

# Case Based Rehabilitation Assessment

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“The goals of rehabilitation are to prevent further disability, maintain existing ability and restore maximum levels of function within the limits of client impairment”<sup>①</sup>  
(Ditmar, 1989)

# Abilities Assessment

The goals of this assessment are to:

- Establish a functional baseline, which can then be utilized to establish an individualized plan of care
- Introduce the newly diagnosed patient to the rehabilitation team and services available through each discipline
- Provide early introduction to concepts such as energy conservation and the importance of exercise
- Provide screening for the need for Speech-Language pathology services
- Determine if additional OT/PT services are needed at this time
- Assist with the justification of services with 3<sup>rd</sup> party payers by establishing a baseline of function

# Abilities Assessment

- Occupational therapy and physical therapy evaluations are completed during the assessment.
- Questionnaire is completed as a brief screening for Speech-Language needs.
- Recommendations are discussed with patient and then sent to the MS Center for further discussion with the nurse or neurologist during follow-up visit

# Abilities Assessment

The following functional outcome measures have been incorporated into the assessment:

- Berg Balance Test ②
- Canadian Occupational Performance Measure (COPM) ③
- Impact of Visual Impairment Scale④
- 9 hole peg test ⑤
- Modified Fatigue Impact Scale (MFIS)④
- Perceived Deficits Scale (PDS)④
- 6 minute Walk②
- Timed Up and Go test ⑥
- 25' walk②

# Speech Screening

In the past 4 weeks:

1. Have you had any trouble understanding others?
2. Have you had any trouble expressing what you want to say?
3. Has it been difficult to keep conversations going?
4. Has your speech become slurred?
5. Have you had any trouble swallowing?

These questions are based on a scale from 0 (never) to 5 (always)

# The occupational therapy evaluation focuses on a variety of performance areas including:

- Strength
- Range of motion
- Coordination
- Sensation
- Visual/Perceptual skills
- Cognition
  - MSNQ ⑦⑧
  - Trail making test⑨
- Activities of Daily Living (ADL's)
- Fatigue

# The physical therapy assessment focuses on:

- Postural/Gait assessment
- Functional mobility
- Strength
- Range of motion
- Flexibility
- Balance
- Endurance
- Coordination
- Pain

# Speech-Language Pathology evaluation assesses:

- Auditory comprehension
- Verbal expression
- Cognition
- Articulation
- Voice quality
- Fluency
- Oral motor weakness
- Swallowing abilities

# CASE STUDY #1

Angela is a 44 year old right handed female who was diagnosed with RR MS in 2001. First symptoms were experienced in 2000 with complaints of parasthesias in her bilateral LE and difficulty with visual tracking.

She took Beta Interferon 1a 1x/week IM for 1 year and then changed in 2004 to Beta Interferon 1-a 3x/week subcutaneous.

She is currently employed as a salesperson of advertising slots at a large radio station in NYC.

Angela lives alone in an apartment. She is divorced and her ex-husband lives in Chicago with their 12 year old son. She has family living close to her.

Angela was initially referred to occupational therapy 6/20/2005 for increasing weakness of her hands, primarily her right. Her measurements were as follows:

<b>Strength:</b>	<b>Gross Grip</b>	<b>Lateral Pinch</b>	<b>3 point pinch</b>	<b>2 point pinch</b>
<b>Right</b>	<b>20 lbs.</b>	<b>1.5 lbs.</b>	<b>1 lbs.</b>	<b>.5 lbs.</b>
<b>Left</b>	<b>60 lbs.</b>	<b>15 lbs.</b>	<b>17 lbs.</b>	<b>12 lbs.</b>

Her primary complaints with her ADL's were difficulties with handwriting and turning the keys in her car. Fatigue is her "greatest obstacle during the day".

Angela had significant difficulty making her therapy appointments and subsequently self discharged after 4 sessions.

Angela then scheduled additional evaluation times in September and again in November, however, she did not show up for these appointments.

In December of 2005, Angela had an exacerbation that required hospitalization and a stay at an inpatient acute rehabilitation center

Angela was then re-referred for outpatient  
OT/PT on 3/6/06.

