PT MANAGEMENT OF PATIENTS WITH DEMENTIA: USING A STRENGTH & FUNCTIONALLY BASED APPROACH
Nicole Dawson, PT, PhD, GCS
FPTA Conference – Orlando
September 26, 2015

LEARNING OBJECTIVES
• The Participant will be able to:
  • describe the constructs affected during pathological cognitive aging
  • distinguish the different types of dementia and their symptomology
  • recognize the progression of dementia and appropriate treatment goals for each stage
  • contrast differences between strength-based approach and traditional medical model

LEARNING OBJECTIVES
• The Participant will be able to:
  • appraise remaining strengths and domains requiring compensation in patients with dementia
  • outline current evidenced-based interventions and best practices in literature
  • utilize effective communication strategies and person-centered care to maximize outcomes
COGNITION
- “thinking”
- Mental activity in the brain when a person is processing information

Introduction • Communication Strategies • Treatment Facilitators • Research • Summary

COGNITION & FUNCTION
- Hierarchical relationship linking cognition and function (Marshall et al., 2011; Njegov et al., 2001)
- More complex tasks require higher levels of cognitive ability
- Link between gait and executive function (Ijmker & Lamoth, 2012; McGough et al., 2011)

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BASIC COGNITIVE PROCESSES
- Sensory functioning
- Memory
  - Working memory
  - Short-term memory
  - Long-term memory
- Attention
  - Inhibition

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**HIGHER-ORDERED COGNITIVE PROCESSES**

- Problem-solving
- Decision making
- Judgment
- Reasoning & Logic
- Reading
- Language
- Orientation
- Visuospatial functioning
- Prospective memory

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**COGNITIVE PROCESSES**

- Implicit processing
  - The use of unconscious and automatic processing for learning and retrieving information
- Explicit processing
  - The use of conscious and effortful processing for learning and retrieving information
  - Can be considered ‘intentional’ learning/retrieval
- Meta-cognition
  - Higher-level processing skills used in goal-directed behavior
  - Goal selection, planning, initiation, self-monitoring

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**EXPLICIT LEARNING AND MEMORY**

- Encoding
- Sensory memory
- Selective attention
- Short-term memory
- Maintenance rehearsal
- Consolidation
- Long-term memory
- Retrieval

All information lost within a second or so.
Unlearned information is lost in about 15 to 30 seconds.
Information is retained indefinitely although some information may be difficult to retrieve.

Ciccarelli & White, 2009, p. 225
OTHER TYPES OF MEMORY

• Prospective memory
  • Remembering to execute an action planned for the future
  • Time based or event based

• Emotional memory
  • Ability to retrieve memories that are emotionally relevant or charged

Ciccarelli & White, 2009, p. 235
DEMENTIA
• Not a specific disease, classifies range of symptoms
• Symptoms must be severe enough to interfere with daily activities
• Serious mental decline is NOT a part of normal aging

INTRODUCTION

COMMUNICATION STRATEGIES

TREATMENT FACILITATORS

RESEARCH

SUMMARY

SIGNS & SYMPTOMS OF DEMENTIA
• Memory loss
• Communication & language deficits
• Focus & attention deficits
• Difficulty with reasoning & judgment
• Visual perception deficits
• Behavioral disturbances
• Personality or affective changes

DEMENTIA VS. NORMAL AGING

SIGNS OF DEMENTIA**
Poor judgment & decision making
Inability to manage budget
Losing track of the date or the season
Difficulty having a conversation
Misplacing things and being unable to retrace steps to find them

TYPICAL AGE-RELATED CHANGES
Making a bad decision once in a while
Missing a monthly payment
Forgetting which day it is & remembering later
Sometimes forgetting which word to use
Losing things from time to time

**NOTE: compared to usual behavior
Alzheimer’s Association, 2012
CAUSES OF DEMENTIA

- Variety of illnesses and conditions that may lead to symptoms of dementia
- Irreversible
  - Neuropathological disorders
- Reversible
  - Depression
  - Delirium

