



LSVT Global Public Webinar

Title: Introduction to LSVT LOUD® and LSVT BIG®:
Speech, Physical and Occupational Therapy for Parkinson's
Disease and Other Neurological Conditions

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Introduction to LSVT LOUD® and LSVT BIG®: Speech, Physical and Occupational Therapy for Parkinson's Disease and Other Neurological Conditions





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Innovation in Science. Integrity in Practice.®


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Instructor Biographies

Laura Gusé, MPT
Ms. Gusé has extensive experience treating people with neurodegenerative disorders in various practice settings. She was LSVT BIG certified in 2009 and now serves as Chief Clinical Officer of LSVT BIG. Ms. Gusé oversees the training, curriculum and product development related to LSVT BIG, and has helped to create many of the current LSVT BIG treatment tools, webinars, and courses. She has spoken at many national and international conferences on topics related to LSVT BIG.



Angela Halpern, MS CCC-SLP
Ms. Halpern is an LSVT LOUD certified speech-language clinician, as well as Chief Clinical Officer- LSVT LOUD and LSVT LOUD Faculty instructor for LSVT Global. She is a research associate and member of Dr. Ramig's research team at the National Center for Voice and Speech in Denver, CO, and has her own Speech-Language Pathology Private Practice. She received her master's degree in the Department of Communication Science and Disorders at the University of Pittsburgh. Ms. Halpern has worked extensively in the area of neurodegenerative disorders with a specialty in Parkinson disease. She has presented at national and international conferences and authored and co-authored publications related to voice and speech in Parkinson disease.



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Disclosures

All of the LSVT Global 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 technique.

Financial Relationships include:
Ms. Guse and Ms. Halpern receive consulting fees and travel reimbursement from LSVT Global, Inc. and are employees of LSVT Global, Inc.

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Plan for Webinar


- Logistics
- Presentation of Content
- Address your questions
 - Type in the question box at any time
 - Questions will be answered at the end
- Survey

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Learning Objectives

- Describe the need for effective speech, physical and occupational therapy interventions for Parkinson's disease
- Discuss the development and data on efficacious treatments LSVT LOUD® for speech and LSVT BIG® for movement
- Discuss LSVT LOUD and LSVT BIG treatment concepts
- Explain how clients can find an LSVT LOUD and/or LSVT BIG Certified Clinician and how speech, physical and occupational therapists can receive training and certification in LSVT LOUD or LSVT BIG

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Polling Question 1


What is your profession?

- Physiotherapist
- Occupational Therapist
- Speech Therapist
- Nurse
- Physician
- Other

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Approximately how many people with Parkinson disease have you treated in the last year?

- None (0)
- 1-5
- 6-10
- 11-20
- More than 20




Polling Question 2

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Parkinson's Disease (PD) A Global Concern?

Up to 8 million people worldwide are living with PD.



Number of people with PD is expected to DOUBLE by 2040.


Dorsey ER, Bloem BR (2018) The Parkinson Pandemic—A Call to Action. JAMA Neurol. 2018;75(1):9-10. doi:10.1001/jamaneurol.2017.3299

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Our Mission


To empower people with PD to restore and maintain their highest levels of functional communication, mobility and independence in daily life through scientifically supported therapy programs:

- LSVT LOUD® Speech Therapy
- LSVT BIG® Physical & Occupational Therapy



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Today over 40,000 LSVT Clinicians in 75 countries have been trained.




Over 24,000 LSVT LOUD Certified Clinicians in 70 countries
Over 22,000 LSVT BIG Certified Clinicians in 43 countries

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Video: Before and After LSVT LOUD

- 59 year-old female, 2.5 years since diagnosis
- Changes noted in her voice and speech
- She is ON medications in the before and after videos and she had no changes in medication
- Intensive one-month speech therapy program



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LSVT LOUD Before/After Video




<https://blog.lsvtglobal.com/lsvt-loud-speech-therapy-for-parkinson-disease-2/>

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Video: Before and After LSVT BIG

- 71 year-old, 14 years since diagnosis
- Referred to PT for slowness, difficulty walking, falls and freezing
- Parkinson's medications were optimized before starting LSVT BIG
- No medication changes during the month of therapy
- Intensive one-month physical or occupational therapy program



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LSVT BIG Before/After Video



<https://blog.lsvtglobal.com/lsvt-loud-speech-therapy-for-parkinson-disease-2/>

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PD: A Complex Disease!

