

OT, PT & PD

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Objectives

- OT and PT roles over the course of PD
- Symptoms OT & PT help to manage
- Practical applications of interventions at each stage
- Special considerations
- OT and PT resources
- Equipment/resource table

OT & PT at Movement Disorder Clinic:



- OT & PT referrals made by:
 - Dr. Hobson, Dr. Borys or other MDC team members
 - Cross-referred by other programs (i.e. GPAT, Home Care Case Coordinators, CTS, in-patient acute or rehab programs) *if client is already a patient of MDC*
- OT – clients seen in clinic or in their homes
- PT – clients are almost always seen in clinic

Role of Physiotherapy (PT)

- European Physiotherapy Guideline for PD:
 - “Improve quality of life by maintaining or increasing the patient’s independence, safety and well being.”
 - “Achieved through prevention of inactivity and falls, improving functional activity and decreasing limitations in activities.”
 - Goals and interventions change over the course of the disease

Role of Occupational Therapy (OT)

○ Maintain/optimize function

Basic Activities of Daily Living (ADL)	Instrumental ADL's	Leisure	Productivity
Toileting Bathing Grooming Dressing Eating Taking medication	Meal preparation Housework Yard work Driving Shopping Money management	Hobbies Socializing	Working Volunteering School

Early Stage Parkinson's Disease



Early Stage PD – Symptoms

Hoehn & Yahr 1-2.5

“Cardinal Features”:

- Tremor
- Rigidity
- Bradykinesia
- Postural instability

Loss of automatic movement, causing a change in ability to do familiar tasks.

Familiar tasks breaks down, becomes slower and more effortful.

Other Motor Symptoms:

- Changes in gait pattern
- Decreased dexterity
- Dysarthria
- Hypophonia
- Dystonia, particularly in L/E's

Non-Motor Symptoms:

- Mood changes (anxiety, depression)
- Cognitive changes (attention, memory)
- Visuo-spatial problems
- Fatigue and sleep disturbances
- Orthostatic hypotension
- Bowel and bladder changes (constipation, urinary urgency and frequency, incontinence)
- Sensory changes (pain, tightness, tingling, burning)

Early Stage PD –

PT

- Little or no limitations, mild unilateral or bilateral symptoms, balance is not impaired, possibly mild gait and postural changes
- **Role of PT**
 - Health promotion (optimizing general strength, flexibility, balance and endurance)
 - Prevention of potential impairments
- Goals achieved through education and exercise therapy, with specific attention to balance, physical capacity and introduction of compensatory/attention strategies

Early Stage PD – Education

- PD symptoms and individual variability
- Role and importance of exercise
- Postural changes related to PD
- Changes in gait pattern and role of attention strategies to manage same

Early Stage PD – Exercise

○ Purpose:

- Minimize secondary effects of PD symptoms and general effects of aging
 - Maintain mobility and functional abilities
 - ?Slow the progression of PD?
- **Flexibility** – chest, shoulders, elbows, hamstrings, calfs, wrist flexors and palms, low back and neck
 - **Strength** – abs, quads, glutes, triceps, back extensors
 - **Aerobic exercise** – 30 minutes of moderate exercise, 5x/week
 - **Balance** – optimize balance, stepping strategies

Early Stage PD – Exercise Cont'd

- ◉ PD specific exercise programs (LSVT BIG, PWR!, Rock Steady Boxing Method for PD etc.)
- ◉ Complimentary Therapies
 - Yoga
 - Tai Chi
 - Pilates
 - Dance
 - Boxing
 - Pole walking

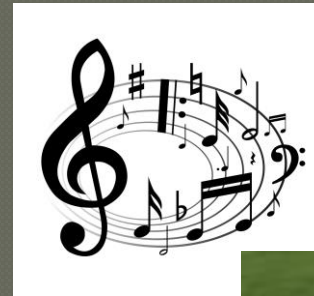
Early Stage PD – Posture



- Increased neck and trunk flexion
- Increased lateral flexion
- Tx:
 - Stretches and ROM exercises to improve trunk flexibility
 - Extension and core strengthening exercises
 - Positioning
 - ?walker

Early Stage PD- Gait

- Slight reduction in velocity
- Reduced arm swing +/- reduced stride length
- Reduced trunk rotation
- Worse with dual tasking
- Tx:
 - Cueing strategies
 - Stimuli from environment
 - Auditory
 - Visual
 - Generated by patient
 - Internal instruction



Early Stage PD- OT Assessment

- Typical OT initial assessment ...*with more focus on UE coordination/function.*
- Occasional workplace ergonomic assessment

VIDEO

Early Stage PD – Typical OT interventions:

Education:

- Energy conservation.
- Recommendations for home safety/equipment – primarily for fall prevention.
- How to cope with tremors.
- Relaxation/stress management.
- Discuss Parkinson's Manitoba exercise & support groups.

