **MOVEMENT** with healthy quality

Mode – Intensive and High Effort
Intensity across sessions: minimum dosage for efficacy!
 • 4 consecutive days a week for 4 weeks in a row (16 total) for 60-minute sessions
 • Individual therapy...not group
 • Daily homework practice and daily carryover exercises for all 30 days of the month
 • Delivered by LSVT BIG Certified PT or OT or LSVT LOUD Certified SLP

Goal: Calibration
Addresses Barriers to Generalization

- Sensory disorder
- Internal cueing
- Neuropsychological



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Goal in Therapy: Incorporate Multiple Principles that Drive Neuroplasticity



- Intensity
- Complexity
- Repetition
- Salience
- Timing
- Specificity

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Examples of Amplitude as a Source

Movement Disorder Type	Example Populations	Signs/symptoms	Rationale for LSVT
Hypokinetic	Parkinson's disease	Reduced amplitude of motor output	Increase amplitude of output to improve vocal loudness, size and speed of movements
Spastic	Cerebral palsy, stroke, TBI, tumor, encephalitis	Weakness, limited range of motion, tightness or stiffness in muscles	Drive normal amplitude to improve loudness/strength, increase range of motion, decrease compensatory behavior
Ataxic	Cerebellar ataxia, Friedrich's ataxia, stroke, TBI - cerebellum, surgical trauma	Variability in movement, too loud/big or too soft/small, incoordination	Stabilize vocal loudness or movements by targeting healthy, normal amplitude
Flaccid	Down syndrome, stroke, TBI, tumor, surgical trauma	Weakness, low tone	Drive amplitude to improve strength, coordination in voice and movements

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Advanced PD

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Stages of PD

Modified Hoehn and Yahr Scale

STAGE 0 = No signs of disease.
 STAGE 1 = Unilateral disease.
 STAGE 1.5 = Unilateral plus axial involvement.
 STAGE 2 = Bilateral disease, without impairment of balance.
 STAGE 2.5 = Mild bilateral disease, with recovery on pull test.
 STAGE 3 = Mild to moderate bilateral disease; some postural instability; physically independent.
 STAGE 4 = Severe disability; still able to walk or stand unassisted.
 STAGE 5 = Wheelchair bound or bedridden unless aided.

Goetz CG, Poewe W, Rascol O, et al. Movement Disorder Society Task Force report on the Hoehn and Yahr staging scale: status and recommendations. Mov Disord. 2004;19(9):1020-28.

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Advanced Parkinson's

Symptoms become increasing complex and have more of an impact on daily life.

Cognitive Complications:

- Hallucinations
- Dementia
- Apathy
- Depression/Anxiety
- Psychosis

Motor Complications:

- Increasing rigidity
- Increasing immobility that can lead to skin breakdown, contractures, pain, loss of muscle mass
- Increasing falls

Medications can become less effective at managing symptoms and side effects can increase.

- On-Off Fluctuations
- Wearing Off
- Dyskinesias

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Speech Characteristics of Advanced PD

- Imprecise articulation
- Vocal tremor
- Dysfluent speech- stuttering like (initiation difficulties, inappropriate silences)
- Hyperfluent – compulsive, effortless repetition of words and phrases, against a background of increasing rate and loudness; word and phrase repetitions tend to occur at the end of an utterance
- Increased time for processing information and responding



Darley et al., 1969a, 1969b, 1975; Logemann et al., 1978; Cheney et al., 1988; Benke, Hohenstein, Poewe, & Buttenworth, 2000; Duffy, 2005

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Motor Characteristics of Advanced PD

- Increased severity of bradykinesia, hypokinesia, & rigidity, freezing
- Difficulty walking; use wheelchair more often or stays in chair/bed
- Not able to live alone, help needed with everything
- Increased falls
- Greater need for assistive devices
- Worsening of posture

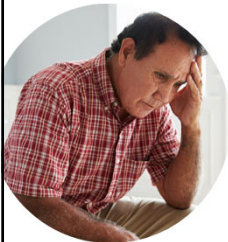


Giugni & Okun, 2014; Varanese et al, 2010

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NON-MOTOR Characteristics of Advanced PD

- Psychosis and hallucinations
- Depression, Anxiety, and Apathy
- Sleep Disorders
- Autonomic Dysfunction
- Pain
- Dementia and increased neuropsychological changes (slow processing, attention, etc.)



