



LSVT Global® Public Webinar Series

Title: Intensive Therapy for Pediatric Populations: Can LSVT Really Work?

Presenters: Cynthia Fox, PhD, CCC-SLP
Dusty Tolley, PT, DPT
Jessica Galgano, PhD, CCC-SLP
Jennifer Gray, MS, CCC-SLP

Moderator: Laura Gusé, MPT

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Contact Us:

Web: www.lsvtglobal.com **Email:** info@lsvtglobal.com

Phone: 1-888-438-5788 (toll free), 1-520-867-8838 (direct)

Presenter Biographies

Jessica Galgano PhD, CCC-SLP

Dr. Galgano received her doctoral degree in the department of Biobehavioral Sciences from Columbia University in NYC. Dr. Galgano has presented at national and international conferences and has authored and co-authored publications related to neurologic communication and voice disorders. She is a faculty instructor at NYU Langone School of Medicine and is the Executive Director of Open Lines Speech and Communication in NYC, where she provides LSVT LOUD® and other types of therapy to adults and children with a wide variety of speech and language diagnoses. She is also an adjunct professor at San Francisco State University. Dr. Galgano conducted research with Dr. Ramig at Columbia University and is a clinical expert, faculty member and workshop leader for LSVT Global, Inc.

Jennifer Gray, MS, CCC-SLP

Jennifer Gray is a Speech-Language Pathologist and owns and operates Grays Peak Speech Services, LLC, a private practice in northern Colorado. She provides services in home and community settings through Early Intervention and teletherapy/telepractice to promote functional methods that work. Jennifer has specialized in helping those with Down syndrome and their families for the past 13 years to encourage, reinforce, and develop better ways to access spoken language, speech clarity, voice and fluency, and oral functioning. Limited resources for this population have led her to seek innovative techniques such as LSVT LOUD and other intense motor speech programs to solve the problem limited speech intelligibility and comprehensibility. While most of her work has been with young children, she is also passionate about helping teens and adults use and maintain clear speech, develop social relationships, improve cognition and memory, and build self-awareness to enhance functional outcomes that promote independence.

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Disclosures



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

Financial Relationships include:

- Dr. Tolley and Ms. Gray were offered honorarium for their time and expert knowledge.
- Dr. Galgano is a consultant for LSVT Global, Inc. Ms. Guse is an employee of LSVT Global, Inc. Both receive lecture honorarium.
- Dr. Fox is an employee of, receives lecture honorarium, and has ownership interest in LSVT Global, Inc.

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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

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- 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 duration (1 hour, 30 minutes) is required to earn a certificate.



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All clients shown in videos during this presentation (or their parents or guardians) have given consent for their videos to be used for educational purposes.

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Thank you for your cooperation.



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Learning Objectives

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

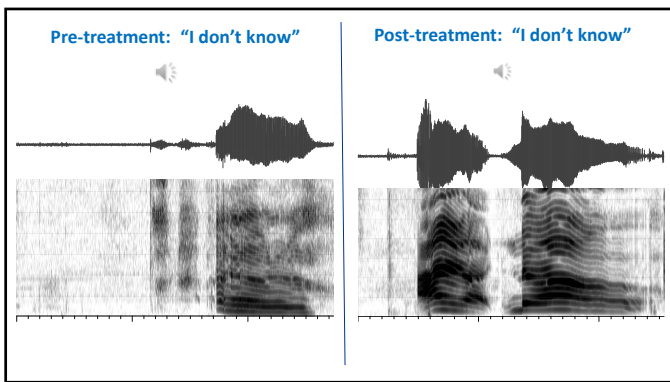
1. Define the rationale for using LSVT therapies in pediatric populations.
2. Highlight outcome data from 2 case studies of LSVT LOUD or LSVT BIG in pediatric populations.
3. Summarize the decision making process for determining suitability of pediatric clients for LSVT LOUD or LSVT BIG.



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Parkinson's to Pediatrics?

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**LSVT LOUD and LSVT BIG
Essential Concepts**

- **TARGET:** Amplitude: vocal loudness, bigger movements
- **MODE:** Intensive and High Effort
- **CALIBRATION:** Generalization

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Target of Treatment: Amplitude
 Vocal loudness/bigger movements

Why?



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Amplitude as a Source Examples

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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Amplitude as a Trigger

Clinician shapes and models normal **LOUDNESS** with healthy vocal quality, Or Normal amplitude **MOVEMENT** with healthy quality, which can also impact...

