



# LSVT Global<sup>®</sup> Public Webinar Series

**Title:                   Deep Brain Stimulation (DBS) and LSVT BIG<sup>®</sup>:  
Mobility Challenges and Treatment Solutions**

**Presenters:**Laura Gusè, BSPT, MPT  
                          Heather Cianci, PT, MS, GCS

**Date Presented:**November 13, 2019

**Copyright:**

The content of this presentation is the property of LSVT Global and is for information purposes only. This content should not be reproduced without the permission of LSVT Global.

**Contact Us:**

**Web:** [www.lsvtglobal.com](http://www.lsvtglobal.com) **Email:** [info@lsvtglobal.com](mailto:info@lsvtglobal.com)

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

## Deep Brain Stimulation (DBS) and LSVT BIG®: Mobility Challenges and Treatment Solutions

**Laura Gusé, BSPT, MPT**  
LSVT BIG Training and Certification Faculty  
Chief Clinical Officer LSVT BIG

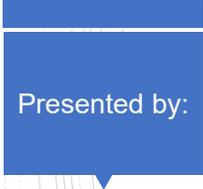


**Heather Cianci, PT, MS, GCS**  
LSVT BIG Training and Certification Faculty



**LSVT GLOBAL** Innovation in Science. Integrity in Practice.

1



Presented by:

**Laura Gusé, BSPT, 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.

**Heather Cianci, PT, MS, GCS**  
Ms. Cianci is the founding therapist of the Dan Aaron Parkinson's Rehab Center at Pennsylvania Hospital in Philadelphia, PA. She received her bachelor's in PT from the University of Scranton in Scranton, PA and her master's in gerontology from Saint Joseph's University in Philadelphia. Heather received her GCS in 1999. She was certified in LSVT BIG in 2007 and is the Co-coordinator and PT Faculty for the Parkinson Foundation's (PF) Allied Team Training for PD. She has authored book chapters on rehabilitative strategies for PD, and Frontotemporal Degeneration and is the author of an educational manual on fitness for the PF. Heather has lectured for various state Physical Therapy Associations, the PF, national continuing education companies, and Philadelphia-area conferences and support groups about PD. Her research includes movement strategies for bed mobility, falls, freezing of gait, and functional movement disorders.

2

### Disclosures

- All of the LSVT BIG faculty have both financial and non-financial relationships with LSVT Global.
- Non-financial relationships include a preference for LSVT BIG as a treatment technique.
- Financial Relationships include:
  - Ms. Gusé is an employee of LSVT Global, and both Ms. Gusé and Ms. Cianci receive consulting fees, lecture honorarium and travel reimbursement from LSVT Global, Inc.

3

### Information to Self-Report Activity for PT and OT Professionals

- This LSVT Global webinar is **NOT** state registered for CEUs, but it **may be used for self-reported CEU credit** as non-registered CEUs.
- If you are a PT or OT professional and would like to self-report your activity, e-mail [webinars@lsvtglobal.com](mailto:webinars@lsvtglobal.com) to request a certificate after completion of the webinar which will include your name, date and duration of the webinar.
- Attendance for the full hour is required to earn a certificate.
- Licensing requirements for CEUs differ by state. Check with your state licensing board to determine if your state accepts non state registered CEU activities.

4



Plan for Webinar

- Logistics (questions, handouts)
- Discuss the application of LSVT BIG to individuals with DBS surgery
- Survey will automatically launch at the conclusion of the webinar (less than 5 minutes to complete)

5

### Learning Objectives

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

1. Describe the use of DBS in Parkinson Disease
2. Identify who is a good candidate for DBS
3. Associate the use of LSVT BIG treatment in combination with DBS



6



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  
 Declines in cognition in longitudinal follow up have been documented  
 Possible decline in speech, gait & balance

(Duker & Espay, 2013)

### Potential DBS Complications

13

### POST OPERATIVE PROGRAMMING

- Initial programming of the DBS stimulators takes place several weeks after implantation to allow for "lesion effect" and identification of symptoms and improvement
- The most effective electrode configuration gives the most benefit with the least amount of side effects
- Amplitude of stimulation is started low and gradually increased over time, allowing for potential reduction in medication
- Optimal programming can take up to 4-6 months and may require multiple sessions for adjustment.

(Duker & Espay, 2013)

14

### Outcomes

DBS has been shown to be superior to medical management alone

DBS recipients gained an average of 4.4 to 4.6 hours of "on" times (PD medications working) without dyskinesia

Improvement shown in off medication Unified Parkinson's Disease Rating Scale (UPDRS) motor scores

Improved sleep and quality of life

(Duker & Espay, 2013)

15

### How does DBS affect symptoms of PD?

- Can reduce &/or control rigidity, bradykinesia/akinesia, tremor & dyskinesia
- Patient can only return to their best "on time"
- Can reduce 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

16

### Falls & Fear of Falls with DBS

2013 Survey by the Parkinson Alliance

<http://www.parkinsonalliance.org/media/file/FallsReport-Oct2013wRef.pdf>

- 334 with DBS (STN), 819 without
- 50 states were represented
- Younger group - 50-69; Older group - 70+
- DBS (controlling for age & disease duration):
  - Increased Fear of Falls
  - 2.52 times the risk of falling with DBS compared to non-DBS
  - Greater frequency of falls with inc. time of PD
  - Self reports of more difficulty with mobility, speech, & stigma

17

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

"Individuals may be more confident or capable to increase engagement in activities due to the reduced motor symptoms, but may neglect to attend to or take into account the continued difficulties related to PD (such as poor balance). Moreover, even though DBS therapy benefits some motor functions, the body/functional capability may still be constrained by other factors that may result in increased falls."