Her primary complaints being:

- Decreased balance
- Decreased strength
- Difficulty with cognition
- Difficulty completing her ADL's
- Decreased endurance
- Difficulty with ambulation
- Difficulty with swallowing

**Angela's results for the initial OT evaluation were as follows:**

Strength	Gross Grip	Lateral Pinch	3 point pinch	2 point pinch
Right	28 lbs.	5.5 lbs.	3.5 lbs.	3 lbs.
Left	55 lbs.	10 lbs.	14 lbs.	11 lbs

Coordination	9 hole peg test	Minnesota Rate of Manipulation (1 horizontal row)
Right	46.44 seconds	27.66 seconds
Left	31.28 seconds	16.12 seconds

- MSNQ: Patient report- 35  
Informant report- 38
- Trailmaking score: Numbers only: 52.66 seconds  
Numbers and letters: 150.94  
seconds
- Perceived Deficits Scale: 34/80
- Impact of Visual Impairment Scale: 3/15
- Modified Fatigue Impact Scale: 48/84
- Difficulties with ADL's include: cutting food, shaving her legs, dressing (fine motor aspects) and vocational tasks.

# Physical therapy evaluation findings:

- Ambulating with SC community distances independently. Gait is slightly unsteady and ataxic.
- Timed up and go: 12 seconds
- 6 minute walk: 1300'
- Strength: 4/5 throughout Right LE
- Romberg (Eyes closed): 5 seconds
- Single leg stance: 4 seconds on Right  
6 seconds on Left
- Berg Balance Scale was 42/56: Fall risk 49%
- All other areas assessed were WNL

# PT and OT recommendations:

- PT and OT 3x/week for 6 weeks focusing on
  - Patient education
  - Exercise
  - Adaptive equipment/alternative technique training
  - Splinting for positioning
  - Balance and functional mobility
- An evaluation by Speech-Language Pathology services.
- Follow-up with neuropsychologist who had completed evaluation in fall of 2005.

# Speech-Language Evaluation:

4/18/06

Angela was referred to speech therapy with complaints of difficulty with:

- Concentration
- Memory
- Swallowing

# Evaluation results revealed difficulty with:

- Retaining complex information
- Organizing/Summarizing information
- Swallowing thin liquids

# Recommendations:

Speech therapy 2x/week to focus on improving:

- Short term memory
- Topic Maintenance
- Discourse
- Auditory processing
- Compliance with feeding precautions

# OT treatment for Angela included:

- Application of bilateral thumb spica splints
- Energy management training
- Implementation of adaptive devices including:
  - Button hook, built up utensils and built up pen
- Strengthening exercises
- Active range of motion exercises
- ADL activities which focused on:
  - Dressing, phone book use, basic checking, time management and handwriting.

# PT treatment for Angela included:

- Lower extremity resistance training
- Upper and lower extremity aerobic exercise
- Static and dynamic balance training
- Gait training
- Trunk and core stability exercises
- Home exercise program

# Speech treatment included:

- **Training with use of compensatory strategies for problem areas identified**
  - Writing reminders/keeping notes
  - Imagery
  - Association
  - Feeding precautions
- **Speech drills**
  - Following complex commands
  - Answering questions following reading and listening to narratives
  - Sequencing activities
  - Topic expansion

## OT re-eval results from 4/23/06 were as follows :

Strength	Gross Grip	Lateral Pinch	3 point pinch	2 point pinch
Right	40 lbs.	7 lbs.	4 lbs.	3.5 lbs.
Left	65 lbs.	10 lbs.	16 lbs.	11 lbs.

Coordination	9 hole peg test	Minnesota Rate of Manipulation (1 horizontal row)
Right	33.66 seconds	24.18 seconds
Left	23.28 seconds	14.94 seconds

- MSNQ: Patient report –  
Informant report –
- Trailmaking test: Numbers only: 26.38 seconds  
Numbers and letters: 56.09 seconds
- Perceived Deficits Scale:
- Impact of Visual Impairment Scale:
- Modified Fatigue Impact Scale:
- Angela's independence with ADL's is improving, she is now shaving her legs independently, cutting her food and completing basic checking

# PT re-eval results from 4/7/06

- Timed up and go: 8 seconds
- 6 minute walk was 1400'
- Single leg stance: 30 seconds on the left  
8 seconds on the right
- Romberg (eyes closed): 38 seconds
- Strength: 4+/5 on the right
- Berg Balance Scale: 51/56 = Decreased fall risk to (9%)

# Discussion/Questions

# CASE STUDY #2

- Anthony is a 49 year old right handed male who was diagnosed with MS in January 2002. He reports initial symptoms beginning in November 2001.
- Past medical history is also remarkable for lymphatic cancer, bilateral CTS and asthma.
- Anthony is currently taking multiple medications to address his medical conditions, including glatirmer acetate.

