

LANGUAGE & VOICE EXPERIENCE

LESLIE S. KESSLER, M.A., CCC-SLP

MARCH 24, 2018

COMPUTER-BASED HOME COGNITIVE PROGRAMS

WHAT'S THE SCOOP?

&

LEE SILVERMAN VOICE TREATMENT

STILL THE GOLD STAR STANDARD

❖ I have no financial interest with any entity producing marketing, re-selling, or distributing healthcare goods or services consumed by, or used on patients

❖ I will not be discussing the use of off-label products or services or will point out any off-label uses

COGNITION AND PD

❖ Many people who have PD will or do have cognitive deficits

❖ Cognitive deficits will cause **reduced quality of life**

For instance **loss of independence**

- No longer able to drive
- Poor ability to remember to put effort in the voice
- Poor ability to remember to take big steps

RESEARCH

❖ Key skills necessary for adequate cognition;

- ATTENTION
- EXECUTIVE CONTROL
- METACOGNITION
- PROCESSING SPEED

ATTENTION & EXECUTIVE CONTROL

- ❖ **Sustained Attention:** Paying attention even if the task is boring
- ❖ **Selective Attention:** Freedom from distractibility
- ❖ **Alternating Attention:** Switch attention between tasks

Divided Attention and Sustained Attention with Mental Control now
are part of **Executive Control**

ATTENTION & EXECUTIVE CONTROL

❖ **Executive Control is self-control to manage ourselves**

- **The “conductor” of all cognitive skills**

❖ **Executive Control: Working Memory:**

(sustained attention with mental control)

- Attending to something.....holding it in your working memory
- Then manipulating it like mental math or reversing directions
- Retrieve information from long term memory
 - Remembering passwords
 - Remembering and staying with the topic of conversation

ATTENTION & EXECUTIVE CONTROL

❖ **Executive Control: Selective Attention**

- Freedom from distractibility
- Inhibit attention to distractions
 - For example:
 - noise, movement emotional states (worry)

ATTENTION & EXECUTIVE CONTROL

❖ Executive Control: Suppression

- Impulse Control
- Ability to process incoming information and inhibit automatic responses.

METACOGNITION

- ❖ Thinking about thinking
- ❖ Controlling your own thoughts
- ❖ Talking to yourself
- ❖ “Ok, I am hungry.....What should I eat.....I wonder what we have in the house...I really am in the mood for a turkey sandwich

METACOGNITION

❖ Metacognitive Strategies

❖ **Plan before you start:** Make sure you have all the ingredients

❖ **Check your work:** Did I make the sandwich the way I like it?

❖ **Limit distractions:**

- I know I will be distracted by the game on TV so I will turn it off for now.
- I know I can't talk and drive so I will turn off my phone.

METACOGNITION

❖ Before doing a “brain-training task

❖ Decide the exercise you will do

- Think about the exercise task
- Think about how you might do it better than last time
- Check to see how well you did
- Think about what you might have done incorrectly
- Decide what you can do next time to do the task even better

THIS IS TALKING TO YOURSELF

METACOGNITION

- ❖ Why am I spending so much time talking about this?
- ❖ **BECAUSE** these strategies facilitate **carry-over** of the cognitive exercises into **real life** situations.
- ❖ When you finish doing a cognitive exercise

Think about what you do in **REAL LIFE** that requires that skill

- ❖ **Mental Rehearsal improves the chances of success.**

In your **mind imagine** you are doing **that real life activity**

PROCESSING SPEED RESEARCH

- ❖ **Reduced processing speed** is linked to cognitive problems in PD
- ❖ **Increased processing speed** translates to improved performance in daily living activities like driving.
- ❖ All the research I have read talks about the importance of speedy processing of information.

COMPUTER-BASED COGNITIVE PROGRAMS GENERAL RESEARCH

- ❖ Systematic review of 12 studies related to age-based cognitive decline
- ❖ AND research in computer-based cognitive programs for people with PD
- ❖ Results: Computer-based cognitive programs improved processing speed and memory
- ❖ Long term gain in memory performance
- ❖ Computer-based programs are valid to improve memory and processing speed.

COMPUTER – BASED BRAIN GAMES DO THEY WORK?

YES ...NO...YES...NO...He loves me, he loves me not

- ❖ There are hundreds of computer–based cognitive training programs.
- ❖ The following are some that have been researched.
- ❖ The research I read suggested some work and others do not.