- Problem solving to prevent role loss

Home Exercise Programs:

- Fine motor exercises/activities.
- Writing re-training programs.

Early Stage PD- AOTA Evidence-Based Findings

- Practice reduces bradykinesia in aiming tasks
Performance on fine motor tasks can be improved with frequent, regular practice
(Optimally use goal-directed activity)
- Physical rehab. Improves functional status & motor performance.
- Aerobic exercise may help maintain functional status.

Mid Stage Parkinson's Disease



Mid Stage PD- Symptoms

● Hoehn and Yahr: 2-4

- Worsening tremor
- Bilateral involvement
- More loss of automatic movements
- Gait deviations
- Impaired balance
- Falls
- Difficulty with mobility, transfers, ADLs
- Dyskinesias and increasing “on/off” fluctuations
- Orthostatic hypotension
- Urinary urgency/frequency/incontinence
- Mild cognitive impairment/executive dysfunction
- Visual changes

Mid Stage PD- PT

Postural instability, gait pattern is more parkinsonian, gait deviations, falls, increasing difficulty with transfers

Role of PT

- Preserve or stimulate activities
- Focus on problem areas
 - Transfers (bed, chair, floor, car)
 - Posture
 - Balance
 - Gait (eg. shuffling, freezing, festinating)
- Compensatory strategies (cognitive and cueing strategies)
- Fall prevention (education, conditioning/balance training, gait aids)
- Education and training for caregivers

Mid Stage PD – Transfers

- Use cognitive movement strategies
- Chair transfers
 - “Nose over toes”
 - Teach and practice with caregivers



Mid Stage PD – Transfers cont'd

○ Bed transfers and mobility

- Teach and practice technique, include caregivers
- Encourage and practice 'big' movements



Mid Stage PD – Transfers cont'd

● Floor transfers

- Teach and practice technique, include caregivers



● Car transfers

- Teach and practice technique, include caregivers



Mid Stage PD – Gait pattern and gait deviations

● Gait pattern

- Velocity is further reduced
- Bilateral decrease or absence of arm swing
- Bilateral decrease in stride length and ground clearance

● Gait deviations

- Start hesitation
- Freezing
- Festinating
- Turns

Mid Stage PD – Gait deviations

Start Hesitation:

difficulty initiating the first step when attempting to walk

To overcome:

- Stop attempting to move, shift weight to one side, take a step with the other
- Visualize taking a step over a line or have partner place a foot ahead (ie. to step to)
- Put a piece of tape or sock in front of bed, chairs, toilet etc.
- March in place before stepping

Mid Stage PD – Gait deviations cont'd

Freezing:

- temporary inability to continue taking steps, occurs suddenly and lasts for brief periods

Triggers:

- Narrow passages
- Crowded areas
- Rushing
- Thresholds
- Turning
- Changes in flooring
- Distractions, dual tasking
- Approaching a destination

Mid Stage PD – Gait deviations cont'd

Freezing cont'd

◎ DO

- Count steps
- Focus on walking
- Focus on something beyond a threshold
- Keep pathways open and clear
- Walk near walls in crowded areas

◎ DON'T

- Rush
- Talk with others
- Look away
- Carry items

Mid Stage PD – Gait deviations cont'd

Festinating gait:

- Involuntary speeding up of gait in a forward direction
- “runaway train”

Triggers:

- Forward flexed posture (in part)

Management:

- Appropriate walker selection
- Stop when increasing speed is first perceived, start again
- Use of cueing strategies to regulate gait pattern/velocity

Mid Stage PD – Gait deviations cont'd

Turns:

Slower or rushed, more steps, narrow base, unstable

Management:

● Cognitive movement strategies

- Lead with foot vs. upper body
- Avoid pivoting, focus on lifting feet (eg. Marching)
- Focus on lifting feet (ie. marching)
- Clock Turn (get pic)
- Shift weight to side

Mid Stage PD – Fall Prevention

- Identify risk factors
- Education
- Strategies to decrease risk:
 - safe movement techniques (chair transfers, reaching etc.)
 - staggered stance
 - use of support
 - avoid stepping backwards
 - stand slightly to side of doors
 - avoid carrying items
- Use of gait aids or w/c
- Footwear
- Balance Exercises



Mid Stage PD – OT Assessment

- Cognitive screening (MoCA)
- Perceptual Evaluation (relating to driving)
- “Driving screening”
- Geriatric Depression Scale
- ADL assessment
- Home environment assessment.
- Symptom fluctuations
- Identify factors contributing to falls

Montreal Cognitive Assessment - MoCA

- “Gold standard” cognitive screening tool with PD.
- More sensitive to mild cognitive impairment (MCI).
- Scores above 26/30 considered normal.

