



Public Webinar Series

Title: **What's the BIG Idea with LSVT BIG® for Parkinson's?**

Presenters: Cynthia Fox, PhD, CCC-SLP
Laura Gusé, MPT

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What's the Big Idea with LSVT BIG® for Parkinson's?

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- Hearst Foundation
- Axe-Houghton Foundation
- Family of Lee Silverman
- Davis Phinney Foundation
- Parkinson Alliance
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Disclosures

Dr. Fox and Ms. Guse have both financial and non-financial relationships with LSVT Global. Non-financial relationships include a preference for LSVT BIG and LSVT LOUD as treatment techniques. Dr. Fox and Ms. Guse are employees of LSVT Global, receive lecture honorarium from, and additionally, Dr. Fox has ownership interest in the company.

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Plan for Webinar

- Logistics
- Presentation of Content
- Training Opportunities
 - LSVT BIG coming to Birmingham, UK March 23-24, 2019!
 - Physios and OTs can register at <https://coursebeetle.co.uk/>
- Address your questions

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Information to Self-Report CE Activity

- This LSVT Global webinar is NOT ASHA or state registered for CEUs, but it may be used for self-reported CEU credit as a non-registered 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.
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- Attendance for the full hour is required to earn a certificate.



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Instructor Biographies

Cynthia Fox, PhD, CCC-SLP

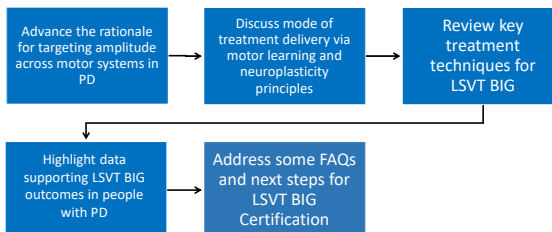
Dr. Fox received her doctorate degree in Speech and Hearing Sciences from the University of Arizona, Tucson. Dr. Fox is a research associate at the National Center for Voice and Speech and Co-Founder of LSVT Global. She is an expert on rehabilitation and neuroplasticity and the role of exercise in the improvement of function consequent to neural injury and disease. Dr. Fox is among the world's experts in speech treatment for people with Parkinson disease. She has multiple publications in this area of focus, as well as numerous national and international research and clinical presentations. Dr. Fox has worked closely with Dr. Ramig for the past 18 years on studies examining the efficacy of LSVT LOUD, the underlying mechanisms of speech disorders in PD, and the application of LSVT LOUD to other disorders (children and adults) and other motor systems (e.g., limb). She is an expert on rehabilitation and neuroplasticity and the role of exercise in the improvement of function consequent to neural injury and disease.

Laura Gusé, MPT, MSCS

Ms. Gusé received her Master's Degree in Physical Therapy from the University of North Dakota. She has over 15 years of experience working with adults with neurological disorders with a special focus on Parkinson disease and Multiple Sclerosis. She has been certified in LSVT BIG® since 2009, and is a Multiple Sclerosis Certified Specialist. She is an LSVT BIG faculty member and Clinical Expert, and has helped to develop many of the current LSVT BIG treatment tools and videos, webinars and curriculum. She now serves as the Chief Clinical Officer of LSVT BIG.

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Objectives of Presentation



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Question #1 Where do you live?


Please type your response in the chat box.



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Parkinson Disease (PD) A Global Pandemic?

Up to 8 million worldwide people are living with PD.



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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Prevalence of PD is expected to **DOUBLE** by 2040

ARE WE READY?



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Our Mission

To empower people with Parkinson's to restore and maintain their highest levels of functional communication, mobility and independence with ADL's through scientifically supported rehabilitative treatment programs:

- LSVT LOUD®
- LSVT BIG®




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Our work – LSVT Protocols: Based on 25 years of NIH funded research and clinical experience

| | |
|--|--|
| <p>LSVT LOUD is a speech therapy</p> <p>Delivered by LSVT LOUD Certified Speech-Language Pathologists</p> | <p>LSVT BIG is a physio/occupational therapy</p> <p>Delivered by LSVT BIG Certified Physiotherapists or Occupational Therapists</p> |
|--|--|

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Polling Question 2 Who are you?