- Anthony is married with 4 daughters, two of whom are currently living at home.
- He is employed in an executive management position for a large corporation.
- Up until 2 weeks before the evaluation Anthony was working out regularly.
- Prior to the scheduled Abilities Assessment, Anthony completed full neuropsychology testing at the MS Center.

# Occupational therapy assessment

<b>Strength</b>	<b>Gross Grip</b>	<b>Lateral Pinch</b>	<b>3 point pinch</b>	<b>2 point pinch</b>
<b>Right</b>	<b>101 lbs.</b>	<b>22 lbs.</b>	<b>19 lbs.</b>	<b>14 lbs.</b>
<b>Left</b>	<b>112 lbs.</b>	<b>22 lbs.</b>	<b>25 lbs.</b>	<b>18 lbs.</b>

<b>Coordination</b>	<b>9 hole peg test</b>	<b>Minnesota Rate of Manipulation (1 horizontal row)</b>
<b>Right</b>	<b>21.46 seconds</b>	<b>19.03 seconds</b>
<b>Left</b>	<b>23.75 seconds</b>	<b>21.15 seconds</b>

- At the time of the assessment, Anthony and his wife reported that he was independently performing all basic self care activities. The areas of difficulty for him revolve around his cognitive difficulties, decreased balance and his increasing fatigue.
- Impact of Visual Impairment: 0/15
- Perceived Deficits Scale: 29/80
- MSQN scores: Patient report: 24  
Informant report: 26
- Modified Fatigue Impact Scale: 29/80

# Recommendations from OT assessment

- It was recommended to Anthony that he may benefit from 1-2 additional OT sessions to address:
  - Energy management
  - Adaptive bathing equipment
- Patient refused to continue with OT as he felt overwhelmed with increasing difficulties, the need for continued PT and SLP sessions, and the continuation of neuro-psychology treatments.
- Anthony was given energy management information with contact information if questions or concerns arise. He refused discussion of adaptive equipment, he was “not ready for this”.

# Physical therapy evaluation findings:

- Ambulating with unsteady, ataxic gait. No assistive device and no AFO.
- Timed up and go:
- 6 minute walk:
- Strength: Right LE Hip: 2/5 throughout  
DF: 2/5  
Knee flex/ext : 3+/5
- Single leg stance: 5 seconds on Right  
3 seconds on Left
- Semi-tandem stance 9" → 30"
- Berg Balance Scale was 41/56: Fall risk 93%. Patient reports that he is falling everyday.
- All other areas assessed were WNL

It was recommended that Anthony continue with PT 2x/wk with treatment focusing on:

- Balance training
- Cardiovascular conditioning
- Resistance training
- Core stability exercises
- Functional training with core stability

Anthony was seen for 18 visits over a 3 month period

# Speech-Language Evaluation:

9/15/05

Anthony was referred with complaints of slurred speech.

Evaluation results revealed intermittent dysarthria.

Speech therapy once per week focused on:

- Training with oral motor exercises
- Enhancing his self-monitoring skills
- Using compensatory strategies to increase his speech intelligibility

# Discussion/Questions

# Case Study #3

- Patty is a 39 year old female who was referred to rehabilitation on 1/30/06 following an exacerbation which required hospitalization from 1/10/06→1/17/06. She then was transferred to acute in-patient rehab from 1/17/06→1/27/06.
- Patty is married and lives in a private home. Patty works as a mortgage consultant one of her concerns about returning to work is the amount of driving required
- Her primary complaints were:
  - Left sided weakness
  - Lack of balance
  - Lack of coordination

## Patty's results for the initial OT evaluation were as follows:

Strength	Gross Grip	Lateral Pinch	3 point pinch	2 point pinch
Right	46 lbs.	13 lbs.	12 lbs.	8 lbs.
Left	43 lbs.	10 lbs.	7 lbs.	5 lbs

Coordination	9 hole peg test	Minnesota Rate of Manipulation (1 horizontal row)
Right	30.62 seconds	25.15 seconds
Left	88.58 seconds	42.88 seconds

- MSNQ Score: Patient report: 27  
Informant report: 23 (however 1 question was not completed)
- Perceived Deficits Scale: 31/80
- Modified Fatigue Impact Scale: 51/84
- Impact of visual impairment: 2/15
- Difficulties with ADL's included:
  - Cutting food, cooking, styling long hair, dressing, grocery shopping and completing laundry.