Breath support, mouth opening, intonation, articulation, rate, facial expressions, naturalness, and more!

Trunk rotation, stride length, speed, balance, coordination, activities of daily living

Mahler et al., 2015; Huber et al., 2003; Spielman et al. 2003; El Sharkawi et al., 2002; Sapir et al., 2003; Sapir et al., 2007; Isaacson et al., 2018; Proffitt, 2019; Farley & Koshland, 2005

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MODE of Treatment: Intensive and High Effort



Why?

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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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Goal in therapy: incorporate multiple principles that drive neuroplasticity



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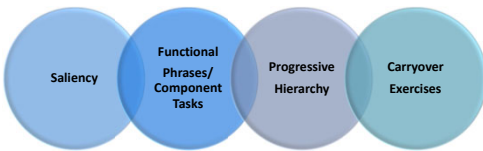
Calibration : Address Barriers to Generalization Why?



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Focus on Function

Goal: Child automatically uses improved voice/movements in daily living and the improvements lasts over time.



Calibration

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CP LSVT LOUD Treatment Clip



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Phase I and Phase II LSVT LOUD Research: CP & DS

	Number of participants	Parent Ratings	Listener Perception	Acoustic	Physiology	Imaging
Phase I: Single subject multiple baseline design Cerebral Palsy 5-7 years	5	✓	✓	✓		
Phase I: Pre-Post Down Syndrome 4-8 years	9	✓	✓	✓		
Phase II: Cohort-Control Cerebral Palsy 6-10 years	9	✓	✓	✓	✓	✓
Typically Developing 6-10 years	9	✓	✓	✓	✓	✓
Phase II: Cohort-Control Cerebral Palsy 8-16 years	9	✓	✓	✓	✓	✓
Typically Developing 8-16 years	9	✓	✓	✓	✓	✓



Scan to view all publications

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LSVT BIG Pediatric Case Example

- 10-year-old female
- Diagnosed with Anaplastic Ependymoma grade 3 brain cancer 5 years prior
- Tumor extended from 4th ventricle into cerebellum
- History of 3 open brain surgeries for tumor removal
- 50 doses of targeted radiation

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Why LSVT BIG?

Traditional therapies had improved strength and ROM, but limited improvements to functional independence or gait independence.

Treatment Parameters

- Pre-assessment
- 4 sessions per week x 4 weeks
- LSVT BIG exercises conducted twice daily
- High parent buy in
- Post-assessment

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Baseline Testing

- **30 Second Sit to Stand** - 6 reps
- **Floor to Stand** - 7 seconds
- **6 Minute Walk Test using AD-800ft**
- **Bruininks-Oseretsky Test of Motor Development (BOT-2) Scores** - below 1st percentile for Body Coordination and Strength and Agility
- Unable to perform single leg or tandem stance bilaterally
- Requires moderate assistance for majority of ADL's
- Using an anterior ETAC Walker all the time

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Early Modifications

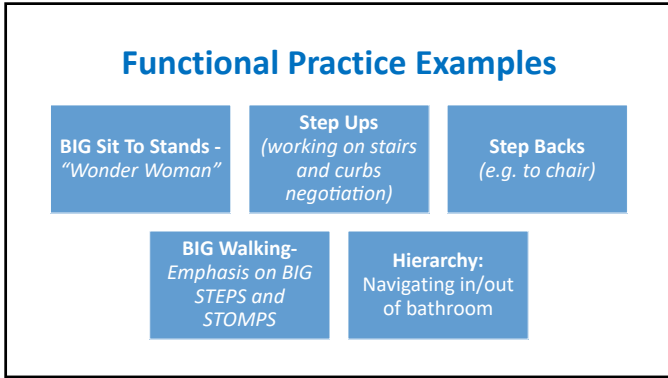
- Initially required balance support over the first week to improve focus on amplitude with consistent cues for BIG movements
- Balance bar removed at day 6 of in clinic treatments.
- Exercises nicknamed to make them a little more pediatric fun