Motor Symptoms	Non-Motor Symptoms
- Bradykinesia	- Higher rates of depression
- Hypokinesia	- Neuropsychological changes
- Rigidity	- Sensory/proprioceptive changes
- Tremor	- Emotional changes: anxiety, apathy
	- Higher rates of dementia
	- Autonomic Dysfunction
	- Sleep disorders

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Hypokinesia affects both SPEECH and MOVEMENT

- Progressive decrease in loudness of speech (hypophonia)
- Progressive decrease in amplitude of handwriting (micrographia)
- Progressive shortening of stride length and arm swing during walking
- Progressive decrease in speed & amplitude duration with repetitive movements of fingers or limbs


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Over 89% of individuals with Parkinson disease worldwide suffer from voice and speech disorders.

- Reduced vocal loudness, monoloudness
- Hoarseness, harsh or breathy voice quality
- Monotone voice
- Imprecise articulation

Aronson, 1990; Harel et al, 2004; Little, et al, 2008; Logemann et al., 1978; Ruiz et al., 2011; Sapir et al., 2001; Skodda, et al, 2009; Stewart et al, 1995

Even people who are clinically asymptomatic for speech deficits report feelings of embarrassment, social stigma and social isolation due to speech concerns (Miller et al., 2006a, b)



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How do motor and non-motor symptoms affect function in PD?

- Difficulty dual tasking affects efficiency
- Balance and stability affect safety
- Fear of falling affects everyday task involvement
- Slowed movements affect efficiency
- Difficulty with initiation affects time on task
- Tremors affect activities of daily living including object manipulation
- Apathy can affect motivation for treatment

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Rehabilitation (ST, PT, OT) is becoming a routine part of management in PD
 To provide symptomatic relief; improve function

Kleim & Jones, 2008; Kleim et al., 2003; Zigmond et al, 2009

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LSVT LOUD and LSVT BIG: Parallel Key Concepts

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Goal in therapy: incorporate multiple principles that drive neuroplasticity

Intensity matters
 Intensive practice is important for maximal plasticity

Complexity matters
 Complex movements or environmental enrichment have been shown to promote greater structural plasticity

Repetition Matters
 Induction of plasticity requires sufficient repetition (Kleim et al, 2004)

Salience matters
 Practicing rewarding tasks (success/emotionally salient) activates basal ganglia circuitry

Timing matters
 Injury creates fertile field for plasticity - need behavior to make it happen.

Specificity matters
 Train the deficits (target hypokinesia in PD)

(Alexander et al., 1990; Fox et al., 2002; Graybiel 1998; Kleim et al., 2003; Kleim and Jones, 2005; Jones et al. 1999; Saint-Cyr JA, 2003; Tillerson et al., 2002; Vergara-Aragon et al., 2003; Black et al. 1990; Conery 1995; Fisher et al, 2004; Kleim et al., 2001; 1996; Perez et al. 2004; Pisani et al., 2005; Plautz et al., 2000)

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Three KEY features of LSVT LOUD and LSVT BIG

Standardized, research-based, specific protocols

- TARGET:** Bigness or Loudness (**AMPLITUDE**)
- MODE:** Intensive and High Effort
- CALIBRATION:** Solutions for Lasting Success

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TARGET – Amplitude (Loud or Bigness)

Voice too soft/movements too small → Drive effort to increase amplitude

Soft → Loud (Healthy Vocal Loudness)
 Small → Big (Healthy Amplitude)

Single Target - Triggers Activation across motor systems

Berardelli et al. 1986; Hallett, 2011

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Mode – Intensive and High Effort

Intensity across sessions: Minimum dosage for efficacy!

- 4 consecutive days a week for 4 weeks in a row (16 SESSIONS)
- 60-minute sessions
- Individual therapy, (not group)
- Daily homework practice and daily carryover exercises (all 30 days of the month)
- Delivered by LSVT BIG Certified Physio and Occupational Therapists or LSVT LOUD Certified Speech Therapists

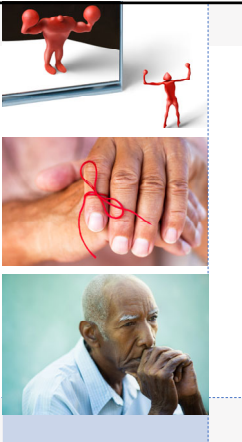
“Make a life-long habit of practice!”

