Improved Functioning in a Patient with Chronic Dementia Following a Program of Non-Pharmacological Interventions:

Preliminary Support for the Cognitive Therapeutics Method™

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Existing Approaches to Treat Dementia

What is Dementia?

- Referred to as Major Neurocognitive Disorder in the new diagnostic classification system (DSM-V)
- Cluster of cognitive symptoms that interfere with activities of daily living and represent a decline from previous levels of functioning
- Specific type of dementia determined by underlying etiology, with manifestation of distinct symptoms during the early stages of the disease course

Pharmacological Approaches

- Do not prevent, halt, or reverse the progressive mental deterioration associated with neurodegenerative dementia
- May function to slow cognitive decline for a period of time (for some people)
- Generally targeted at preventing nerve cell destruction



Neuroplasticity

- Neuroplasticity refers to the fact that experience and environmental influences often produce changes in the central nervous system, both structurally and functionally
- The term describes the nervous system's potential for alterations through reorganization that enhance not only its adaptability to environmental change but also its capability to compensate for injury or disease

Cognitive Therapeutics Method™ as a Non-Pharmacological Approach

What is the Cognitive Therapeutics Method™ (CTM)?



- CTM is a non-pharmacological intervention program created based on the concept of neuroplasticity
- Designed to slow progression of cognitive and functional decline and delay onset of new symptoms in areas of the brain that have not yet been affected by the disease process

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CTM is Unique in Several Ways

- Scientific research-based program developed by experts
- One-on-one in the home
- Personalized according to client abilities and needs
- Introduces a comprehensive group of novel activities



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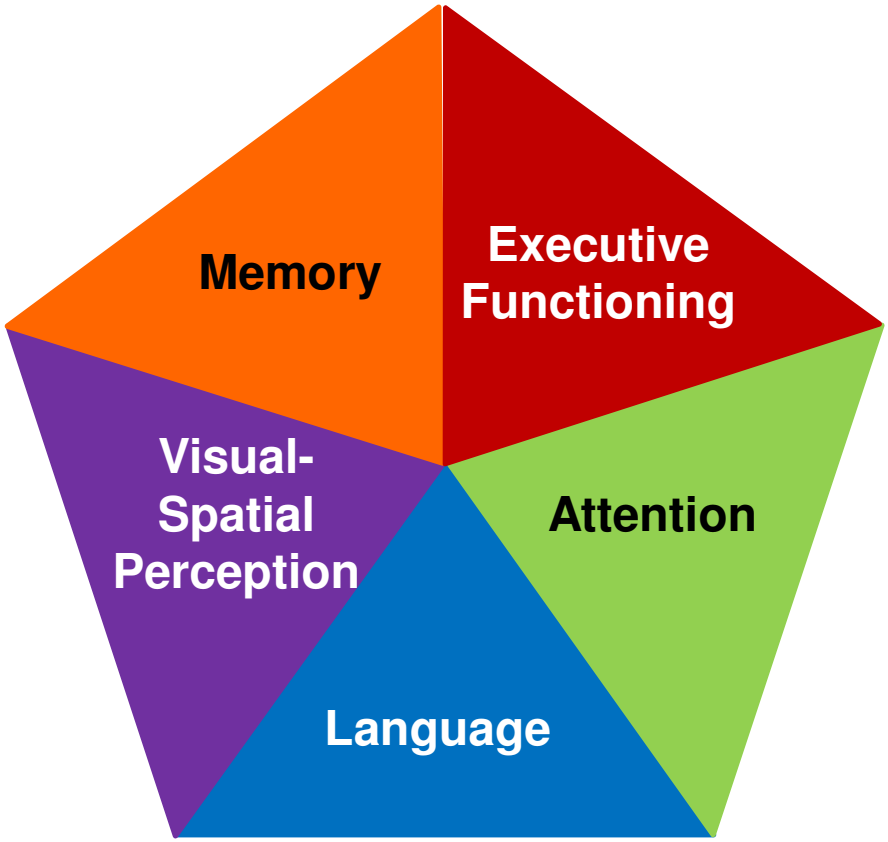
Seven Primary Domains of Intervention

1. Cognitive Stimulation/Training
2. Social Stimulation
3. Sensory Stimulation
4. Dietary Changes
5. Physical Activity and Exercise
6. Recreation
7. Stress Management/Coping