Giugni & Okun, 2014; Varanese et al, 2010

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Atypical Parkinsonisms

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General Speech Deficits in Atypical Parkinsonism

- Changes in speech and swallowing typically occur early, are more severe, and progress more rapidly
- Mixed dysarthria = hypokinetic++
 - Strained voice
 - Impaired fluency
 - Slow rate
 - Palilalia
- Language deficits
- Greater communication deficits: initiation of speech, managing conversations, turn taking, shifting topics





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Speech Characteristics of PSP vs. MSA

(Rusz et al., 2015)

PSP	MSA
• Increased dysfluency	• Pitch fluctuations
• Decreased, slow rate	• Excess intensity variations
• Inappropriate silences	• Prolonged phonemes
• Deficits in vowel articulation	• Vocal tremor
• Harsh voice quality	• Strain-strangled voice quality

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Rehab Focus in Advanced and Atypical Parkinsonism

- Maintain and improve physical capacity
 - Loudness, voice quality, intelligibility, rate
 - Safe mobility, care partner training, fall prevention
- Maintain vital functions: swallowing & moving safely
- Functional communication & mobility is key
- Use of external cueing, devices, augmentative devices
- Address cognitive and/or language deficits

Treat Early and Often!

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Possible LSVT LOUD Adaptations

<p>Max Sustained Phonation</p> <ul style="list-style-type: none"> • More time with clinician shaping and modeling good voice quality during “ah” • Durations may be short requiring more repetitions • Rest periods between reps 	<p>Max Pitch Range</p> <ul style="list-style-type: none"> • Pitch range may be very reduced • Greater tendency to NOT start at max “ah” – may need to reset the exercise more frequently 	<p>Functional Phrases</p> <ul style="list-style-type: none"> • Family input to create the phrases • Increase repetitions (more than the 5 times) as these will be KEY functional outcomes for patients • Increase the number of functional phrases • Use some as hierarchy practice
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- ❖ Prolonged need for modeling and shaping
- ❖ Important to maintain salient practice (use family PRN for input)
- ❖ Continue to include structured tasks and spontaneous speech
- ❖ Allow sufficient time for slower cognitive processing and response
- ❖ Use motor start of the “ah” as needed to rev up the system

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Adaptations: Calibration

- Can be more challenging, but remains as important
- Education can be more difficult with cognitive impairments
- Differences played back on audio may not be as easily perceived
- Benefits/rewards of improved communication may be harder to establish
- Critical to find those emotionally salient opportunities so clients feel the reward of improved communication

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**Adaptations:
LSVT LOUD - Plus**

- More treatment sessions
- Frequent and continuous follow-up
- Altered auditory feedback
- Augmentative device supplementation
- Pacing – video example
- Additional cues – (e.g. “loud and fast”, “loud and clear”)

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LSVT BIG May Help Those with Atypical PD

By Using:

- the principles of neuroplasticity - intensity, repetition, specificity, and saliency
- blocked, serial, and random practice (motor learning techniques)
- extrinsic feedback using the 4 teaching principles of modeling, shaping, driving, stabilizing – patients repeatedly learn how they are doing and what needs to be improved

By Promoting:

- improved care partner understanding
- intrinsic feedback using the teaching principle of calibration to help patients “re-set” their internal motor program
- generalizability to other tasks/activities outside of the clinic

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Possible LSVT BIG Adaptations

Fewer repetitions	Shorter hold times	Unilateral support in standing	Breaking upper and lower extremity movements apart
Perform in sitting or supine	Keep to one hierarchy	More days of treatment	Involve family and other help as able
Use pictures and videos	Model more and talk less	When explaining – keep it simple and focused	Slow learning initially is not a sign that the treatment is not working