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CALIBRATION

Addresses Barriers to Generalization

1. Sensory disorder
2. Internal cueing
3. Neuropsychological



Fox et al, 2002; Sapir et al, 2011

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LSVT LOUD Treatment Session

Daily Exercises

1. Maximizing volume of speech production

Hierarchy Exercises

Structured practice of spontaneous speaking

Build on treatment goals

Weekly

Weekly

Weekly

How

Including

exerc

Carryo

Use loud voice in all of the treatment room for all 30 days

Core amplitude rescaling exercises

Translation of amplitude to functional, salient, individualized goals

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LSVT LOUD Goal!



Treatment Exercise: "long ah", "high/low ah"



Treatment Goal: louder voice in conversation

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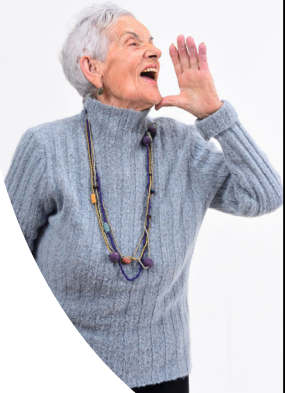
How? Calibration Training

LSVT LOUD addresses a **MISMATCH** between one's perception of their vocal loudness and how others perceive it.

People with PD have soft speech, but they think it is within normal limits (world needs a hearing aide)

Speech that is within normal limits (normal loudness) is perceived by the individual as too LOUD

"I feel like I'm shouting."



Fox et al., 2002; Sapir et al., 2011

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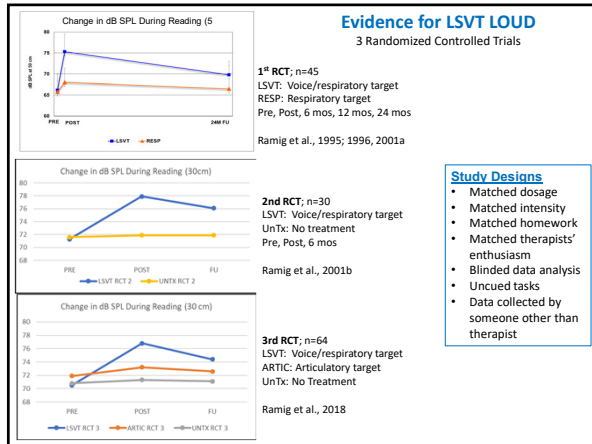
What is the research on LSVT LOUD?

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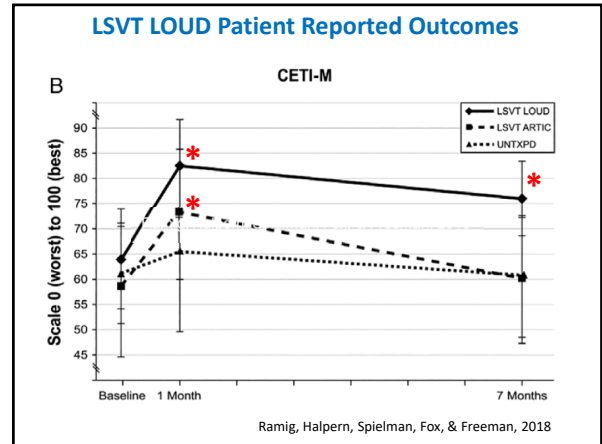
30+ year LSVT LOUD journey from invention to scale-up

Phase I, II Invention	{	1987-89: Initial invention; Pilot data Lee Silverman Center 1989-91: Treatment development OE-NIDRR
Phase III Research	{	1991-94: Treatment follow-up OE-NIDRR 1990-95: Treatment Efficacy NIH R01 RCT 1995-00: Underlying Mechanism NIH R01 RCT 2002-07: Distributed effects NIH R01 2007-12: Target/mode NIH R01 RCT
Phase IV, V Clinical Implementation	{	2001-02: LSVT Companion Coleman Institute 2002-04: LSVT Companion NIH & MJ FOX Foundation NIH R21 2002-04: LSVT Virtual Therapist Coleman Institute 2004-06: LSVT Virtual Therapist NIH R21 2004: LSVT Down Syndrome Coleman Institute 2006: Technology Enhanced Clinician Training NIH SBIR 2009: Telehealth Delivery of Software Enhanced LSVT NIH SBIR 2010: Independent Delivery of Software Enhanced LSVT NIH SBIR 1993-present: Global LSVT LOUD Training & Certification Courses