MCI – minor cognitive changes that do not interfere with daily living.

MONTREAL COGNITIVE ASSESSMENT (MOCA)

Version 7.1 Original Version

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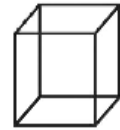
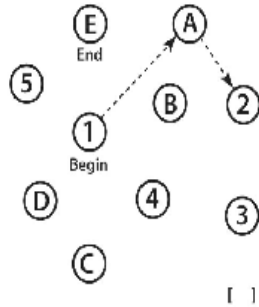
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VISUOSPATIAL / EXECUTIVE



Copy cube

Draw CLOCK (Ten past eleven) (3 points)

POINTS

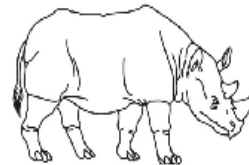
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___/5

NAMING



[]



[]



[]

___/3

MEMORY

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION

Read list of digits (1 digit/sec).

Subject has to repeat them in the forward order [] 2 1 8 5 4
Subject has to repeat them in the backward order [] 7 4 2

___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[] FBACMNAAJKLBAFAKDEAAAJAMOFAB

___/1

Serial 7 subtraction starting at 100

[] 93 [] 86 [] 79 [] 72 [] 65

4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

___/3

LANGUAGE

Repeat: I only know that John is the one to help today. []

The cat always hid under the couch when dogs were in the room. []

___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [] _____ (N ≥ 11 words)

___/1

ABSTRACTION

Similarity between e.g. banana - orange - fruit [] train - bicycle [] watch - ruler

___/2

DELAYED RECALL

Has to recall words WITH NO CUE

FACE [] VELVET [] CHURCH [] DAISY [] RED []

Points for UNCLUED recall only

___/5

Optional

Category cue

Multiple choice cue

ORIENTATION

[] Date [] Month [] Year [] Day [] Place [] City

___/6

Driving ?



Screening for driving ability:

- AROM of UE & LE.
- Neck & Trunk rotation (shoulder checking).
- Muscle strength.
- Rapid Pace Walk.
- Alternate foot tap (gas pedal to brake)
- Cognition/perception.
- Family observations.
- Advise physicians at clinic of results & let them follow up.
- DAMP referral
- Good info. – NPF website

Mid Stage PD- OT intervention


Adaptation & Equipment....

- Raised toilet seats
- Toilet safety frames*
- Grab bars, poles..
- Urinals or commodes.
- Medication: Clocks, watches with timers. Bubble packing or dosettes.
- Adaptive cutlery
- Positioning for less tremor.
- Lifeline.
- Handi-transit.
- Parking pass.
- Widening doorways..
- Power wheelchair Ax
- Modify clothing
- Sock aides, elastic laces etc
- Home Care recommendation
- Meal delivery etc.

Mid Stage PD – ADL

- **Liftware** – “self-stabilizing, computerized handle and selection of attachments, including a spoon”.
- It compensates for hand tremor, enabling people with mild to moderate tremor to eat more easily.
- Not yet available in Canada

- Computer access etc.– modify to filter out tremor




 Steady
Mouse.com

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The SteadyMouse Project

SteadyMouse is free software designed to assist people with the hand tremors that commonly go along with Parkinson's disease, Multiple sclerosis, etc.

Download

 SteadyMouse
Version 1.3 Beta

Major Features:

- Anti-tremor mouse filtering
- Removal of accidental mouse clicks
- Assistive "Icon Targeting" system
- Quick enable/disable using the scroll lock key

Mid Stage PD – ADL

- Adaptive equipment
- Easier to manage clothing.



Mid Stage PD – Transfers

Strategies for difficulty with mobility:

Use adaptive equipment such as:

- Furniture risers
- Raised toilet seats
- Toilet safety frames
- Bath seats/benches
- Grab bars
- Satin pyjamas/sheets
- Clamp-on tub rails
- Bed rails
- Electric hospital beds
- Transfer poles
- Electric lift chairs

Mid Stage PD – Transfers

Bed Mobility

- Transfer training
- Bed rails, super poles, trapeze bars, wedges, electric hospital bed
- Satin sheets/pjamas, blanket cradle

VIDEO

Mid Stage PD – Falls

- Personal Alarm - Ex. Lifeline (ideally with Auto Alert)



- General prevention tips – usually given on home visit
 - *Ex. Decreasing clutter, rugs etc., adaptive equipt, grab bars, railings, reinforcing safest walker use.*
- Occasionally recommend hip protectors etc.

