Exercise & Multiple Sclerosis: A Community-Based Wellness Approach to Exercise

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Objectives
- Review current literature regarding exercise effectiveness and multiple sclerosis.
- Discuss considerations regarding exercise dosage and type for individuals with multiple sclerosis.
- Describe PT and OT services in a community-based wellness program for individuals with secondary and primary progressive multiple sclerosis.

Exercise is Medicine.
- “If exercise could be packed in a pill, it would be the single most widely prescribed and beneficial medicine in the world.”
  - Ronald M. Davies, MD, AMA President
- “If we had a pill that contained all the benefits of exercise, it would be the most widely prescribed drug in the world.”
  - Robert N. Butler, MD
    Director, National Institute on Aging

Exercise and Special Populations
- PHYSICAL THERAPISTS’ ROLE IN PREVENTION, WELLNESS, FITNESS, HEALTH PROMOTION, AND MANAGEMENT OF DISEASE AND DISABILITY HOD P06-16-06-05 [Initial: HOD P06-15-23-15] [Position]
  - For their role in management of disease and disability, physical therapists:
    - Establish and facilitate collaborative, interprofessional, patient- and client-centric relationships that empower individuals and populations in self-management across the lifespan and through the health continuum, with an emphasis on movement and function.
    - Apply best available evidence in selecting, prescribing, and using intervention and measurement strategies to establish exercise prescription for individuals to help them prevent primary, secondary, and tertiary conditions or optimize functional mobility.
    - Apply best available evidence in planning programs to educate populations to help them prevent primary, secondary, and tertiary conditions or restore functional mobility.
Exercise and Special Populations
- ptnow.org
  - APTA membership-based resource (like physical therapy wikipedia)

Introduction to Multiple Sclerosis

Types of Multiple Sclerosis
- Clinically Isolated Syndrome (CIS)
  - First episode of neurologic symptoms in the CNS (lasting at least 24 hours)
  - Does not yet meet criteria for a diagnosis of MS
  - Caused by inflammation and demyelination

- Relapsing-remitting MS (RRMS)
  - Approx. 85% of people with MS initially are diagnosed with RRMS.

- Primary progressive MS (PPMS)

- Secondary progressive MS (SPMS)
  - People are initially diagnosed with RRMS, then transition to SPMS.
What is the physical therapists’ role with people with MS?

- What is the role outside the traditional PT episode of care?
- What is the responsibility for PTs with exercise/wellness instruction in clients with multiple sclerosis?

How would you describe your client’s relationship with EXERCISE?

- Estranged and painful?
- Long distance relationship?
- Stable and comforting?
- Inconsistent and sporadic?
- Nonexistent?

“Shake Hands and Make Up!”

How Do You Counsel Someone Regarding Exercise Currently?

- Does this change if the person has a progressive condition?
  - If so, how?
- Does this change depending on what they are seeing you for physical therapy?
  - If so, how?
- Do you work with (either concurrently or non-concurrently) other healthcare providers in counseling someone regarding exercise?

Exercise/Physical Activity and MS

- VIDEO from National MS Society
Outcomes? How Does It Go?

Quiz/Self Reflection

1. How often do I bring up exercise/physical activity with my clients with multiple sclerosis?
   - A. Every session
   - B. Only at the evaluation
   - C. Never

2. How often do I follow-up with clients (follow-up visits, phone call, email) regarding continued exercise/physical activity?
   - Do I customize this communication to the preference of my clients?

3. Do my clients know how important exercise/physical activity is for their general health/wellness?
   - Do they know this because of me?
   - Am I reinforcing this information?
     - Providing it for the first/only time?
     - Not providing it at all?

PRACTICE!
The Case of the Weak LE

Jill, a 56 year-old female with secondary progressive multiple sclerosis, returns to your PT clinic this year. She reports her main concern is her right leg. It is just too weak to walk much and really effects her ability to be independent (aka: drive!). She uses a 4-wheeled walker for home ambulation and short distances in the community (less than 50'). If she is required to move more than 50', she sits on her rollator walker and scoots backwards. Reports of moderate fatigue, minimal cognitive involvement, minimal visual involvement.

- What is your plan for Jill? What do you recommend for her home program? What do you want her to do following discharge?