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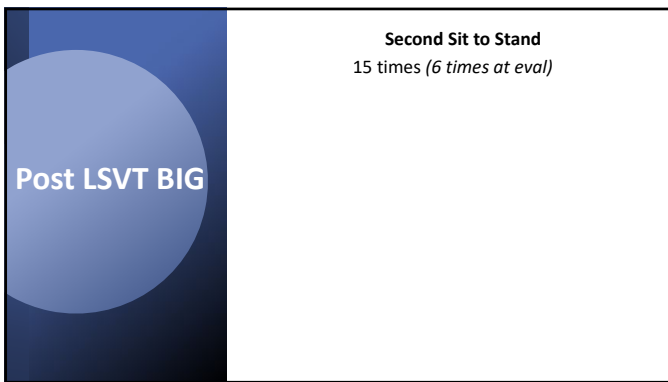
LSVT BIG Exercise Nicknames

MAXIMAL DAILY EXERCISE	PATIENT'S NICKNAMES
Floor To Ceiling	Head, Shoulders, Knees and Toes
Side to Side	Big Scoops
Forward Step and Reach	Front
Sideways Step and Reach	New Girls
Backward Step and Reach	Back
Forward Rock and Reach	The Worst
Sideways Rock and Reach	Almost the Worst

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Post LSVT BIG

6 Minute Walk Test using AD-1007 feet
(25.9% improvement from 800 feet at eval)

Bruininks-Oseretsky Test of Motor Development (BOT-2) Scores - 5th percentile for Body Coordination and Strength and Agility *(improved from 1st percentile at eval)*

Single Leg Stance: R:L 3:4 sec *(0 sec at eval)*

Tandem Stance R:L 14:17 sec *(0 sec at eval)*

Gait - Using an anterior ETAC Walker only for long distance ambulation or uneven surfaces

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Case Study: Autism Spectrum Disorder

Galgano, J., Tsang, G., Ramig, L. (2021). Brief Report: Making Intensive Voice Treatment (LSVT LOUD®) accessible for a child with Autism Spectrum Disorder (ASD) and mixed dysarthria using a novel, pre-treatment protocol. JSciMedCentral Communication Disorders. <https://www.jscimed-central.com/CommunicationDisorders/communicationdisorders-4-1013.pdf>.

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Background Information

- Age: 18 year old male
- Diagnoses:
 - Autism
 - Cognitive, speech, and language disorders
 - Fluency disorder
 - Dysarthria
 - Childhood Apraxia of Speech (CAS)
- Medication: None
- Parent-reported speech and voice concerns: "weak breath control, reduced loudness, very limited clarity when attempting to speak, not having enough breath, soft speech, monotone, no confidence with speaking"

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**Assessment Results:
Not Stimulable for
LSVT LOUD**

Negative prognostic variables:

- Unable to respond to cues or models to increase loudness
- Age (Age at time of initial assessment: 16 years)
- Cognitive, speech, and language disorders
- Behavioral problems

Positive prognostic variables:


- Client and parent level of motivation to attempt to acquire functional, verbal communication
- Open to trial week of treatment to determine candidacy, feasibility
- Behavioral therapist available to co-treat

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How Could I say No?!

When asked about his general speech goals, Joey used AAC to express....







"Have to be honest. My finding the ability to start and carry full conversations is my intent for the future."



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Pre-Treatment Protocol Delivery: Stage 1

0-6 MONTHS
Established response to multi-sensory models with faded cueing

 Trained volitional inhalation and exhalation	 Deepened inhalation	 Trained sustained exhalation
 Paired sustained exhalation with phonation (DE1)	 Built tolerance for repetitive practice	 Established behavioral supports


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Let's Give It a Try!


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Pre-Treatment Protocol Delivery: Stage 2

6-12 MONTHS
Acquired the stamina to complete two of the daily exercises


 Stabilized normally loud phonation



 Extended loud phonation



 Taught pitch manipulation (DE2)

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Pre-Treatment Protocol Delivery: Stage 3

12-18 MONTHS
Established competency in performing all aspects of LSVT LOUD within one hour


 Developed endurance for functional phrases (DE3)


 Implemented scaled up, normal loudness levels in hierarchal language exercises

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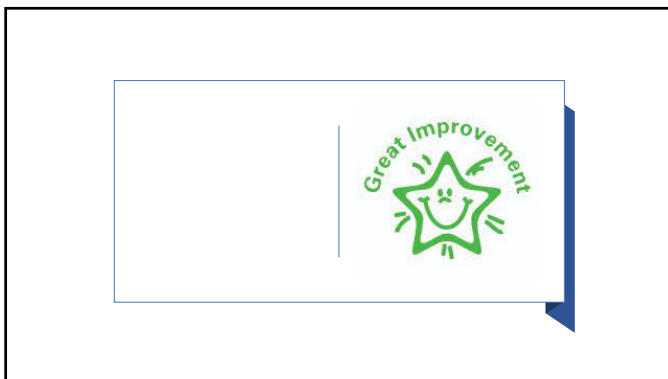