- Speech Therapist
- Physiotherapist or Occupational Therapist
- Other Medical Professional
- Person with PD
- Other

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Video Example: LSVT LOUD

- 59 year-old female
- 2.5 years since diagnosis
- On meds pre and post video
- No med changes pre/post LSVT LOUD
- **PRE/POST LSVT LOUD** Intensive physical exercise of speech mechanisms



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LSVT LOUD Pre/Post Video



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Video Example: LSVT BIG

- 71 year-old, 14 years post diagnosis
- Hoehn & Yahr Stage 3
- Referred for slowness and difficulty walking, history of falls, freezing
- Optimized on PD meds pre LSVT BIG
- No med changes pre/post LSVT BIG
- **PRE/POST LSVT BIG**



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LSVT BIG Pre/Post Video



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Bernie's Outcomes:

| | PRE | POST |
|-----------------------|------------|-------------|
| Falls | 1-2/month | 0/month |
| Assistive device | Cane | None |
| Confidence | 37.5% | 56.8% |
| Gait Velocity | 0.35 m/s | 1.17 m/s |
| % of age matched norm | 29.6 % | 100% |
| Endurance | 730 ft | 1200 ft |

Bernie's Goals:

- ✓ To improve his walking
- ✓ To go to the movies
- ✓ To play with his grandchildren
- ✓ To go out to dinner with friends and family

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What are the fundamentals of LSVT LOUD and LSVT BIG?

Standardized, research-based, specific protocols

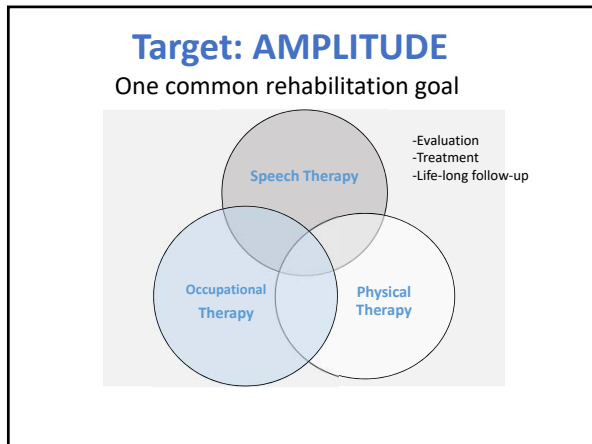
TARGET: Bigness or Loudness (**AMPLITUDE**)

MODE: Intensive and High Effort

CALIBRATION: Generalization

- Sensory
- Internal cueing
- Neuropsychological changes

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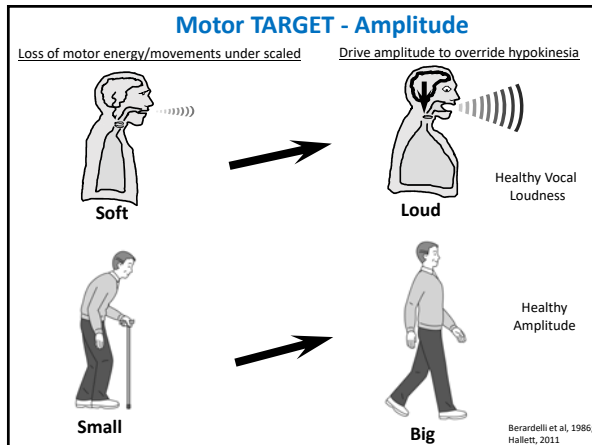
Address the Motor Symptoms

LSVT BIG **Primary Target:**

Hypokinesia/Bradykinesia

- Present at Diagnosis
- Correlates with DA Loss
- Correlates with disease progression
- Generalized across motor systems (e.g. hypophonia and small/slow movements)

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Amplitude Training Can Also Improve Fine Motor Function

<https://blog.lsvtglobal.com/shirt-buttoning-lsvt-big/>

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Mode – Intensive and High Effort