THE INFORMATION IS LIMITED SO THIS IS JUST A
GUIDELINE BASED ON MINIMAL RESEACH FINDINGS

POSITIVE FINDINGS

❖ **Brain HQ by Posit Science:**

- ❖ Uses Brain Plasticity-based computerized cognitive training
 - Memory, attention, social skills, processing speed
- ❖ Has the most research from a variety of researchers printed in a variety of publications like JAMA, American Academy of Neurology.
- ❖ Generalization of computer skills to daily life

POSITIVE FINDINGS

❖ NEUROPSYCH ONLINE

- ❖ Trains memory, problem solving, flexibility, attention and executive function
- ❖ Graded exercises, challenge at each level, demands consistency
- ❖ Spanish version
- ❖ Has supporting research
- ❖ Requires a clinician trained in this therapy and home practice is computer-based and tailored by the SLP

POSITIVE FINDINGS

❖ **BrainBuilder:**

- ❖ Trains memory, attention (visual & auditory), processing speed, problem solving, adjusts to person's performance, 20 programs with multiple levels.
- ❖ Provides acoustically altered music to stimulate cognitive domains of the brain for relaxed focus.

POSITIVE FINDINGS

❖ Constant Therapy:

The more practice the more improvement

❖ Language and cognitive processing are interrelated

❖ Possible downside – Constant Therapy has computer program therapy for Aphasia, and other disorders. You will need to pick the exercises that are cognitively based.

❖ Upside – good research behind it

NOT SO POSITIVE FINDINGS

❖ Lumosity

❖ CogniPlus

❖ Cogweb

❖ Cognitrack

INTERESTING

- ❖ Games like Wii have demonstrated positive cognitive gains in people with PD.
- ❖ These games recruit involvement in multiple areas of the brain.

PERSONAL NOTE

I have been using various Wii games in therapy for many years and have found them to be fun and cognitively stimulating.

ONE MORE THING

❖ **Attention Processing Tapes (APT - 3)**

- ❖ Has many years of research as well as PET scans documenting the effectiveness of this therapy for cognitive improvement.
- ❖ APT-3 is administered by a speech pathologist
- ❖ Home practice can be loaded on a thumb drive

PERSONAL NOTE

It is worth coming to therapy for this specific program

VOICE THERAPY THE GOLD STANDARD

- ❖ **Lee Silverman Voice Treatment – LSVT or LOUD**
- ❖ The **most researched** voice therapy program for PD with positive findings.
- ❖ LSVT has research documenting improvements in swallowing
- ❖ **Single focus** – Think Loud hooked to **Feeling Effort**
 - minimizes cognitive effort
 - maximizes volume and comprehensibility

LSVT

RULES OF NEURAL PLASTICITY

❖ **USE IT OR LOSE IT**

❖ **EXERCISE AND IMPROVE IT**

❖ **INTENSITY MATTERS**

❖ **COMPLEXITY MATTERS:**

- SEVERAL DIFFERENT LEVELS OF TASKS

❖ **SALIENCE MATTERS:**

- BEING HEARD AND UNDERSTOOD IS IMPORTANT

LSVT GOAL

❖ **AUTOMATICALLY** use increase effort for all communications

HOW DOES THIS HAPPEN?

- ❖ Accept that although you **FEEL** like you are shouting you are only producing **normal volume**.
- ❖ The tape recorder does not lie
- ❖ Feel effort every time you speak

AEROBICS PROGRAM FOR YOUR VOICE

- ❖ Exercise facilitates holding on to skills.
- ❖ Just like you exercise your muscles in your arms, legs, abdomen etc.
- ❖ You must also exercise the LIFE SUSTAINING MUSCLES
- ❖ These muscles control your breathing, voice AND swallowing
 - **Laryngeal muscles**
 - **Respiratory muscles**

LSVT

REAL LIFE SUCCESS

- ❖ Incorporates **10 personal phrases** or words you consistently say
- ❖ Daily assignments for **specific things you will say** before returning for therapy
 - Instruction to “think loud” before you speak
 - When you return to therapy your clinician will ask
 - Did you say_____?
 - **Did you think “loud” before you said it?**
- ❖ Based on brain research for motor learning
 - It takes 21 consecutive days to develop a habit

AFTER THE FORMAL THERAPY

- ❖ CONTINUE TO PRACTICE just like any other exercise program
- ❖ Come back for tune ups every 6 months or sooner
- ❖ Join a PD communication group
- ❖ **Find opportunities to use your voice**
 - Volunteer to read to children
 - Volunteer to record books on tape
 - **See how many people you can find to speak with each day**
 - **In person or on the phone**

QUESTIONS???

THANK YOU