Exercise and Multiple Sclerosis

Evidence to Support Practice

Exercise, MS and Fatigue

- 6 weeks of elliptical exercise training (30 min each; 15 sessions over 6 weeks) with HR monitored every 3 min
- Included all types MS
- Significant improvements in fatigue (Fatigue Severity Scale and Modified Fatigue Impact Scale) and Quality of Life (SF-36)

Exercise, MS and Cognition
- 12-week intervention in which participants chose a health promotion activity (exercise)
- Trained research assistants performed in-person outcome assessments at 12 weeks
- Significant correlation between physical fitness (muscle strength and/or aerobic endurance) and improvement on measures of executive functioning (but not on the speed of information processing)


Exercise, MS and Mood
- Relapsing-remitting MS
- 20 minutes of biking at 60% VO2 max
- Improved anxiety and overall mood
- Those participants with the most anxiety had the most improvement.


Ab Workout Break
The doctor said he needed more activity. So I hid his T.V. remote three times a week.

Exercise, MS and Spasticity
- 12-week group exercise program (under physical therapists’ direction/supervision)
- 3 times per week for 60 min each for 12 weeks
- Ambulatory clients with MS
- Programs included flexibility, range of motion, strengthening, core stabilization, balance and coordination exercises and functional activities
- RPE used (target 13/20)
- Significant changes in LE Modified Ashworth Scale (hip flexors, hamstrings, Achilles)


Exercise, MS and Sleep
- Minimal research at this time showing correlations between sleep and MS specifically.
- Research showing predictors of development of depression, though, come to an interesting conclusion:
  - Unexpectedly, neither pain nor physical activity level assessed at the initial assessment was a significant predictor of depression 3.5 years later in participants who were not initially depressed. These findings add to the controversy regarding whether pain and physical inactivity represent risk factors for development of depression, especially when examined in combination with other modifiable factors. The results of this study suggest that perhaps interventions that target symptoms such as fatigue and sleep disturbance may represent more promising approaches to preventing depression 3.5 years later than interventions that target pain or physical activity.

Exercise, MS and Balance
- Earlier cited study noted significant improvements in balance (BBS) with 12-week group exercise program.
- 10-week functional balance exercise program for individuals with MS improved balance scores.
  - Significant improvements in MS Walking Scale and Brief-BESTest


Exercise, MS and Pain
- No significant changes (either increases or decreases) with pain with 15 minutes of moderate-intensity aerobic cycling.
- Measured within 24 hours of exercise.
- Study included both people with MS or chronic fatigue syndrome.


Ab Workout Break

Exercise, MS and Quality of Life
- 12-week group exercise program (under physical therapists’ direction/supervision)
  - 3 times per week for 60 min each for 12 weeks
  - Ambulatory clients with MS
  - Programs included flexibility, range of motion, strengthening, core stabilization, balance and coordination exercises and functional activities
  - MSQOL-54
  - Significantly impacted with exercise program


Exercise, MS and Disease Progression
- "Exercise may represent an alternative strategy for managing symptoms and disability in MS. Physical and mental health benefits of exercise have been established in persons with MS. Unfortunately, persons with MS with mobility impairment have limited opportunities to participate in traditional exercise modalities and have been studied infrequently in the exercise literature."
  - "Two adapted exercise interventions are body weight-supported treadmill training and total body recumbent stepper training. These strategies may represent viable alternatives for persons with progressive MS with mobility impairment to acquire exercise benefits."

Exercise Prescription and MS

What are your current exercise prescriptions for clients with multiple sclerosis?

- While they are undergoing therapy?
- Upon discharge?

Exercise Dosing and MS

- Utilize RPE when providing exercise dosing for clients
- RPE has been correlated to control matches for sub-maximal and maximal cardiovascular effort
- If beginning a new program, start low, go slow.
- Be flexible with exercise progression; educate clients about energy conservation/modifying to accommodate special activities/special events.
- “2 hour rule” – if functional movement/mobility is affected 2 hours following exercise, the dosage has been set too high


Exercise and Multiple Sclerosis

Modes of Exercise/Physical Activity to Consider

- Cash-based program at KUMC
- 10 AM – 3 PM, one day a week
- Up to 21 participants/day
- PT time for 45 minutes for 10 participants
- Concurrent OT time for 45 minutes
- Switch PT/OT
- One PT, one OT, one PTA, varying numbers of PT and OT students
Participants

- Up to 21/day
- Over 60% of the members utilize power mobility
- Secondary and Primary Progressive MS diagnoses

Fun/Functional Physical Activity

- Ideas?