### Implications of the survey

18

## What is different after DBS?

- Increased freedom of movement
- Increased extension of postures
- “Wild” movement patterns possible
- Can get REALLY BIG, need to learn control
- Risk for falls can be increased
- Speech can be negatively impacted



19

## Physical Activity & DBS

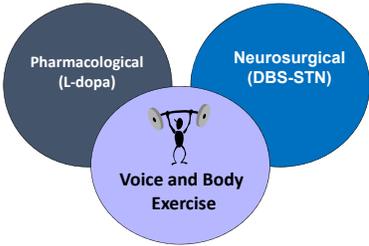
Motor improvements observed in STN DBS do not lead to systematic improvements in all aspects of quality of life or increased levels of physical activity.

*“This highlights the need to develop and implement intervention strategies to promote an active lifestyle in this population, even if clinical improvement is evident following surgery”*

(Daneault et al., 2015)

20

## Medical Management + Therapy = Optimal Function and Symptom Control



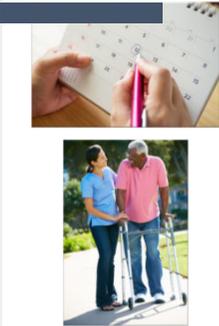
21

## What is LSVT BIG?



22

<b>Delivery</b>	LSVT BIG Certified Physical/Occupational Therapist One on One Treatment
<b>Time of Practice</b>	4 consecutive days of therapy/wk for 4 weeks 16 sessions in one month 60-minute sessions Daily carryover assignments (all 30 days) Daily homework (all 30 days)



23

## LSVT BIG Treatment Session

**Maximal Daily Exercises**

1. Floor to Ceiling
2. Side to Side
3. Front to Back
4. ...

**Functional Component Tasks**

5. EVERYDAY

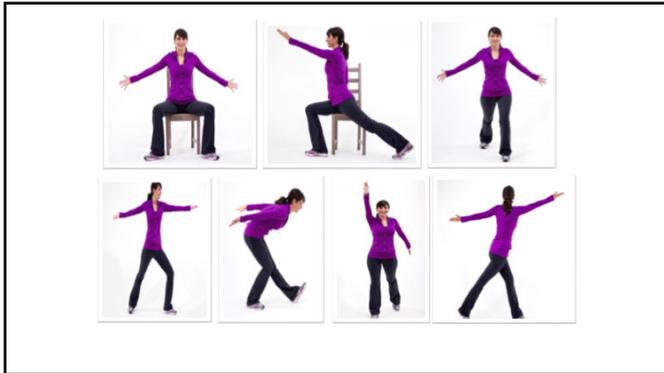
**For example:**

- Walking
- Distance/time

Core exercises-  
“Building Blocks”

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

24



25

### How do the LSVT BIG Daily Exercises help you?

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

26

### Functional Task Specific Training in LSVT BIG- More than just exercise.

- Translation of larger, better quality movements trained in functional tasks which are relevant to each individual.
- Progress in difficulty and complexity
- Adapted to each person's abilities

27

### Examples... Personalized, Purposeful Practice

28

### LSVT BIG Homework!

**Daily Carryover Assignments**  
Practice using bigger, better movements around others outside of therapy in a variety of "real world" situations.

**Exercise practice at home**

- With coach/caregiver as needed
- With LSVT BIG Homework Helper videos
- 1-2 times per day

29

### Goal- Sensory Recalibration

Patient recognizes and accepts the amount of effort needed to move bigger and better (more normally) and moves this way "automatically" in everyday life.

30

### Lifelong Support After LSVT BIG

- Daily exercise practice life-long
  - With coach/caregiver
  - LSVT Homework Helper Videos- *Purchase DVD or Download*
- Group Exercise Options!
  - LOUD for LIFE® and BIG for LIFE®
- Regular LSVT "Tune-ups" every 3-12 months
- Other enjoyable fitness for PD



31

### LSVT BIG Before or After DBS??

#### LSVT BIG before DBS

- Beneficial before DBS to maximize functional level with exercise before considering more invasive option of DBS.
- Can also improve and optimize gait, balance, physical fitness, energy and wellness before a planned DBS.
- Establish a baseline of function and activity before surgery.

#### LSVT BIG after DBS

- Beneficial after DBS to assist with persistent balance issues and to assist in re-training appropriate motor control for movement. To maximize functional abilities with the combination of therapy and surgical options.

32

### LSVT BIG before DBS

- LSVT BIG treatment just like with any other patient with PD.
- Focus on increased amplitude
- Maximize balance and functional ability prior to pursuing surgery
- Collect outcomes to be able to compare pre and post DBS functional ability.

33

### LSVT BIG after DBS

Balance deficits may still persist despite DBS (or may be increased)

Continue to need repetition to learn appropriate amplitude/motor control

Freezing may persist – include freezing triggers in treatment (BIG walking, FCTs, hierarchies)

34

### LSVT BIG after DBS

May want to ensure DBS settings are stable prior to treatment.

Patient and therapist should stay in close communication with MD regarding any changes in programming that may need to be done secondary to things you observed.

35

### Summary

Important rationale exist for providing physical and occupational therapy, including LSVT BIG before and after DBS

Motor control issues may still exist even post DBS

Therapist may need to focus more on control of amplitude vs. increased amplitude post DBS

People with PD who have had DBS will still have balance issues, possibly even increased fall risk and will still require therapy

36