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IRREVERSIBLE DEMENTIAS

- Alzheimer’s disease

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ALZHEIMER’S DISEASE

- Most common type of dementia
- 5.4 millions Americans with AD, expected to triple over next 50 years
- Americans 65+, 1 in 8 has Alzheimer’s; and nearly half of people aged 85 and older have the disease
- Risk factors
  - Age, low education, genetic (APOe4), lifestyle
  - Pathobiology & Etiology
  - Gradual and progressive course

Grossman, Bergman & Parker, 2006
PROGRESSION OF ALZHEIMER’S PATHOPHYSIOLOGY (Sperling et al., 2011)

Alzheimer’s Disease

Cognitive function

Aging

MCI

Dementia

Years

Sperling et al., 2011

Abnormal

Amyloid-β (CSF/PET)

Synaptic dysfunction (FDG-PET/MRI)

Tau-mediated neuronal injury (CSF)

Brain structure (sequences MRI)

Cognition

Clinical function

Normal

Preclinical

MCI

Dementia

Clinical Disease Stage

Sperling et al., 2011

IRREVERSIBLE DEMENTIAS

• Alzheimer’s disease

• Vascular dementia

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VASCULAR DEMENTIA

- 2nd most common form of dementia
- Represents 10-20% of cases in U.S.
- Over 4 million Americans have vascular dementia
- Prevalence is 9 times higher in patients who have had a stroke
- Risk factors
  - Stroke, diabetes, hypertension
- Pathology

Grossman, Bergmann & Parker, 2006

IRREVERSIBLE DEMENTIAS

- Alzheimer’s disease
- Vascular dementia
- Lewy body dementia

INTRODUCTION

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- Summary

DEMENTIA WITH LEWY BODIES

- Primarily affects the basal ganglia
- Pathologic aggregations of alpha-synuclein
- 0.7% prevalence rate
- No risk factors have been identified
- Progressive decline of cognitive function

Grossman, Bergmann & Parker, 2006
DEMENTIA WITH LEWY BODIES
- Core features
  - Fluctuations
  - Visual hallucinations
  - Agitation & aggression later in disease
  - Spontaneous parkinsonism
- Often present in mixed dementias (with AD)
- Strong similarities with PD dementia
  - 12-month rule (<12 months Lewy bodies)

Grossman, Bergmann & Parker, 2006

IRREVERSIBLE DEMENTIAS
- Alzheimer’s disease
- Vascular dementia
- Lewy body dementia
- Frontotemporal lobar degeneration

FRONTOTEMPORAL DEMENTIA (FTD)
- Also known as Pick's disease
- Prevalence of 3.6 – 15.0 in 100,000
- Age of onset 45-65
- 4-6 year duration of illness til death
- Most common presentation
  - Profound changes in personality & social conduct

Grossman, Bergmann & Parker, 2006
FRONTOTEMPORAL DEMENTIA (FTD)

- Unaware of consequences
- Cognitive decline
  - Attention, abstraction, planning & problem solving
  - Memory, language, spatial functions well preserved
- Gross atrophy in frontal and temporal lobes found on neuroimaging and autopsy
- Only moderate correlation between clinical & pathological findings

Grossman, Bergmann & Parker, 2006

IRREVERSIBLE DEMENTIAS

- Alzheimer's disease
- Vascular dementia
- Lewy body dementia
- Frontotemporal lobar degeneration
- Mixed dementia
- Parkinson's disease
- Creutzfeldt-Jacob disease
- Huntington's disease
- Wernicke-Korsakoff Syndrome

REVERSIBLE DEMENTIAS

- Depression
DEPRESSION

- Affective disorder
- Loss of ability to enjoy usual activities
- More likely to manifest somatic symptoms, hyperactive agitated behavior and delusions (Johnson, Sims & Gottlieb, 1994)
- Pseudodementia
  - Cognitive impairment due to depression
  - True pseudodementia is rare, usually coexist
  - Consider pattern of onset and level of severity