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**Adaptations:
General**

- Will likely need support from family, care partners, nursing staff, etc.
- Clinician may include family/care partner perceptual ratings to help determine functional impact
- Clinician should carefully train others on how to cue (helpful not hurtful to treatment goals)
- Islands of lucidity – clinician should capitalize on them
- Motor fluctuations: on/off and dyskinesias
- Acknowledge fatigue within treatment sessions (e.g., validate; longer rest periods)
- Consider treatment location – distractibility, cognition, transportation, home vs. clinic, telehealth

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**Adaptations:
Cognitive
Concerns**

- Complete treatment in a room separate from others and with as few distractions as possible
- Begin treatment without observers
- Clinician should model exercises as he/she wants the client to perform them
- Clinician can use environmental cues
- Repetition, repetition, repetition!!!
- Clinician should keep focus simple, even when other communication deficits are present
- Likely will have to treat beyond the 4 weeks
- Once client is able to follow clinician modeling, the clinician should educate care partners so they can be a “coach”

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Deep Brain Stimulation

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DBS and the Impact on Symptoms of PD

Deep brain stimulation (DBS) uses a surgically implanted medical device to deliver electrical stimulation to a targeted area in the brain. It electrically stimulates specific structures that control unwanted symptoms.

- Can reduce &/or control rigidity, bradykinesia/akinesia, tremor & dyskinesia
- Patient can only return to their best “on time”
- Can reduce the amount of meds needed (~30%)
- STN can lead to depression, apathy, impulsivity, worsened verbal fluency, & executive dysfunction
- Not as effective on gait & balance or postural instability

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Potential DBS Complications

Intracranial or intracerebral hemorrhage in 2% of patients	Ischemic stroke in 0-1%	Implantation site infection 3-8%	Seizures in 0-3% of patients	Suicidal ideation may increase after DBS
Increased Fear of Falls*	2.52 times the risk of falling with DBS compared to non-DBS*	Declines in cognition in longitudinal follow up have been documented	Possible decline in speech, gait & balance	

“Individuals with DBS therapy may have extra ability to move without functional impairment, but lack the feedback and control to do so safely”

*<http://www.parkinsonalliance.org/media/file/FallsReport-Oct2013wRef.pdf>
Duker & Espay, 2013

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LSVT BIG and LSVT LOUD after DBS

- May want to ensure they are stable in their DBS settings prior to treatment.
- Stay in communication with MD regarding any changes in programming that may need to be done secondary to things you observe during treatment.
- Balance deficits and freezing may persist – include freezing triggers in treatment (BIG walking, FCTS, hierarchies)
- Continue to need repetition to learn appropriate amplitude/motor control. Movements may be too big or hyperkinetic - the target of amplitude is sometimes to learn control of movement vs. overriding small movement
- Severe speech impairments - trials of behavioral speech treatment or may need addition of augmentative communication devices
- Additional week or more (as needed)
- Additional follow-up 1-3 Months

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Medial vs. Lateral Speech Profile post-DBS

Mahlknecht et al., 2017

Medial

- Strained-tight and continuous phonation
- Inaccurate articulation
- Perception of breathing insufficiency
- *More dystonic and less responsive to behavioral therapy*



Lateral

- Monotone-flat intonation
- Fast rate of speech
- Reduced movement of lips and tongue
- *More hypokinetic and respond well to LSVT LOUD, but may have added fatigue and some apathy*



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Pediatric Application of LSVT Loud

• Target of Treatment: Amplitude

- Why?
- How?



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Communication is Important

Common communication themes from child and parent interviews of children with dysarthria consequent to cerebral palsy (CP):

- Want to be socially accepted so their first choice is to use oral communication
- Continue to communicate orally in the absence of success
- Extremely frustrated when peers or adults fail to wait to understand the message and simply walk away



There is a great need, but limited research!