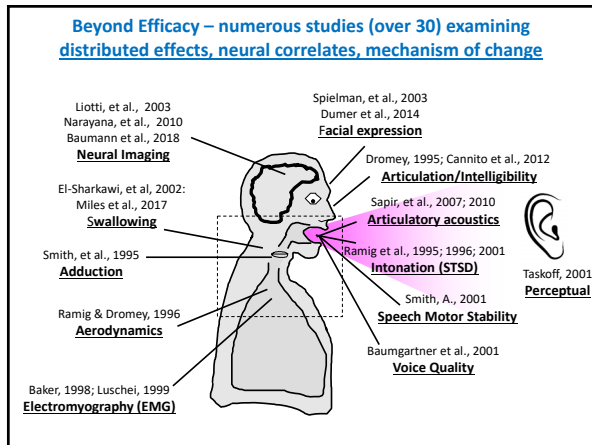
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LSVT BIG Treatment Session

Maximal Daily Exercises

1. Floor to Ceiling Reaches
2. Side Stepping
3. Forward Stepping

Functional Component Tasks

5 EVERYDAY TASKS

For example:

- Reaching for a high shelf
- Pushing a shopping cart
- Stepping over a curb
- Reaching for a low shelf
- Reaching for a high shelf

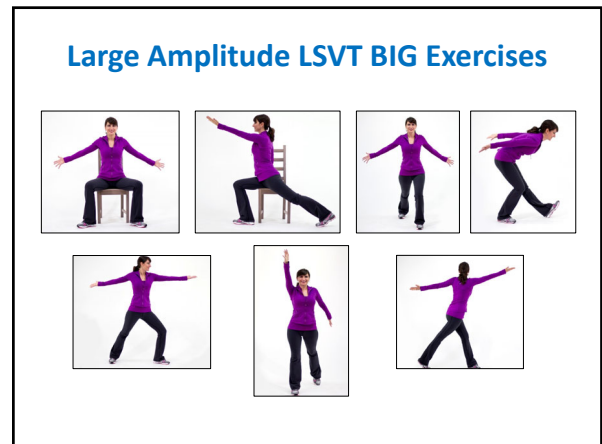
Home Practice:

Include all functional component tasks assigned all 30 days


Core exercises- "Building Blocks"

Practice using larger amplitude in functional tasks which are important to you!

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How do the LSVT BIG Daily Exercises help you?

- Starting and stopping movement when you want
- Direction changes - making turns
- Endurance or Stamina
- Balance
- Strength
- Range of Motion
- Posture

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Plus... Personalized, Purposeful Practice

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LSVT BIG Goal
Generalization to functional activities in daily life!




Treatment Exercise: Rock and Reach

Treatment Goal: Improved ability to reach things from high shelves


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How? Calibration Training

LSVT BIG addresses a **MISMATCH** between one's perception of their movement and how others perceive it.

Fox et al, 2002; Sapir et al, 2011

"I can't walk like this. People will think I'm crazy!"

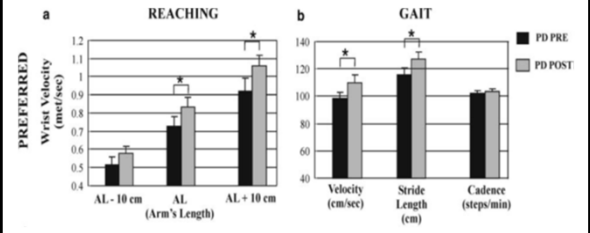


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What is the research on LSVT BIG?

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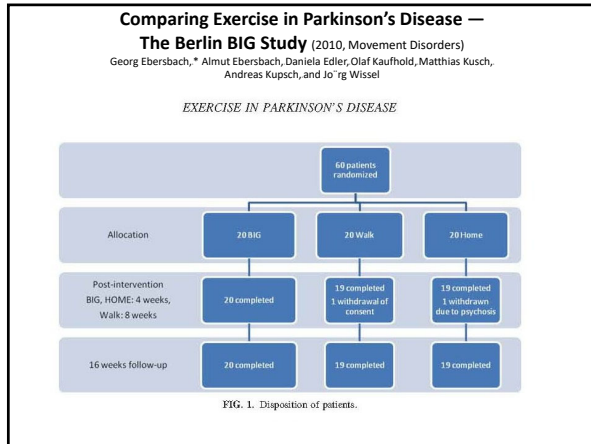
"Training BIG to move faster: the application of the speed amplitude relation as a rehabilitation strategy for people with Parkinson's disease"