REVERSIBLE DEMENTIAS

- Depression
- Delirium

DELIRIUM

- Acute disturbance of consciousness
- Decreased attention and change in cognition
- 10-15% of all hospitalized & surgical patients (Johnson, Sims & Gottlieb, 1994)
- Disorientation to time & place
- Hallucinations may be presents leading to possible behavioral outbursts
- Hypoactive form may lead to lethargy
REVERSIBLE DEMENTIAS
- Depression
- Delirium
- Normal pressure hydrocephalus
- Brain tumor

DIFFERENTIAL DIAGNOSIS
- Not mutually exclusive
  - Prevalence of delirium superimposed on dementia ranged from 22.89% (Fick et al., 2002)
  - 44% were missed by medical professionals
- Exclude concurrent metabolic, endocrine, infection, drug effects
- Acute vs. insidious onset
- Need for interdisciplinary cooperation and assessment
  - Physical therapist, occupational therapist, speech therapist, nursing, physician, social worker, psychologist, patient, family

PERSONHOOD
- Dementia not always just about decline & loss
- Growth can be facilitated by others in areas of coping skills, compensatory mechanisms, creativity, and emerging personality
- A “survivor” struggling to maintain personal identity

Insel & Badger, 2002
Ryan et al., 2005
PERSONHOOD
• Care provider must have skills and attitude to relate to the “person” instead of reacting to the disease
• Person-centered care vital to successful dementia interventions
• Care provider also has weaknesses, possibly interpersonal skills or lack of patience

FDA-APPROVED TREATMENTS
• Cholinesterase inhibitors
  • Donepezil (Aricept)
  • Galantamine (Razadyne)
  • Rivastigmine (Exelon)
  • Tacrine (Cognex: discontinued in U.S.)
• N-methyl-D-aspartate (NMDA) receptor antagonist
  • Memantine (Namenda)

DEMENTIA & REHABILITATION
CAN PATIENTS WITH DEMENTIA BENEFIT FROM REHABILITATION?

YES!

Patients with dementia can participate in therapy!
Patients with dementia can improve!
Persons with dementia can learn!

COMMON BARRIERS

- Difficulty following directions
- Conversational barriers
- Limited follow through
- Family interference

DEMENTIA & REHABILITATION

- Motor function prior to a hip fracture was the most important predictor of motor gain after hip fracture, not cognitive level (Belosesky et al., 2002)
- Participation in rehabilitation to be the mediator between cognitive impairment and functional outcomes (Lenze et al., 2004)
ROLES OF THERAPY SERVICES

- Early stages (GDS Stage 4)
  - Maintain functional status
  - Fall prevention
- Mid-stages (GDS Stages 5-6)
  - Maintain ADLs
  - Compensatory strategies
  - Family education & training
- Later stages (GDS Stage 7)
  - Family training
  - Positioning
  - Contracture management

STRENGTH-BASED APPROACH

<table>
<thead>
<tr>
<th>Strength-Based Approach</th>
<th>Traditional Deficit-Focused Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Focuses on identifying strengths and abilities.</td>
<td>1) Focuses on identifying deficits and limitations.</td>
</tr>
<tr>
<td>2) Includes individuals as active participants in the treatment process.</td>
<td>2) Includes individuals as passive participants in the treatment process.</td>
</tr>
<tr>
<td>3) Emphasizes current possibilities and options.</td>
<td>3) Emphasizes past events and performance.</td>
</tr>
</tbody>
</table>

BENEFITS OF STRENGTH-BASED APPROACH

- Provide challenge and meaning
- Present with tasks that can be successfully completed
- Lack of activity = distressed mood, frustration, problematic behaviors
- Activity = reduced isolation, increased self-esteem, sense of control

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REMAINS STRENGTHS

- Focused attention remains intact (Chamberlain et al., 2011; Perry & Hodges, 1999; Nobes & Brady, 1998)
- Procedural (implicit) memory relatively intact (Beaunieux et al., 2012; Machado et al., 2009; Mahendra et al., 2011)
- Reading remains intact until late in disease (Chamberlain et al., 2011; McGurn et al., 2004)
- Aspects of language remains intact until late in disease (McGurn et al., 2004)
- Left/Right orientation remains intact, unless it requires mental rotation (Lezak, 2004)
- Emotional memory (Moayeri et al., 2000)