Boliek & Fox, 2017

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Treatment-dependent Neuroplasticity occurs in Pediatric Context When:

- Intensive task repetitions
- Progressive challenges to the learner with increasing difficulty
- Presence of motivators and rewards (internally driven)
- Active participation
- Skill acquisition of a functional goal
- Practice must be structured

Schertz & Gordon, 2008

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Reinforcement

- Prioritize the intrinsic reinforcement of success!
- Make intrinsic rewards 90% of session
- Use extrinsic rewards only as needed (e.g., stickers, turns at games); save them for when the child is really failing which happens more in week 2 and 3
- Work, work, work – they don't need nearly as much external reinforcement/extrinsic rewards as we tend to give



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LSVT Adaptations ARE:

- Decreased reps & hold times
- Allowing greater rest breaks
- Adding additional sessions and more frequent follow-ups
- Utilizing family and support system for carryover
- Persisting at phrase/sentence levels of the hierarchy for LSVT LOUD
- Altering materials for visual/language impairments
- Spending more time shaping with daily exercises and hierarchy
- Modeling shorter durations to facilitate better voice quality or movement
- Focus on shorter functional phrases for more severe speech impairments for LSVT LOUD
- Keep focus simple, even when other communication deficits are present
- Acknowledging and validating patients' fatigue within treatment sessions

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LSVT Adaptations are NOT:

- Altering core protocol
- Delivering fewer or shorter sessions
- Changing treatment tasks
- Eliminating core elements (target, mode, calibration)
- Skipping elements on certain days
- Not assigning carryover assignments

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So, what *do* we know?

- People with advanced PD can still learn new things and improve their quality of voice and movement.
- Improvements may be smaller in magnitude as compared with early PD
- It may take longer/more sessions to make improvements
- People with advanced PD may need therapy more often to help maintain gains and slow symptom progression
- A solid rationale exists for using LSVT LOUD in childhood populations (voice focus, neuroplasticity principled, functional goals)
- Emerging evidence across patient report, acoustic, perceptual, physiological, and neural data all support the use of LSVT LOUD in select childhood populations

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There is HOPE!

- Don't underestimate the value of therapy just because the condition is complex or the patient has a non-IPD diagnosis
- People with advanced PD, those post DBS, and other populations (like peds) and can have amazing outcomes!
- FUNCTIONAL communication and movement of any kind can dramatically improve quality of life

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Everyone Should be Given a Chance!

- Don't discount successful treatment options just because the disease is advanced or complex
- Clinicians should do stimulability testing and a week of trial treatment
- The outcomes can be impressive
- FUNCTIONAL oral communication of any kind can dramatically improve quality of life, *even if supplementation is required*
- SAFE FUNCTIONAL movement of any kind can dramatically improve quality of life, *even if supplementation is required*

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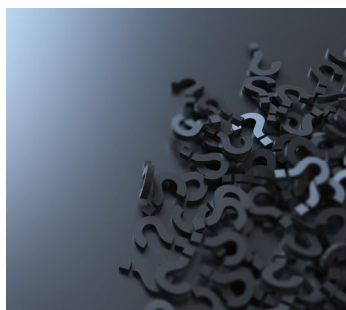
Summary

- LSVT Treatments are applicable to all stages of PD and can be customized to each client's needs and treatment settings
- LSVT Treatments can increase independence, quality and safety with communication and movement
- Restore Function! Improve Function! Maintain Function!
- Atypical and Advanced PD, being post-DBS, and other etiologies affecting speech/movement carry unique challenges requiring creative solutions and increased caregiver involvement
- Follow a systematic decision-making process, including stimulability testing and trial treatment, to decide if LSVT Tx is appropriate or not
- Embrace creative practical implementation ideas to be successful – don't diminish the fidelity of neuroplasticity and evidence-based treatments with alternative dosages that are not effective

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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 in your control panel)
- Email info@lsvtglobal.com



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Thank you!



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after you exit the webinar.
It will take five minutes or less to complete!