Intensity across sessions: Minimum dosage

- Treatment delivered 4 consecutive days a week for 4 weeks
- 60 minute, individual treatment sessions
- Daily homework practice (all 30 days of the month)
- Daily carryover exercises (all 30 days of the month)
- Life-long habit of continuous practice

Intensity within sessions: Drive effort through

- Amplitude
- Repetitions
- Force/resistance
- Accuracy

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Mode: Incorporate multiple principles that drive neuroplasticity and motor learning

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 (Kliem et al, 2004)

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

Specificity matters
Train the deficits (target hypokinesia in PD)

(Alexander et al., 1990; Fox et al., 2002; Graybiel 1998; Kliem et al., 2003; Kleim and Jones, 2005; Jones et al. 1999; Saint-Cyr JA, 2003; Tillerson et al., 2002; Vergara-Aragón et al., 2003; Block et al. 1990; Conroy 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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Goal: Calibration

Must Address **MISMATCH** between the internal perception of output (voice or movement) in people with PD and how others perceive it.

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



Fox et al, 2002; Sapir et al, 2011

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How? Address Key Non-Motor Symptoms

- **Depression**
 - 25% major/17% minor
 - Precedes motor symptoms
 - May contribute to dementia
- **Autonomic abnormalities**
 - Hypotension, bowel/bladder, sexual, blurry vision, short of breath
- **Sensory changes**
 - Pain, tingling, burning
 - **Generalized decreased kinesthetic awareness**
 - Self-perception/monitoring
- **Sleep Disorders**
- **Emotional Changes**
 - Anxiety
 - Apathy
- **Dementia**
 - 30%
 - Occurs 6.6X as frequently than in elderly non-PD
 - Shortens survival

Motor and non-motor symptoms affect movement and motor learning in people with PD

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Specific Barriers to Generalization

Sensory disorder: People with PD have softer voices and smaller/slower movements, but they don't recognize how soft/small/slow they have become (my spouse needs a hearing aid; my friend walks faster now)

Internal cueing: Physiological substrate for movement is present – not being activated

Neuropsychological: Slow thinking, slow learning, problems sustaining attention, problems shifting cognitive set, problems internally cueing, and problems in procedural memory.

Fox et al, 2002; Sapir et al, 2011

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Feedback is Personalized and Meaningful And Integral to Re-calibration

"That is the same amount of effort you need to use when you lift your legs into the car today when you leave."

"Be sure to have your '9' effort when you turn over in bed tonight."

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LSVT BIG Treatment Session

Maximal Daily Exercises

1. Floor to Ceiling
2. Side
3. Floor

Functional Component Tasks

5 EVERYDAY

For ex

Core amplitude rescaling exercises

Translation of amplitude to functional, salient, individualized goals

Hor

Incl

Comp

30 days

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Large Amplitude Exercises



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LSVT BIG Goal!

Generalization to daily functional activities

Treatment Exercise:
Rock and Reach

Treatment Goal: better arm swing and stability
when walking dog

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Link to Function and Task Specific Practice Personalized for Each Patient is VITAL for Generalization

- Task specific exercise
- Getting in and out of the car
- Buttoning
- Cooking, and eating
- Restaurant management
- Workplace changes
- Recreation

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Bed Mobility Hierarchy Video

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After treatment, take your daily dose of LSVT BIG homework exercises!

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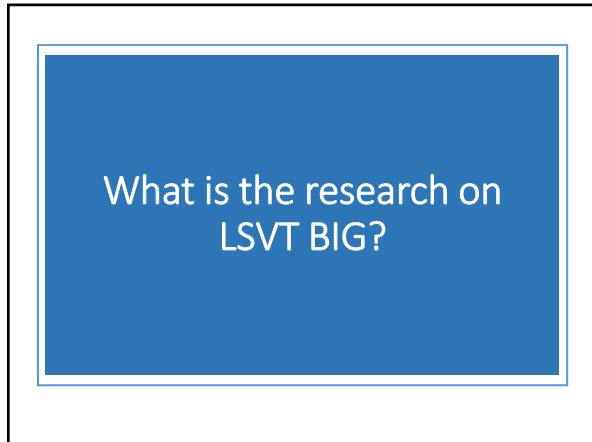
The best combination for success!