Fun/Functional Activities

- Team Olympics
  - Bean bag toss
  - Egg relay
  - Waiter’s tray relay
  - Aerobic contest
- Parachute
  - With music
  - With balloons
- Meal planning/prep
- Laundry

Turning Point

- [http://www.turningpointkc.org/](http://www.turningpointkc.org/)
- Tai Chi, Yoga, Mindful Movement
- Group exercise classes
- Volunteer instructors
- Free will donation for participants with chronic illness/disease

MS Forward Gym

- Omaha, NE
- Msforward.org
  - Tele-fitness
  - Daryl Kucera

MS and Recreation – Video

- National MS Society Video
FUNctional!

- Keep the FUN in FUNctional!
- Work with your healthcare team (OTs!) to create a plan with your clients.
  - We must let go of our own ego/thought that we have all of the information.
  - We must let go of having our plan.
- Utilize what clients are already doing; enhance what they are already doing or tweak it to be more efficient/effective in their lives.

The Case of the (In)dependent Man

- Todd, a 45 year-old male, presents to your out-patient clinic with primary progressive MS. He has noticed a big difference in his ability to sit upright in the last year. He has switched from a manual wheelchair to a borrowed power chair now, as he has bilateral LE and bilateral UE involvement, left > right with upper extremities. He has also gone through a stressful divorce this past year and is now living alone with minimal hand grip bilaterally. He would really like to get a standing frame or a wheelchair with a standing feature. He would also like to increase his UE strength.
  - What is your plan for Todd? What do you instruct Todd to do for physical activity?

The Case of the Motivated Muscles

- Stephanie, a 52 year-old female with primary progressive MS is currently using a power chair for mobility. She has moderate use of bilateral upper extremities and diminishing trunk support. She is very motivated to perform more physical activity/exercise at home. She has always loved to exercise and would like to do it more now with minimal set-up on a daily basis.
  - What are your recommendations for Stephanie? Are you required to make Stephanie’s exercise plan functional since she enjoys exercise already? What education will you make sure you share with Stephanie regarding exercise?

Ab Workout Break

Ab Workout Break

The Case of the Nagging Nerve Pain

- Selena, a 43 year-old female with secondary progressive MS, reports to your out-patient clinic with pain in both legs. She ambulates with a 4-wheeled walker for home and community distances. She has moderate right lower extremity involvement and performs right LE circumduction with ambulation. She has symptoms of moderate to severe fatigue and moderate to severe pain in bilateral lower extremities. This pain is the worst when sitting for prolonged periods of time (greater than 1 hour).
  - What are your recommendations for Selena? How will your education/instructions to her about exercise incorporate or include education/instructions about her pain?
The Case of the (Un?)Necessary Exercise Plan

- Mr. White is a 61 year-old man with relapsing-remitting MS. He enjoys walking and playing golf with a cart. His goals are to improve his lower extremity strength and balance. He was independent, prior to coming to therapy, in all basic and instrumental ADLs, but did at times have fatigue that limited his ability to fully participate in all social activities. He had 2 falls within the last 3 months and recognizes some problems with short term memory and clarity of speech.
  - What would you include in his home program/exercise program? What factors are you taking into account?

Let’s Revisit: The Case of the Weak LE

- Jill, a 56 year-old female with secondary progressive multiple sclerosis, returns to your PT clinic this year. She reports her main concern is her right leg. It is just too weak to walk much and really effects her ability to be independent (aka: drive!). She uses a 4-wheeled walker for home ambulation and short distances in the community (less than 50’). If she is required to move more than 50’, she sits on her rollator walker and scoots backwards. Reports of moderate fatigue, minimal cognitive involvement, minimal visual involvement.
  - What is your plan for Jill? What do you recommend for her home program? What do you want her to do following discharge?
  - Has this plan changed at all since you first met Jill 1 ½ hours ago?

Quiz/Self Reflection

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Objectives

- Describe PT and OT services in a community-based wellness program for individuals with secondary and primary progressive multiple sclerosis.
- Review current literature regarding exercise effectiveness and multiple sclerosis.
- Discuss considerations regarding exercise dosage and type for individuals with multiple sclerosis.

Really, we hope that you leave today thinking broader about exercise/physical activity and multiple sclerosis.

We want you to create client-centered activity programs that are meaningful and functional.

Your Next Steps on Monday...

- Write down 2-3 steps you would like to take on Monday.
- How will you incorporate exercise/physical activity with your clients?
- Will you have to think more about incorporating function with clients? Or does this already happen easily for you?
- How can you collaborate/communicate with other healthcare professionals/team members regarding a physical activity plan for clients?
- Let us know!
  - #exerciseismedicine
  - #optin2exercise
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Resources