Mid Stage PD – Cognition

Strategies for cognitive impairment:

- Stay well organized with calendars, “to-do” lists, routines, schedules, keep things that are used together close to each other, put things back where they belong and eliminate clutter...
- Write down simple steps/instructions, directions
- Use watch alarms (phone, ipad etc.) for medication reminders, automatic shut-off appliances, dosette, blister-packed medications



Mid Stage PD – Cognition cont'd

Even MORE strategies for cognitive impairment:

- Try to maintain a quiet, distraction-free environment when client is needing to focus on learning new information.
- Give client plenty of time to process new information and to respond in conversation
- Encourage client to rehearse new material repeatedly.
- “Thinking exercise” programs – puzzle books, online games & “brain training” websites, jigsaw puzzles, card games

In later mid-stages there can be need for lifeline, Adult Day Program, Home Care for respite, medication assist etc.

Late Stage PD:



Late Stage PD – Symptoms

- Hoehn & Yahr 5
- Further progression of previous symptoms
- Requires assistance for all mobility or relies on a wheelchair
- If cognitive impairment was present in middle stage, it may have progressed to dementia
- Wandering behaviours can become more challenging, but emotional outbursts often lessen
- Hallucinations may be more common

Late Stage PD –

PT

- Preserve vital functions and prevent complications
- Assisted to mobilize and perform exercise (active or passive), to minimize effects of immobility

Late Stage PD: OT assessment

- Same assessment generally with more focus on the basics...transfers, safety, toileting..
- Assess for a wheelchair.
- Often will switch to using MMSE at this stage....

Late Stage PD: OT interventions

- Equipment: wheelchair, wheeled commode, mechanical lifts, transfer belts, hospital bed, etc.
- Teaching safe transfer techniques to caregivers.
- Changing handi transit designation to wheelchair level.
- Lots of problem solving with caregivers & home care case coordinators.
- Recommending services....in-home respite, in-patient respite, ADL assist, Adult Day Programs etc.
- Sometimes cross-refer to Day Hospital if the client would benefit from more intense out-patient multi-disciplinary rehab
- Referral to PRIME
- Recommendation for PCH paneling

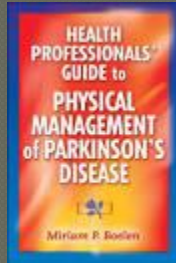


Special Considerations:

- Early referrals
- On/off times
 - Timing of appointment
 - Ax and provide interventions for when “on” as well as “off”
- Allow additional time for appointments, to learn strategies and to improve performance on tasks
- Significant caregiver involvement and need for additional supports for them
- Keep instructions to a minimum
- Avoid dual tasks
- Non- motor symptoms
- Motivation to initiate tasks and follow them through becomes difficult eg. HEP
- Insight into physical and cognitive limitations may be limited
- Masked face
- Orthostatic hypotension

References/Resources

PT



- European Physiotherapy Guideline for Parkinson's Disease (2015)
- National organizations
 - Parkinson Canada
 - National Parkinson Foundation (US)
 - Parkinson's Disease Foundation (US)
- Book: Health Professionals' Guide to Physical Management of Parkinson's Disease – Miriam P. Boelen

OT

- Trail, Protas, & Lai (Eds.) 2008. Neurorehabilitation in Parkinson's Disease: An Evidence-Based Treatment Model. SLACK Incorporated: Thorofare, NJ.
- OT for people with PD – www.cot.org.uk
- www.ama-assn.org/ama/pub/category/10791.html
- www.parkinson.org
- www.parkinsons.org.uk
- AOTA.org

Contact Info:

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Questions?

- Please come see us at our table over the lunch hour.



PT Outcome Measures

- 6 MWT
- TUG
- 10 MWT
- Gait velocity
- Pull Test
- Chair Stand Test (5 reps, 10 reps, reps/30 seconds)
- Functional Reach
- BERG Balance Scale
- Balance Evaluation – Systems Test (BESTest)
- Functional Gait Assessment
- Dynamic Gait Index
- Parkinson Disease QOL Questionnaire (PDQ-39)
- Falls diary
- Freezing of Gait Questionnaire
- Activities-specific Balance Confidence Scale (ABC Scale)
- Modified Falls Efficacy Scale