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Five Cognitive Sub-Domains



- **Executive Functioning** includes cognitive abilities such as reasoning, problem solving, judgment, and thought flexibility
- **Attention** refers to the ability to focus on a specific piece of information for a long period of time while ignoring distractions
- **Language** refers to the ability to execute verbal functions including spontaneous speech, naming, speech repetition, speech comprehension, reading, and writing
- **Visual-Spatial Perception** involves the ability to accurately perceive an object's physical location and understand the relationships between objects
- **Memory** refers to the ability to retain information and utilize it later

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Example: Picture Details (Memory)

Observe the picture carefully…



Example: Picture Details (Memory)

Now can you answer these questions?

1. What were the objects resting on?

2. How many red apples were there?

3. Was there a baseball in the picture?

Example: Conceptual Ordering (Executive Functioning)

Rearrange the cards in order, from start to finish



Example: Conceptual Ordering (Executive Functioning)

Rearrange the cards in order, from start to finish



Example: Object Counting (Attention)

How many stars are there?



Example: Homonyms (Language)

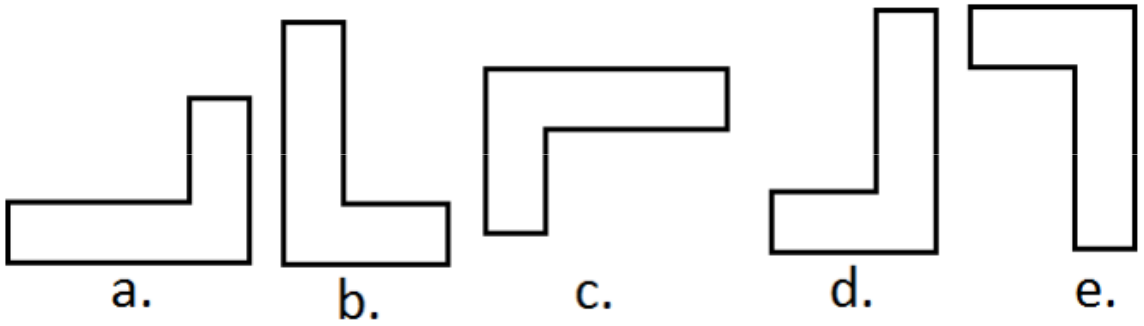
What two words that sound the same but have different meanings would make sense in the following sentences?

1. Only _____ of the classmates understood how to find the _____ of the two numbers.

2. _____ Mary found an _____ in her picnic basket!

Example: Shape Rotations (Visual-Spatial Perception)

Four of the five images is a rotation of the same image. Which one of the images is not a rotation but a reverse image?





Case Study

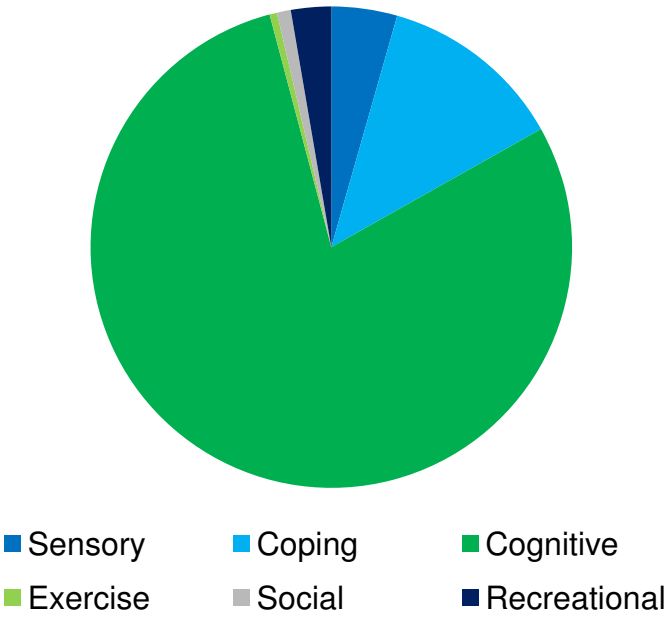
Client Profile

- 89-year-old, White female
- Diagnosis of dementia due to neurodegenerative disease and vascular complications
- Aphasic: both receptive and expressive
- Stroke several years prior
- Wheelchair bound for over 60 years due to spinal cord injury (paraplegia)
- Too impaired to complete the standard CTM neuropsychological screening