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REQUIRES COMPENSATION

- Short-term memory deficits occur very early
- Problem-solving difficulty
- Orientation is compromised early
- Prospective memory deteriorates early

~

Strength-Based Approach

For Therapists
- Communication Strategies
- Errorless Learning
- Learning by Modeling
- External Memory Aids
- Spaced Retrieval

As Treatment Facilitators

~

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COMMUNICATION STRATEGIES

• Patience & acceptance
  • Understanding communication issues that affect patient
  • Allowing enough time for response or action

• K.I.S.S. (Keep It Short and Simple)
  • Avoid unnecessary details or fillers during directions

Judge, Yarry & Orsulic-Jeras, 2010

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COMMUNICATION STRATEGIES

• Rephrasing questions
  • Stating questions that focus on immediate rather than short-term memory
  • Instead of “Did you have any pain over past few days?”, ask “Are you having pain right now?”

• Redirection with verbal and/or physical cues
  • Repeating information or using physical cues to direct attention
  • Displaying a bright sign on the bathroom
  • Guiding hands to arms of chair during transfer

Judge, Yarry & Orsulic-Jeras, 2010

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COMMUNICATION STRATEGIES

• Narrowing choices
  • Asking questions that can be answered in a few words
  • “Do you want to toss a ball in here or walk around outside?”

• Connecting with others
  • Questions that encourage conversation
  • “What advice would you give to a young couple that wanted to get married?”

Judge, Yarry & Orsulic-Jeras, 2010

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DEMENTIA & LEARNING

• Errorless learning and learning by modeling resulted in better learning than trial & error learning in IADL (Dechamps et al., 2011)
• Motor learning is similar to healthy controls (Elliinger & Damasio, 1986)

EXTERNAL MEMORY AIDS

• Calendars
• Signs and labels
• Lists
• Notebooks

Yarry, Dawson & Judge, 2011; Judge et al., 2010

EXTERNAL MEMORY AIDS

• Accessible
  - Should be placed somewhere that will be seen
• Bright
  - Bright and bold with adequate contrast
• Legible
  - Large, easy to read font or handwriting
• Explicit
  - Detailed and providing adequate explanation
• Done
  - A way to demonstrate objective completed will be more useful
  - Crossing off list; check box

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SIGNS & LABELS

TAKE YOUR CANE WITH YOU PLEASE

LISTS

Getting up out of chair
1. Scoot forward
2. Feet flat on floor
3. Hands on arm rests
4. Push up to stand
5. Hands on walker for balance

LISTS

<table>
<thead>
<tr>
<th>Remember to</th>
<th>Check box when done</th>
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<tbody>
<tr>
<td>1. Take pills with breakfast</td>
<td></td>
</tr>
<tr>
<td>2. Take pills with dinner</td>
<td></td>
</tr>
<tr>
<td>3. Take pills at bedtime</td>
<td></td>
</tr>
<tr>
<td>4. Do exercises at bedtime</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appointments</th>
<th>Check box when done</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dr. Lucas at 2:00 pm</td>
<td></td>
</tr>
<tr>
<td>2. Other</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
SPACED-RETRIEVAL

• Capitalizes on maintenance of implicit or procedural memory
• Method of learning and retaining information by recalling that information over increasingly longer periods of time (Camp et al., 1996, p.196)
• Participants were able to learn to use external aids using both strategies (Bourgeois et al., 2003)

Camp et al., 1996; Cherry et al., 1999

APPLICATIONS OF SPACED-RETRIEVAL

• Physical Therapy
  • Safety issues
    • Remembering to lock wheelchair brakes, push off from arms of wheelchair, or feel chair on back of legs before sitting
  • Gait training
    • Choose most important component
    • Step length, stay within boundaries of assistive device, sequence with cane

Brush & Camp, 1998b

APPLICATIONS OF SPACED-RETRIEVAL

• Speech-Language Pathology
  • Compensatory techniques for anomia
    • Teaching client to describe function or attribute of object when cannot think of name
  • Compensatory swallow techniques
    • Facilitate follow-through with alternating sips & bites