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Results

- Significant gains made across several perceptual and acoustic measures during performance tasks, such as maximum phonation time, speech loudness, and speech intelligibility
- Variability due to behavior, and speech and language disorders was noted
- Improvements were maintained at five-month time point
- Previous disfluencies contributing to unintelligibility were absent during post-testing and follow-up

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When asked about his progress since starting the intensive LSVT LOUD program, Joey used AAC to express,

“For years, to tell people my needs was almost impossible. Now make no mistake; now I’m virtually making verbal chatting with my loved ones.”

http://www.huffingtonpost.com/jim-luce/voice-of-hope-the-joey-to_0_7661276.html

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Discussion

Several adaptations to accommodate difficulties with behavior and speech and language disorders were necessary to administer LSVT LOUD while maintaining treatment fidelity:

- Breaks in motor practice
- Longer sessions
- Additional week(s) of treatment
- Behavior management
- Modifications for language and reading level
- Additional feedback, reinforcement, and counseling to increase confidence as a speaker

Findings provide exciting, preliminary support for intensive voice treatment to improve select aspects of voice and speech functioning in this population

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LSVT LOUD for KIDS with Down syndrome
 And teens and adults with Down syndrome too!
 Jennifer Gray, MS, CCC-SLP



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**V
O
I
C
E**

Common speech characteristics of those with Down syndrome that greatly reduce speech clarity despite improved articulation and phonological skills.

- Unique anatomical and physiological profiles
- Resonance: Hypo and hypernasality
- Vocal quality is generally poor (hoarse, harsh, breathy, lower than expected perception of pitch)
- Reduced pitch variation
- Prosody: rate and rhythm (equal stress across syllable and word boundaries)
- High rate of motor planning and fluency disorders that persist into adulthood
- Some research indicates it takes those with DS 2 times the effort to initiate voice due to these anatomical and physiological characteristics and that most will.....

Never learn to sing

<https://library.down-syndrome.org/en-us/research-practice/02/1/voice-people-down-syndrome-eme-biofeedback/#:~:text=Very%20few%20people%20with%20Down,ension%20in%20other%20down%20muscles.>
 Clement & Twitchell, 1959; Helman & Peacher, 1943; Hixon & Hardy, 1964; Keesee, 1976; Kent & Vorperian, 2013; Kumin, 1994; Mahler & Jones, 2012; Roberts, Price, and Malkin, 2007; Solomon & Charon, 1998; Venal, Gardiner, and Morrdain, 2004; Wolf, 1950; Workinger & Kent, 1994

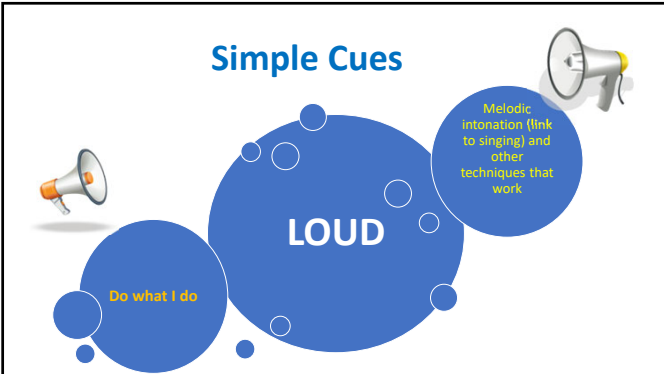
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Simple Cues

LOUD

Do what I do

Melodic intonation (link to singing) and other techniques that work



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Telepractice

Eases the stress of traveling for frequent and intense daily sessions over 4 weeks.	Often results in fewer cancellations and improved availability for rescheduling missed sessions.	Telepractice research (pre- and post-COVID) has overwhelmingly demonstrated reliable and valid results for those with speech and language needs, making teletherapy as good or better than traditional in-person therapies.
Many with Down syndrome have a higher tolerance for digital interactions due to strengths in visual learning, improved consistency and dosage of sessions & materials, and the ability to greatly reduce transitions and distractions.	Improves skills of independence through the use of technology (using schedules, reading, typing, sequencing, etc.) while allowing others to attend sessions with them, but off screen.	Technology keeps improving and materials are plentiful.