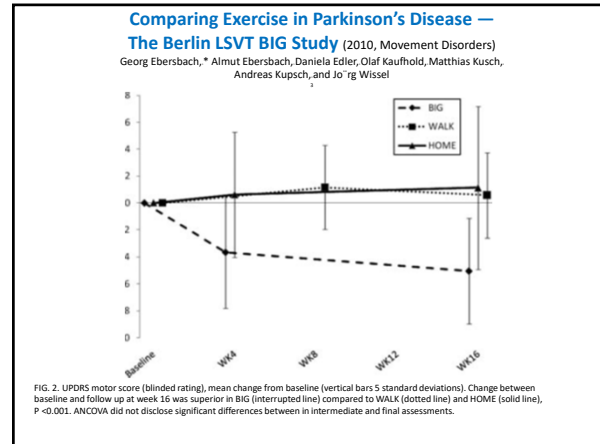
Training AMPLITUDE Improves AMPLITUDE!

Farley & Koshland, 2005

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Training amplitude enhances other levels of motor output

Preliminary studies

Documented Cross-System Effects – LSVT BIG

- Trunk Rotation
- Stride length
- Speed
- Reaction Time
- UPDRS motor score
- Balance, Coordination, ADLs
- Dual Tasking
- Occupational Performance

Ebersbach et al., 2010; 2014; 2015; Farley et al., 2008; Farley & Kosland, 2005; Henderson et al., 2019; Isaacson et al., 2018; Janssens et al., 2014; Millage et al., 2017

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Is LSVT Used With Other Conditions Beyond PD?

- Parkinson Plus (Countryman et al., 1994)
- Post Surgery, Fetal cell (Countryman, et al., 1993)
- **Stroke** (Fox et al., 2002; Mahler et al., 2009; Mahler et al., 2012; Proffitt et al., 2018, Metcalfe et al., 2019; Proffitt et al., 2020)
- **Idiopathic Normal Pressure Hydrocephalus** (Fillmore et al., 2020)
- Multiple Sclerosis (Sapir et al., 2001)
- Ataxia (Sapir et al., 2003)
- Cerebral palsy (Fox et al, 2012; Boliek et al., 2014)
- Down Syndrome (Boliek et al., 2016; Petska et al, 2006; Mahler et al., 2012)
- Aging (Ramig et al., 2001)

(Single-subject, case study and small group designs. LSVT LOUD studies in black. LSVT BIG studies in blue.)

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LSVT References

<https://blog.lsvtglobal.com/research/>

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Lifelong Support After LSVT

- Daily exercise practice life-long
 - LSVT Homework Helper Video
- Group Exercise Options!
 - LOUD for LIFE® and BIG for LIFE®
 - Offered In Person and via Teleclasses
- Regular LSVT “Tune-ups” every 3-12 months
- Other enjoyable activities and fitness for PD

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How patients can get started with LSVT LOUD and LSVT BIG

- Doctor can provide a referral and a prescription for speech, physical and/or occupational therapy **evaluation and treatment**
- Visit www.lsvtglobal.com to find an LSVT LOUD or LSVT BIG Certified Clinician in the area



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- Monthly Webinars
- On Demand Webinar Library
- Website
- Blog Articles, Testimonials, and Videos
- Live Seminars
- LSVT Global Facebook Page
- Ask our experts!

Opportunities to Learn More

FIND IT ALL AT www.lsvtglobal.com

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Summary

- LSVT BIG and LSVT LOUD address core symptoms which ALL patients with PD will experience (e.g. small movements, softer voice, sensory mismatch)
- Intensive training and practice supported by research on motor learning and neuroplasticity (brain change)
- Standardized protocol, but can be individualized and adapted across disease severity and patient needs
- Robust data support improvements in speech, communication, motor functioning and more
- LSVT Global offers ongoing support for people with PD and training for therapists in LSVT BIG and LSVT LOUD

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LSVT Training and Certification Options for Speech, Physio and Occupational Therapists





- Online Training and Certification**
 - Pre-recorded modules
 - Treatment videos
 - Self-practice exercises
 - Complete at any time on your own schedule
- Virtual Live Training and Certification**
 - Mix of pre-recorded and virtual interactive sessions with faculty
 - Practice sessions with fellow course participants and with people with PD
 - Upcoming Virtual Live Courses:
 - LSVT BIG: October 16-17; November 13-14; December 5-6
 - LSVT LOUD: October 2-3; December 3-4

<https://www.lsvtglobal.com> – Click on “Get LSVT Certified”

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How to Ask Questions

1. Type in the question box on your control panel
2. 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
3. Email info@lsvtglobal.com if you think of questions later!



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Please Complete Survey after the Webinar!

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