Brush & Camp, 1998b
APPLICATIONS OF SPACED-RETRIEVAL

• Speech-Language Pathology
  • Dysarthria
    • Enable patient to recall correct tongue placement, proper rate of speech, and/or breathing techniques
  • Voice Training
    • Help remind patient to use proper placement of voice, use adequate breath support, or maintain proper pitch

Brush & Camp, 1998b

APPLICATIONS OF SPACED-RETRIEVAL

• Occupational Therapy
  • Adaptive equipment
    • Helps patients to remember to use new equipment
  • Activities of daily living
    • Enable patient to remember one step or many steps in sequence

Brush & Camp, 1998b

APPLICATIONS OF SPACED-RETRIEVAL

• Staff or family member
  • Repetitive questioning
    • Determine the answer the patient would like to hear; teach the patient the information
  • Word finding difficulty
    • Teach the names of important objects or people

Brush & Camp, 1998b

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APPLICATIONS OF SPACED-RETRIEVAL

• Staff or family member
  • Times, numbers, and other important information
  • Enable patients to remember birthdates, a room number, anniversary
  • Location of a message or use of a calendar
  • Teach the patient where to look for information

Brush & Camp, 1998b

SPACED-RETRIEVAL TECHNIQUE

• Begin with prompt question for the target behavior
• Train the client to recall the correct answer
• When retrieval is successful, the interval preceding the next recall test is increased
• If a recall failure occurs, the participant is told the correct response and asked to repeat it
• The following interval length returns to the last one at which recall was successful

Camp et al., 1996; Cherry et al., 1999

SPACED-RETRIEVAL TECHNIQUE

• To begin next session, the participant will be asked the target question
• If correct, there is no further training that session
• If incorrect, provide immediate correct answer, ask for immediate recall then ask for recall after the amount of time for the longest successful interval from the last session

Brush & Camp, 1998b; Camp et al., 1996; Cherry et al., 1999
• If that is answered incorrectly, the correct answer will be provided immediately and a step backwards will be warranted until the correct response is given

• SUCCESS achieved when participant correctly remembers at the beginning of 3 sessions

Brush & Camp, 1998b; Camp et al., 1996; Cherry et al., 1999

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• Identify goal

• Target question and response
  • Must be meaningful for patient
  • Choose cue that has been successful
  • Rely on long-term memory
Introduction

Communication Strategies

Treatment Facilitators

Research

Summary

SPACED-RETRIEVAL

- Successful integration of SR into a clinical speech therapy setting with significant results (Brush & Camp, 1998a)
- Efficacy of SR for eating difficulty and ability (Lin et al., 2010)
- Spaced Retrieval TherAppy

Camp et al., 1996; Cherry et al., 1999
“I don’t know who you are but I know your name is Jennifer. I don’t know how I know it. Your name is Jennifer”.

Brush & Camp, 1998b

RESEARCH IN DEMENTIA

CURRENT RESEARCH ON DEMENTIA

• New Diagnostic Criteria and Guidelines for Alzheimer’s Disease
  • Dementia due to Alzheimer’s disease (McKhann et al., 2011)
  • Mild cognitive impairment due to Alzheimer’s disease (Albert et al., 2011)
  • Preclinical Alzheimer’s disease (Sperling et al., 2011)
  • Neuropathic assessment of Alzheimer’s during an autopsy (Hyman et al., 2012)
COGNITIVE STIMULATING TASKS & DEMENTIA

- Frequent participation in cognitively stimulating tasks reduce risk for Alzheimer’s disease (Wilson et al., 2002)
- Late life cognitive activities influence cognitive reserve independently of education (Hall et al., 2009)
- For those with lower education, engaging frequently in cognitive activities showed significant compensatory benefits for episodic memory (Lachman et al., 2010)

FITNESS, COGNITION & AGING

- Women with greater physical activity levels at baseline, less likely to experience cognitive decline (Yaffe et al., 2001)
- Fitness level at baseline predicted higher levels of cognitive performance six years later (Barnes et al., 2003)

