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Physical Activity and MS: You Can Do It!

Sabine Koszegi, PT
Manjit Bumrah, PT
Toronto Rehab-University Health Network

MS Society Presentation

October 11, 2018

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Acknowledgements

- We wish to thank Jo-Anne Howe, PT and Vivien Poon, PT for their contributions to this presentation.

Objectives

- Discuss the importance of exercise for people with Multiple Sclerosis
- Review types of exercise and commonly used exercise terms
- Review common barriers to exercise and strategies to overcome these barriers
- Discuss the role of physiotherapy in Multiple Sclerosis management

Take Home Message

- Participation in exercise and physical activity is an important part of managing MS
- When planning for exercise/physical activity consider selecting activities that are:
  - Safe- from medical standpoint
  - Safe- to reduce risk of injury
  - 'Do-able'- individualized, right for your level of ability
- Don’t forget to have fun!

- The information presented today is not intended to replace any advice received from your health care provider nor is it intended to be taken as specific healthcare advice. Rather, this information is intended as general information about exercise.

True or False?

Exercise will
increase your fatigue

True or False?

Exercising can increase the risk of an exacerbation.

True or False?

It is unsafe for individuals with MS to exercise because of the risk of overheating.

True or False?

In order to get the benefits of exercise, you need to engage in continuous physical activity for a minimum of 30 minutes daily.

So why exercise?

Benefits of Exercise

1. maximize function/mobility
2. maintain flexibility/range of motion
3. decrease fatigue/increase energy
4. increase strength and balance
5. decrease cardiovascular risk factors
6. improve mood
7. improve sleep
8. increase quality of life

Flachenecker,et al.(2002), Dalgas et al. (2009), Guner et al. (2015), Latimer-Cheung et al. (2013), Motl et al. (2012), Pilutti et al .(2014)

Effect of Exercise on the Nervous System

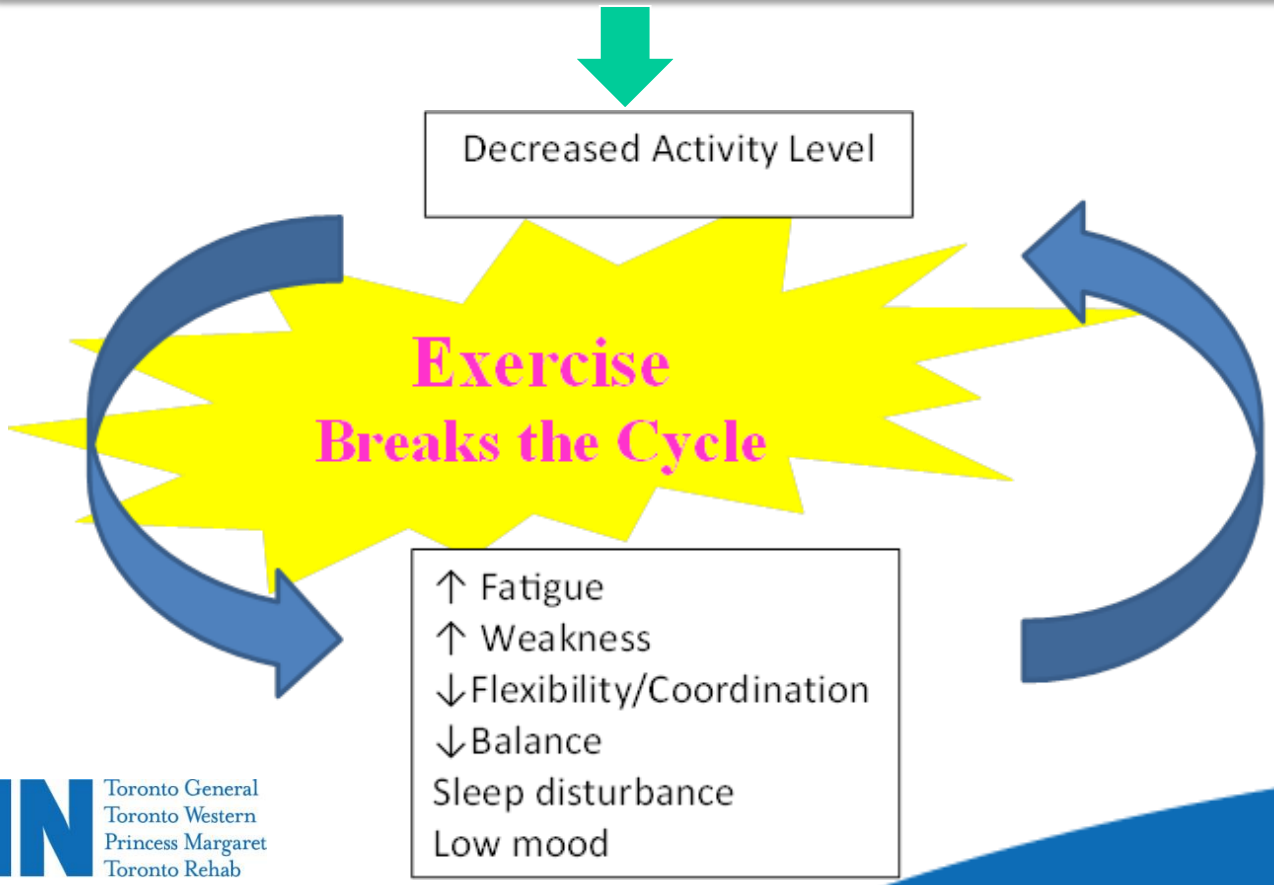
- Neuroplasticity: the capacity of the nervous system to change and reorganize itself

