

REHABILITATION IN PARKINSON'S DISEASE

WHY DOES IT
MATTER

Chronic Illness

Treatment In the Current Paradigm



Their healthcare treatment is provided “in a vacuum”

They are struggling to maintain independence

Their families are strained due to roles as caregivers

Occupational Therapy Role

- Address “*Occupational Performance*”
- “*Occupational Performance*” includes the areas of:
 - Self care
 - Productivity
 - Leisure

Assessment Areas

Primary Assessment Areas:

- Activities of Daily Living (ADL)
- Upper limb strength and range of motion
- Tone, rigidity
- Coordination
- Vision
- Writing

Assessment Areas

Secondary Assessment Areas:

- Fatigue
- Sleep
- Cognition
- Depression
- Quality of Life

Challenges in Self Care

- ADLs take increased time
- On and off times affect performance
- Safety is compromised
- Decreased desire or motivation to complete ADLs

Challenges in Productivity and Leisure

- Changing roles
- Decreased participation in competitive activity
- Decreased energy or desire
- Decreased motivation
- Social anxiety

Treatment Overview

- Patient-centered goals
- Make observations
- Environment
- Blocked practice techniques
- Self vocalization techniques
- Energy conservation and work simplification techniques

Treatment: Managing Tremor and Rigidity

- Stretching and ROM exercises
- Use of non affected UE
- Positioning Techniques/Splinting
- Energy Conservation/Work Simplification
- Relaxation
- Pain Management

Treatment: Feeding

- Weighted utensils
- Built up utensils
- Scoop plates
- Rocker knives
- Adaptive Strategies



Treatment: Grooming

- Built up toothbrush or makeup brush
- Electric toothbrush or razor
- Wash mitt or soap on a rope
- Adaptive Strategies



Treatment: Dressing and Bathing

- Reacher
- Sock Aid
- Long Shoehorn
- Elastic or Velcro
- Long Sponge
- Robe for Drying
- Adaptive Strategies



Treatment: Housekeeping and Meal Preparation

- Electric gadgets
- Dycem to prevent slipping
- Trolley, cart or walker trays

Treatment Ideas: Computer Work

- Adapted Keyboards and Mouse
- Hands Free Software
- One Handed Typing
- Seating and Positioning



Treatment: Micrographia

- PRINT
- Use lined paper
- Adaptive writing aids
- Practice

Physical Therapy Role

- Gait (walking)
- Postural Instability (balance)
- Functional Mobility
- Rigidity
- Positioning

Challenges in Walking

- Slow, Small, Shuffling Steps
- Festination
- Freezing
- Decreased arm swing
- Narrow base of support

Challenges in Balance (Postural Instability)

- Increased Fall Risk
- Advanced Disease
- Loss of Postural Reflexes
- Retropulsion

Challenges in Functional Mobility

- Problem Areas
 - Bed mobility
 - Sit to stand
 - Turning
 - Stairs
- Contributing Factors
 - Bradykinesia
 - Smaller movements
 - “Freezing”
 - Rigidity
 - Safety concerns
 - Posture instability

Challenges in Rigidity

- Increase in muscle tone
 - Cogwheel, Lead Pipe
 - Dystonia
- Often increases with
 - Active Movement
 - Mental Concentration
 - Emotional Tension
- Stooped, forward posture
- Pain



Treatment: Overview

- Compensatory Strategies
- Repetition
- Family/Caregiver education
 - Cognitive deficits decrease carryover (Nieuwboer et al, 2002)

Treatment: Walking

- **Cues** (Rubinstein et al, 2002)
 - Lines taped to the floor (Lewis et al, 2000; Sidaway et al, 2006)
 - Improve carry over (Marchese et al, 2000)
- **Focused Attention**
 - Think Big (Farley and Koshland, 2005)
 - Reduced Distraction
- **Auditory and Verbal Cues** (Howe et al, 2003)
 - Counting steps
 - Music

Treatment: Walking

- Straight Cane
- Rolling Walker
 - Straight or Swivel Wheels
 - Rollator
- USTEP Walking Stabilizer
 - Heavy
 - Turns smoothly
 - Laser Light



Treatment: Walking

- Treadmill Training
 - Improvements in gait speed, step length and balance
 - Safety harness
 - Protocols:
 - 3x/week, 20-60 minutes, 4-8 weeks
 - Progressively increase TM speed
 - Directional Stepping
 - Stop/Restarts

Cakit et al, 2007; Protas et al, 2005; Toole et al, 2005; Pohl et al, 2003; Miyai et al, 2002; Miyai et al, 2000



Treatment: Freezing of Gait

- Wheeled walkers
- Combination of balance and walking training
- Sensory cueing (auditory, visual, tactile)
- Compensatory strategies to overcome freezing
- Individualized treatment