- Physical activity may have protective effects on cognition
- Physical activity level associated with lower risk of cognitive impairment, Alzheimer’s disease or any dementia (Laurin et al., 2001)
DEMENTIA & EXERCISE
• Overall, evidence is mixed on efficacy of exercise for IWDs
  • Due to heterogeneity of methodology and outcomes
  • Lack of clear theoretical or conceptual framework

DEMENTIA & EXERCISE
• Important to follow exercise science guidelines
  • Physical Stress Theory (Mueller & Maluf, 2002)
  • Principle of specificity (vanBeveren & Avers, 2012)
• Adding techniques to improve implementation and adherence with IWDs
  • Strength-Based approach
  • Ensuring pleasure and enjoyment (Costello et al., 2011)
  • Tailoring programs to individual (Costello et al., 2011)

STRENGTH-BASED APPROACH & EXERCISE
• Using familiar and functional activities
  • Rely on procedural long-term memory
  • Avoid unfamiliar exercises and equipment
• Allowing individual to choose activity
  • Encouraging continuation of enjoyed activities
  • May require adaptation
DEMENTIA & FALLS

- Risk factors for falls
  - Musculoskeletal & mobility deficits
  - Medications or medical condition
  - History of falls
  - Fear of falling
  - Environmental hazards
  - Cognitive impairment

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DEMENTIA & FALLS

- Tinetti et al. (1988)
  - Low prevalence but very high correlation

- Rubenstein reviews (1994, 2006)
  - Cognitive deficits in addition to musculoskeletal, visual deficits, and hypotension

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DEMENTIA & FALLS

- Current assessment tools may be difficult due to complex instructions or multi-step directions (Nordin et al., 2006)
- Studies demonstrating reliability
- Few studies have assessed predictive validity
  - Use of Berg Balance Scale provides mixed evidence (Kato-Narita et al., 2011; McGough et al., 2013)
  - 7-item Physical Performance Test did not relate to falls (Farrell et al., 2011; Ryan et al., 2011)

TOP 5 TIPS TO FACILITATE SUCCESS

- Assume your patient will succeed
- Listen, stop & listen again
- Slow down
- Use multiple modes of cuing
- If you get frustrated or sense your patient is frustrated, walk away

TOP 5 RULES FOR PERSONHOOD

- Your patient is a person, a human-being
- Your patient deserves to be treated with respect and dignity
- Your patient has the right to be involved in his/her care
- Your patient expects you to give your best
- Your patient needs your help
COMMON BARRIERS
• Difficulty following directions
  - K.I.S.S.
  - Multiple modes of cuing
  - Learning by modeling
  - External memory aids
• Conversational barriers
  - Patience & acceptance
  - Rephrasing questions
  - Narrowing choices
• Connecting with others
  - Limited follow through
  - External memory aids
  - Family/staff training
• Family interference
  - Educating family members on techniques
  - Involving patient and family as active participant

CASE STUDY, age 85, Left CVA
• 85 year old male, lived with wife
• Home P.T., O.T., S.T. following CVA with 2 week hospital and rehab stay
• Residual R hemiparesis
• Hypertension, CHF, vascular dementia
• Moderate to severe anomia, mild dysarthria, short-term memory loss, impaired judgment
• Unsteady gait, shortness of breath, impaired balance, poor endurance

STRENGTH-BASED ASSESSMENT
• Able to follow 1-2 step commands with familiar tasks
• His wife is healthy and ambulatory
• History of daily “mall walking” with his wife
• Hobbies included woodworking, playing checkers, and fishing
• Retired high school math teacher
### CASE STUDY, age 87, dementia

- 87 year old female, referred for recurrent falls
- Lives in secure dementia unit (7 years)
- Parkinson’s disease, COPD, chronic depression
- Wanders and furniture walks in unit
- Difficulty following 2-step commands, poor balance, decreased functional ambulation

### STRENGTH-BASED ASSESSMENT

- Appears very social and friendly with residents and staff
- Hobbies included playing card and board games, scrapbooking
- Daughter and grandchildren visit weekly
- Owned and operated dry cleaning business for 25 years

### THANK YOU!

Questions?

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