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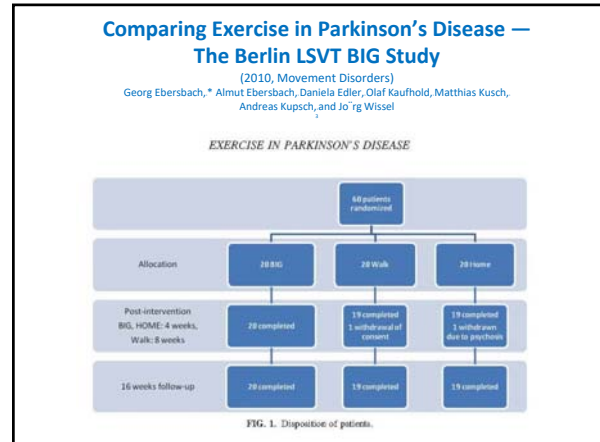
Lifelong Support After LSVT

- Daily exercise practice life-long
 - LSVT Homework Helper Videos
 - LSVT Companion Client Edition
- New Group Exercise Options
 - LOUD for LIFE® and BIG for LIFE®
- Regular LSVT “Tune-ups” every 3-12 months
- “Other” enjoyable fitness for PD

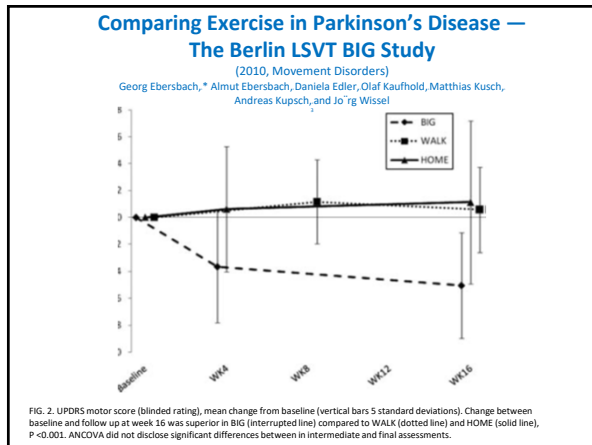
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Training amplitude enhances many levels of motor output

Documented Cross-System Effects LSVT BIG

- Trunk Rotation
- Stride length
- Speed
- Reaction Time
- UPDRS motor score
- Balance, Coordination, Activities of Daily Living (ADLs)
- Dual Tasking

Ebersbach et al 2010; Ebersbach et al., 2013; Farley et al 2008; Farley & Koshland, 2005; Fishel, et al., 2018; Isaacson, et al., 2018; Janssens et al., 2014; Millage, et al., 2017

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Training amplitude improves Patient Reported Outcomes

Retrospective chart review (n=66) Canadian Occupational Performance Measure

- Significant changes in perceived occupational performance and fine motor skills were observed based on data reported in patient charts
- 72-75% of occupational performance priorities fell into the self-care category
- Top areas of concern:
 - ▶ Handwriting
 - ▶ Walking
 - ▶ Balance
 - ▶ LE dressing
 - ▶ Buttons/fasteners
 - ▶ Transfers