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Long Ah with Therapist

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5.9 y/o

- Seen in our clinic on and off since he was 2.5 y/o
- Many different therapies over the years
- Speech remained too difficult to tackle throughout the day because his adaptive skills worked most of the time.
- ABA therapists attended sessions with him

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Results

- Improved clarity of speech observed in the first session.
- Improved speech skills when using his LOUD voice: slower rate with multisyllabic words and longer phrases, more accurate articulation, self-correction, and improved focus on his conversational partners.
- Longer MLU in daily interactions, not just with his therapist
- Improved self-confidence to speak; fewer repetitions to help others understand him.
- Family and caretakers could better cue him for clarity when needed.
- Simple cueing allowed him to concentrate on what he said instead of how to say it.

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Equal Results in Teens and Adults with Down syndrome

- Many teens and adults receive very little or no speech therapy
- Most teens and adults with Down syndrome remain highly unintelligible and have the most difficulty with social communication despite speech and language interventions when younger
- This is a population with high incidence of severe motor speech disorders (Apraxia, stuttering, etc.) and voice and resonance disorders that get worse over time. Down Syndrome Regression Disorder and early onset Alzheimer’s disease are also common.
 - https://www.dsmig-usa.org/resources/Documents/21DSMIG_Regression%20in%20Persons%20with%20Down%20Syndrome_0928.pdf
 - <https://ndss.org/resources/alzheimers>
- We have found LSVT LOUD to be very effective in targeting each of these concerns.

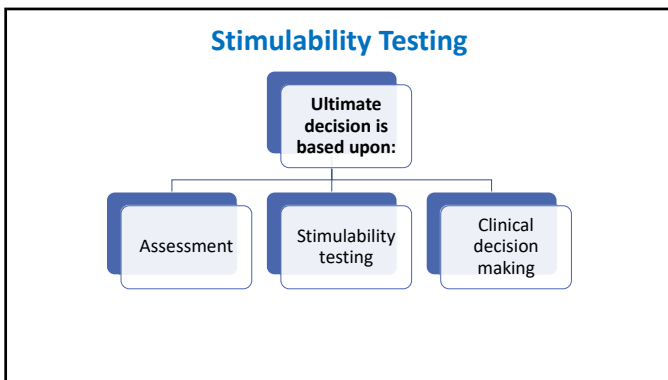
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Adult with DS post-LSVT LOUD

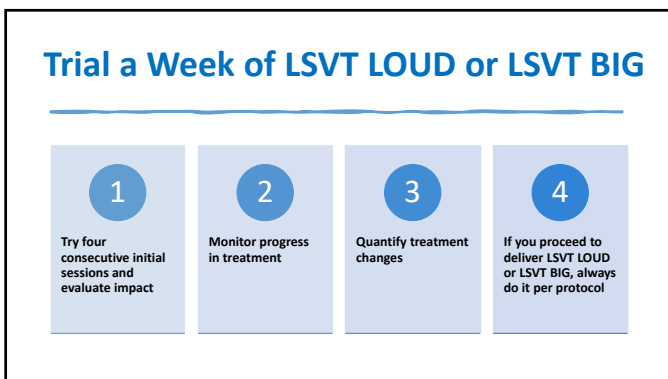
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How to Locate LSVT Certified Clinicians

- Visit www.lsvtglobal.com to find an LSVT LOUD or LSVT BIG Certified Clinician in your area
- LSVT LOUD Certified clinicians will have a designation for "Pediatrics"
- Call 1-888-438-5788 or email info@lsvtglobal.com for assistance in locating pediatric therapists



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LSVT LOUD® for KIDS

Training and Certification Course

October 21-22, 2022

Virtual Live Offering

Open to speech-language pathology professionals and students.

Learn more or register here:



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Public Webinar

Join us next week!

Everything you need to know about LSVT LOUD® and LSVT BIG®: A guide for people with PD and those who support them!

Do you help support and care for someone who is receiving LSVT LOUD or LSVT BIG? Tune in for a general overview of the treatments, recommendations on how to help facilitate homework and carryover exercises outside of the treatment sessions, and suggestions for motivation and encouragement.


Date: Wednesday, September 21, 2022
Time: 2:00 PM - 3:00 PM Eastern Daylight Time (EDT)



Register at <https://blog.lsvtglobal.com/events/>
Scroll down to September events

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How to ask questions



1. Type in the chat box on your control panel
2. Raise your hand!
3. Email info@lsvtglobal.com

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Thank you!



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It will take five minutes or less to complete!

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