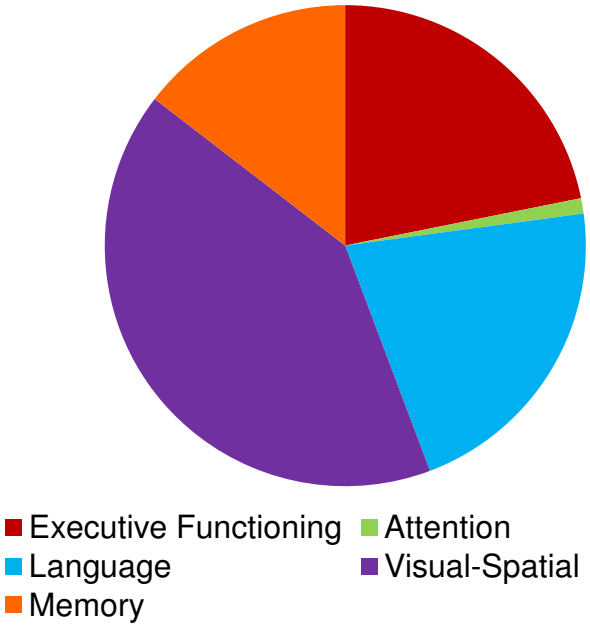
Interventions Administered with Client

- CTM participant for 40 weeks
- 80% intervention time spent on cognitive interventions

Time Spent Per Domain



Time Spent Per Cognitive Domain



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Qualitative Outcomes

Observed Changes: Attention

- At the start of the intervention period, the client was cooperative but distracted; after 4 weeks, she began to demonstrate decreased distractibility to irrelevant stimuli
- By the end of the intervention period, she could remain focused on tasks for as long as 45 minutes
- The client became more attentive to others' needs

Observed Changes: Language

- Client became more willing to speak during the course of participation in the program
- She gradually was able to read tongue twisters activity out loud with correct number of syllables
- Client also was eventually able to identify more items by name
- Expressive language improved

Observed Changes: Visual-Spatial

- Marked improvement in visual-spatial tasks
- Client was able to complete the Pattern Blocks intervention more quickly and accurately
- She also became more attentive to visual-spatial/perceptual detail

Observed Changes: Memory

- Observational improvements were noted in short-term memory
- Client was able to recall for several days certain images she saw from the Photo Identification intervention
- She initially struggled with the Memory Cards intervention but could eventually could find matches in 8 cards
- Eventually came recognize the fact that she had grandchildren

Observed Changes: Executive Functioning

- Client's willingness to solve problems increased gradually during the intervention period
- Lacing activity was one of the client's favorite, and she eventually was able to follow the instruction guide carefully and with precision

Observed Changes: Quality of Life

- Client became more alert and proactive in voicing thoughts and needs
- Caregiver observed that client began to show increased spontaneous speech
- Visiting nurse pointed out that client actively identifies issues rather than waiting for nurse to discover them
- Enthusiasm towards interventions seemed to induce sense of purpose

Quantitative Outcomes

Frontal Systems Behavior Scale (FrSBe; Grace & Malloy, 2001)

- Formal rating scale designed to measure behaviors associated with damage to the frontal lobes and frontal systems of the brain
- Developed to provide an evaluation of behaviors prior to and following brain damage; in this case, used to assess behaviors pre-intervention and post-intervention
- Consists of 46 items that provide an overall scores as well as scores across the subscales of Apathy, Disinhibition, and Executive Dysfunction
- Sound psychometric properties

Frontal Systems Behavior Scale (FrSBe)

- FrsBe ratings indicated a 1.3 standard deviation **improvement in overall functioning**
- Subscale analysis revealed a 2.0 standard deviation **decrease in Apathy** and a 0.7 standard deviation **decrease in Executive Dysfunction**
- No change noted in Disinhibition, but her score on this subscale was not within the clinically significant range prior to initiating intervention
- These findings provide preliminary evidence to support CTM as a valid non-pharmacological approach to chronic dementia

The Home Care Assistance Team is Excited to Work with You



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