Morris et al, 2008; Niewboer, 2008

Treatment: Balance

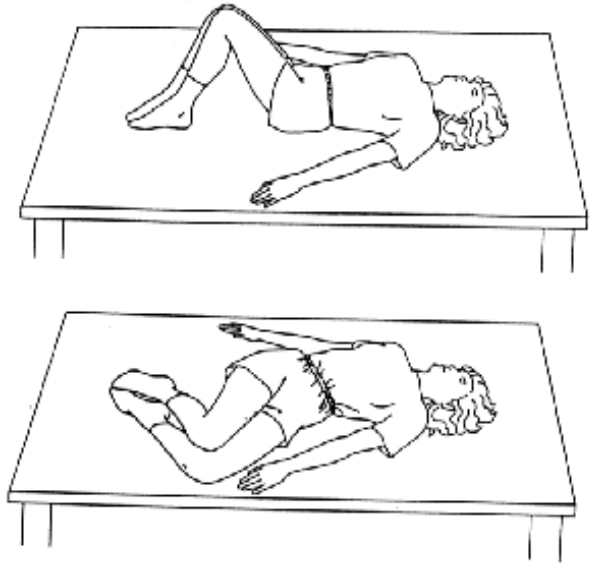
- **Conventional Static and Dynamic Balance** (Goodwin et al, 2008; Keus et al, 2007; Stankovic, 2004)
- **Exercise Groups** (Hackney and Earhart, 2008; Hackney et al, 2007)
- **Strength Training** (Hirsch et al, 2003)
- **Perturbation Training** (Jobges et al, 2004)
- **Treadmill Training** (Cakit et al, 2007; Protas et al, 2005)

Treatment: Functional Mobility

- **Compensatory Strategies** (Kamsma et al, 1995)
 - Separating complex movements into components
 - Conscious movement control
 - Cueing
 - Assistive devices
 - “Think Big” training program
- **Blocked Practice** (Lin et al, 2007)
- **Parkinson’s Specific Exercise Groups**
(Tamir et al, 2007; Vilianni et al, 1999)

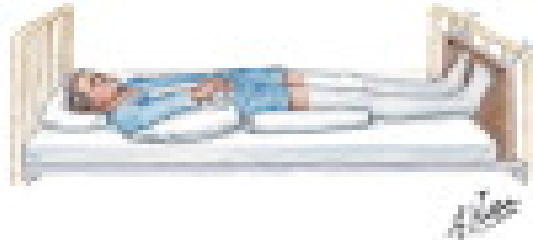
Treatment: Rigidity

- Relaxation
- Deep Breathing
- Active Range of Motion
- Passive Range of Motion
- Stretching



Treatment: Positioning

- Prevent bed sores and contractures
- Allow interaction with environment



Speech & Language Pathologist's Role

- Evaluate and treat changes in the following areas:
 - Swallowing
 - Speech and Language
 - Cognition

Challenges in Swallowing

- May occur at any stage of the disease
- May worsen and deteriorate rapidly
- PD medications may impact dysphagia
- Chronic aspiration which can lead to pneumonia

Clinical Signs of Aspiration

- Coughing, choking, throat-clearing; wet, gurgly voice when eating or drinking
- Difficulty managing saliva, drooling, and swallowing pills
- Complaints of food “sticking”
- Increased time required for meals (not related to manual dexterity)
- Unintentional weight loss

Challenges in Speech/Communication

- Increased time to communicate needs

Hypokinetic dysarthria

- Hypophonia
- Fast rate of speech
- Respiration and speaking

Challenges in Speech/Communication

- Phonation
- Resonance
- Articulation
- Facial Expression

Challenges with Cognition

- Reduced concentration
- Reduced problem-solving ability
- Impaired processing skills
- Difficulty word finding
- Increased distractibility
- Impaired insight
- Impaired visual-spatial skills
- Decreased memory

Treatment: Overview

- Simplify treatment
- Maximum change with minimal cognitive effort
- Visual cueing and demonstration
- Repetitive activities
- Focus on increasing functional communication.

Treatment: Dysphagia

- Strengthening exercises for muscles used for eating and swallowing
- Compensatory strategies for safe swallowing
- Diet Modifications
- Patient and family education

Treatment: Speech

- *Lee Silverman Voice Treatment (LSVT)*

focuses on phonation:

- Vocal loudness
- High effort productions with multiple repetitions
- Intensive Practice (motor learning)
- Training individuals to use loud voice in functional ways

Treatment: Cognition

- Increase awareness
- Compensatory strategies:
 - Auditory processing and retention strategies
 - Daily planner, routine, schedule
 - Take notes or using a tape recorder
 - Doing one thing at a time
 - Repetition/Rehearsal
 - Allowing extra time

Rehabilitation and Parkinson's Disease

A Coordinated Approach to Care



1. Collaborative definition of problems
2. Targeting, goal-setting and planning
3. Continuum of self-management training and support services
4. Active and sustained follow-up

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Thank you.