## LSVT Introduction

## Edited Video Transcript

Gabe Byars Speaking:

All right, so today we’re talking about an intervention called LSVT, which stands for Lee Silverman voice therapy. It’s the training center where they came up with this, I believe, down in Arizona if I remember right, but I may not be remembering right. This is an intervention specifically targeted for people with Parkinson’s. And it’s really kind of a fun, neat, different style intervention. To give you some exposure, this fits in with the central nervous system (CNS) neurodegenerative stuff that we talked about last Thursday.

### Parkinson’s Disease

So, Parkinson’s—as we talked about last Thursday, Parkinson’s is that degradation of the basal ganglia. We no longer produce dopamine. Dopamine is actually critical in many systems across our brain function. But in one [system], we just call it the “go molecule” because it’s the one that really causes movement, to go, to initiate. So, what are some of the symptoms we see with Parkinson’s? This shuffling small gait. Our technical terms are festinating gait. Yeah, this affects posture. They get this stooped, rigid posture as well. What else do we see? We see a balance issues. We see tremors, slow movement, bradykinesia, rigidity. We get freezing. All these come back to dopamine. All these come back to that not-the-go molecule again. All the non-cognitive symptoms we talked about—cognition, emotional dysregulation, bowl and bladder—this is also dopamine related.

### Traditional Parkinson’s Interventions

Now, imagine those symptoms. How much are they going to affect your everyday life and what you’ve done this morning. You know, just getting out of bed, getting dressed, getting into the car, walking from your car to the building, coming down the stairs, right. It could be really debilitating. Traditionally, our interventions with Parkinson’s are very compensatory. We teach them to adapt, right—so, “Oh, you’re having problems? You’re falling while you’re walking? Well, let’s adapt your environment for lower-fall risk. Let’s have you not walk and talk at the same time—just do single tasks. Oh, you’re having tremors? Let’s focus on stabilization or [using] weighted utensils.” Right? “You’re having trouble buttoning a shirt, so let’s try snaps or Velcro.”

### LSVT Targets the Motor Control

This is different. LSVT, is a remedial intervention that actually targets the motor control. You’re trying to affect this motor control system to break this pattern of small slow movements. So, in that, another thing that makes it really special, different than our normal, there is a single-focus amplitude for LSVT LOUD, which is focused on speech. It focuses on being a loud volume. LSVT BIG is a movement intervention, so it is focused on big movements. This is different than our standard mode of therapy, [such as] color standard motor therapy, kind of hummingbird mode of therapy—"Oh, well this is a problem, so we’re going to do this. Oh, this is a problem, so we’re going to that and then this and this and this and this and that.” It’s a little bit scattered. Whereas with [LSVT], everything comes back to big—having trouble stepping? BIG stepping. Having trouble buttoning? BIG buttoning. Having trouble combing your hair? BIG combing your hair, to unify for that single focus, right. Now, that second piece is one of intensity. Right, your standard outpatient OT therapy for Parkinson’s, you’re going to see them once, twice a week for three weeks-ish. You’re going to maybe give them some homework to do. They may do it.

### LSVT Interventions Are Focused and Intense

This is different. A: the interventions themselves are more intense. B: the frequency is more intense and the expectation to do homework is more intense. It means there is a lot more challenge. There is a lot more repetition—neuroplasticity. And then finally, the evidence base behind this [intervention] shows strong functional change. You actually make a difference in the quality of their movement, their speech, their lives. So, the idea of the hypothesis behind this—you’ve all been in this situation where you’re wearing headphones and someone talks to you, and you shout at them. It turns out there is a system in our brain that effectively listens to our own voice, pays attention to our own movements, and then adjusts that. I can hear myself talk right now. I know that I have to project to the entire room, so I’m talking louder, all subconsciously. There is a movement piece, right, where I pay attention to my movement, my walking. And I’m walking. I know how big my steps are, and if something shifts, let’s say I’m walking in a crowd and it gets bunched up, my steps automatically decrease. I don’t have to think about it.

### Train Them to Shout and Move BIG

The idea with Parkinson’s is that that feedback loop of listening to themselves and adjusting their volume gets fouled up. So, they feel like they are talking normally, when [really] they are talking like this, in a whisper. They feel like they are moving big, but they are taking these short little shuffling steps. So, the idea is that you retrain them. “You want to talk normally? You shout.” Their shouting is normal, right. “You want to move big? Fine. You want to move normally? We’re going to have you [move big]. Instead of right now, you feel like you’re at a four-out-of-ten volume for that movement, now, we’re turning it up to eight.” I’m teaching them to move at eight. So, when they go to a normal movement, it’s at a four, five, six, more normalized.

### LSVT BIG and LOUD Requires a Certification to Perform

So, how do we do it? First, LSVT both BIG and LOUD are interventions you need to be certified to perform. You can search LSVT to find out more information. It is available to OTs, OTAs, PTs, PTAs. If you are interested, you certainly qualify. You can be qualified as a student and get certified if you’re super interested for a slightly lower rate intervention. They do the certifications both in person and online now, which makes it a much more reasonable option.

### The OT’s Role as Therapist

In terms of a client, a client is going to see you. If you’re the LSVT therapist, they’re going to see you four times a week. Each session is an hour. During that hour, you’re going to do exercises and apply these BIG ideas to functional goals during that hour. Then, on days where they see you, they are going to do the same exercises and practice goals again. On days that they don’t see you, they are going to go through that twice. So, every day, they are doing it [exercises] twice. If you think about that, that means everyday they are getting between two to three hours of practice in a month, sixty to ninety hours of practice is enough to start to make neurological changes.

Okay, so those everyday tasks—this is what makes it an OT intervention. They call them hierarchy tasks. They take their everyday goals—"I want to be better at buttoning. I want to be better at tying my shoes, making a sandwich, opening the mail, getting in the car,” whatever their goals, and they practice those BIG. That’s a critical piece of the intervention. Today, we are going to focus on the exercise, but the hierarchy is again, what makes it OT.

### The Statistical Evidence

Louder Speech Two Years Later Okay, the evidence. So, this is for LSVP LOUD, the speech intervention. The vertical scale [of the graph on display] is one of those breathing rainbows. You breathe into it; it goes up, right. So, the idea is how much can you breathe? Well, they worked with people with Parkinson’s. One group, they did LSVT LOUD, effectively an intervention to be loud. The other group, they did respiratory therapy, effectively breathing exercises. And what you see is that both groups at the end of two months, at the end of their interventions, improved. The LSVT LOUD group improved much more. The respiratory group, by the time you got to somewhere between six months and a year had returned to baseline. LSVT LOUD had a significant improvement for up to two years later—they were still speaking louder. They were still able to vocalize, like bring more air out of their lungs, or breathe better because of the intervention. And that’s hard to find. It’s hard to find interventions that stick for two years.

Bigger Movement IS Significantly Improved Now movement. This time, the other vertical scale [of the graph on display]—is the Unified Parkinson’s Disease Rating Scale. A lower score is better. The higher score means more pathology. They have three groups: a home exercise group, a Nordic walking group—basically walking with poles, and LSVT BIG. So, what you see is after the intervention, both the exercise group and the walking group got a little bit worse. And for the next three months, they continued to get a little bit worse. Whereas LSVT BIG had a significant improvement in the first month, and they actually continued to slightly get better over time. We actually not only compensated, but somehow, we affected their movement. We made movement better. So, let’s show you some videos.