# Physical therapy evaluation findings:

- Ambulating with SC with unsteady gait. Ascending stairs step to step.
- Strength Right LE: Hip: 3-/5 throughout  
Knee flex/ext: 4/5
- Flexibility: + hamstring tightness: tighter Left 45°, Right 60°
- Romberg (Eyes closed): 10 seconds
- Unable to complete sharp Romberg
- Berg Balance Scale was 40/56: Fall risk 31%
- All other areas are WNL

It was recommended that Patty receive OT

3x/week to focus on:

- Energy management training
- Strengthening exercises
- Fine motor coordination exercises
- ADL activities which focused on:
  - Dressing, balance activities in the kitchen, cooking, and bed making, checking/bills, vocational tasks.

Patty was referred to local rehabilitation center with a driver training program secondary to her concerns about her attention to task and minimal difficulties with vision.

It was recommended that Patty receive PT  
3x/week. Treatment included:

- Stair training
- Balance and coordination
- Strength training
- Flexibility training
- Cardiovascular conditioning

# PT re-eval results

- Gait improved and able to ascend and descend stair with step over step
- Flexibility improved to 70° bilateral hamstrings
- Single leg stance: 30 seconds on the left  
8 seconds on the right
- Romberg: 60 seconds eyes open, eyes closed
- Sharp Romberg: 10 seconds
- Strength: 4+/5 right knee flexion/extension  
4/5 bilateral hips throughout
- Berg Balance Scale: 50/56 = Decreased fall risk to 60

# Discussion/Questions

# CASE STUDY # 4

Tony is a 52 year old male with history of MS diagnosed in 2000, gliosarcoma of the brain diagnosed in 2005, optic neuritis, hypertension, and CHF.

He is a musician. He lives with his wife. They have no children.

He was referred to Speech Therapy with the following complaint:

“I have trouble expressing my thoughts verbally. I fully comprehend what is being said to me. I mispronounce words.”

# Speech-Language Evaluation:

## 4/14/05

### Eval results revealed:

- Mild word-finding difficulties
- Misarticulations

### Compensatory strategies recommended include:

- Pacing
- Discreet finger-tapping

# Discussion/Questions

## References:

- 1 Dittmar, S.S. (1989). *Rehabilitation Nursing: Process and Application*. Baltimore: C.V. Mosby.
- 2 Berg Balance Scale, 6 minute walk, Timed Up and Go:  
<http://www.ptjournal.org/February2002/v82n128-abs.cfm>
- 3 Canadian Occupational Performance Measure (COPM) Law M, Polatajko H, Pollock N, McColl MA, Carswell A, Baptiste S. (1994) The Canadian Occupational Performance Measure: An Outcome Measure for Occupational Therapy (CJOT, 57 (2). 82-87.
- 4 MS Quality of Life Inventory (MSQLI):  
[http://www.nationalmssociety.org/MUCS\\_MSQLI.asp](http://www.nationalmssociety.org/MUCS_MSQLI.asp)
- 5 Nine hole peg test: [http://www.nationalmssociety.org/%5CMUCS\\_9hole.asp](http://www.nationalmssociety.org/%5CMUCS_9hole.asp)
- 6 Timed Up and Go:  
[http://www.injuryresearch.bc.ca?Publications/Respository/The%20Timed%20Up%20&%20Go%20Research%20Report\\_.pdf](http://www.injuryresearch.bc.ca?Publications/Respository/The%20Timed%20Up%20&%20Go%20Research%20Report_.pdf).
- 7 Benedict RHB, Munschauer FE, Linn R, Miller C, Foley FW, Jacobs LD. Screening for Multiple Sclerosis cognitive impairment using a self –administered 15-item questionnaire. *Mult Scler* 2003;9:95-101.
- ⑧ Benedict RHB, Cox D, Thompson LL, Foley FW, Weinstock-Guttman B, Munschauer F. Reliable screening for neuropsychological impairment in MS. *Mult Scler* 2004.
- ⑨ Trail making test: <http://neuro.psyc.memphis.edu/NeuroPsych/np-test1.htm>
- ⑩ Grice K, Vogel K, Le V, Mitchell A, Muniz S, Vollmer M. Adult Norms for a Commercially Available Nine Hole Peg Test for Finger Dexterity. *AJOT* Sept/Oct 2003; 570-573.

**THANK  
YOU!**

Questions?