Doucet & Blanchard, 2018

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Summary of LSVT BIG Data

- **Proffitt, R.M., Henderson, W., Scholl, S., Nettleton, M. (2018). Lee Silverman Voice Treatment BIG® for a Person with Stroke. *American Journal of Occupational Therapy*, 72(5), 7205210010p1-7205210010p6. doi:10.5014/ajot.2018.028217.
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- **McDonnell, M.N., Rischbieth, M., Schammer, T.T., Seaforth, C., Shaw, A.J., Phillips, A.C. (2018). Lee Silverman Voice Treatment (LSVT) BIG to improve motor function in people with Parkinson's disease: a systematic review and meta-analysis. *Clinical Rehabilitation*, 32(5):607-618. doi: 10.1177/0269215517734385.
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- **Millage, B., Vesey, E., Finkelstein, M., & Anheluk, M. (2017). Effect on Gait Speed, Balance, Motor Symptom Rating, and Quality of Life in Those with Stage I Parkinson's Disease Utilizing LSVT BIG®. *Rehabilitation Research and Practice*, 2017, Article ID 9871070: 1-8. <http://doi.org/10.1155/2017/9871070>
- **Ueno, T., Sasaki, M., Nishijima, H., Funamizu, Y., Kon, T., Haga, R., Arai, A., Suzuki, C., Nunomura, J., Baba, M., Tomiyama, M. (2017). LSVT BIG Improves UPDRS III Scores at 4 Weeks in Parkinson's Disease Patients with Wearing Off: A Prospective, Open-Label Study. *Parkinson's Disease*, Article ID 8130140: 1-4. <https://doi.org/10.1155/2017/8130140>
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- **Ebersbach, G., Ebersbach, A., Edler, D., Kaufhold, O., Kusch, M., Kupsch, A., & Wissel, J. (2010). Comparing exercise in Parkinson's disease—the Berlin LSVT® BIG study. *Movement Disorders*, 25(12), 1902-8.
- **Farley, B.G., & Koshland, G.F. (2005). Training BIG to move faster: the application of the speed-amplitude relation as a rehabilitation strategy for people with Parkinson's disease. *Experimental Brain Research*, 167(3), 462-7.

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Is LSVT Used With Other Conditions Beyond PD?

(Single-subject, case study and small group designs for LSVT LOUD)

- 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)
- 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)

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Are These Intensive Programs Feasible in the Real World?

Potential for Change and Restoration of Function

- Patients make significant progress even with a progressive condition!
- Medical necessity for therapy readily proved in PD
- Real world experience with thousands of patients

Practical and feasible

- High rate of attendance and participation

Applicable to varied practice settings

- Able to regulate intensity and adapt or progress according to patient abilities and safe parameters
- Can be implemented in home health, outpatient, skilled nursing facilities, private practice, etc.

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LSVT BIG Training and Certification Coming to Birmingham, UK!

- March 23-24, 2019
- Venue: The Studio Birmingham, 7 Cannon Street; Birmingham, United Kingdom
- For Physiotherapists and Occupational Therapists
- For more information go to <https://coursebeetle.co.uk/> or email info@lsvtglobal.com
- 2-hour free informational seminar for people with PD on March 24th from noon to 2:00 p.m.
- Registration Fee:
 - £520.00 Professional

**Please see brochure in webinar handouts.*

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Can't make it to a live course? Get LSVT BIG Certified ONLINE!

- Same instructions, CEUs and Certification as live course
- Self-paced with option for review
- Materials downloadable AND shipped to learner
- 90 days of unlimited course access 24/7
- \$580 USD



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What comes with Certification?

1. Listing on **LSVT Clinician Directory** for referrals
2. **Marketing tools** and resources
3. Downloadable **resources for treatment** and clinical practice
4. Live and on-demand **webinars** on advanced topics
5. **Direct access** to LSVT Faculty during/after certification
6. **LSVT Homework Helper DVD**
7. **Printed course binder** for permanent reference
8. **Self-paced learning** over 90 days with online course
9. Exclusive access to **Advanced**

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How Do I Locate LSVT Certified Clinicians?

1. www.lsvtglobal.com
2. Click on **FIND LSVT CLINICIANS**
3. Advanced Search Options
 - LSVT LOUD (Speech Therapy)
 - LSVT BIG (Physical & Occupational Therapy)
4. Enter location
5. Select radius
5. Check "I agree to the terms and conditions"
6. SEARCH

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Summary

- LSVT protocols addresses fundamental symptoms all patients with PD experience (e.g. hypokinesia, sensory deficits)
- Mode of delivery is consistent with principles of motor learning and neuroplasticity
- Standardized protocol, but can be individualized and adapted across disease severity and patient needs
- Short-term data support improvements in UPDRS and other measures of motor functioning
- LSVT Global offers training and certification for LSVT BIG and ongoing support for therapists and people with PD

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How to ask questions LIVE:

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 (make sure your mic is unmuted as well)
 - Then ask your question out loud
3. Email info@lsvtglobal.com if you think of questions later

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QUESTIONS??

info@lsvtglobal.com
www.lsvtglobal.com

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