- Exercise can impact neuroplasticity in MS

Kim et al. (2017), Wens et al. (2016)

Consequences of Inactivity: The Deconditioning Cycle

Primary Impairments: Weakness, slowness of movement, altered muscle tone and posture, fatigue, decreased coordination and balance



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What is Exercise?

- **Physical activity:** any movement that is carried out by the body that requires energy.

- **Exercise:** planned, structured, repetitive and intentional movement intended to improve or maintain physical fitness. Exercise is a subcategory of physical activity.

Caspersen et al. (1985)

Types of Exercise

- **Aerobic exercise**
- Muscle strength
- Flexibility
- Balance

Aerobic Fitness and Exercise

- Aerobic fitness:
  - The ability of your heart and lungs to supply working muscles with fuel during physical activity.
  - The better your aerobic fitness, the more efficiently you can use oxygen, the longer you can go throughout your day
- Examples of aerobic exercise:
  - Continuous brisk walking
  - Pedaling on recumbent stepper
  - Continuous swimming
  - Cycling on stationary bicycle
  - Cycling using an arm cycle

- Research evidence shows that doing aerobic exercise can improve aerobic capacity and fitness in people with MS

Petajan et al. (1996), Mostert et al. (2002), Caspersen et al. (1985)

Types of Exercise

- Aerobic exercise
- **Muscle strength**
- Flexibility
- Balance

Muscle Strengthening Exercises

- Muscle strength: The amount of external force a muscle can exert.
- Muscle endurance: The ability of muscle groups to exert an external force for many repetitions or successive exertions
- Examples of equipment used for strengthening:
  - Free weights
  - Weight machines
  - Resistance bands
  - Body weight
- The terms sets and reps (repetitions) are used to measure how much strengthening exercise one has done

Caspersen et al. (1985)

Types of Exercise

- Aerobic exercise
- Muscle strength
- **Flexibility**
- Balance

Flexibility

- Flexibility: the range of motion available at a joint
- Spasticity: an involuntary tightening of specific muscles, either experienced as spasms or constant tightening
- Stretching exercises
  - help to maintain or improve range of motion
  - may help with temporary relief of spasticity symptoms

Caspersen et al. (1985), Halabchi et al. (2017)

Caspersen et al. (1985)

Types of Exercise

- Aerobic exercise
- Muscle strength
- Flexibility
- **Balance**

Balance

- Balance: the maintenance of equilibrium while stationary or moving
- Why are balance exercises important?
  - To improve stability and ability to stay upright
  - To help to reduce risk of falls
- Examples of exercises that can challenge the balance system:
  - certain yoga poses
  - tai chi
  - certain dance steps

Caspersen et al. (1985)

Alternatives to Traditional Exercise

- Aquatic exercises
- Yoga
- Tai Chi
- Pilates

The FITT Principle

- FITT principle
  - Frequency
  - Intensity
    - Heart Rate
    - Talk Test
    - Rate of Perceived Exertion
  - Type
  - Time

Modified Borg Rate of Perceived Exertion Scale

0	Nothing at All
1	Very Light
2	Light
3	Moderate*
4	Somewhat Hard**
5	Hard
6	Harder
7	Very Hard
8	Very, Very Hard
9	Very, Very, Very Hard
10	Maximal

*3 Moderate – Comfortable but slightly elevated breathing. You should be able to talk during the activity.
**4 Somewhat Hard – Exercising briskly. Aware breathing is deeper and slight feeling of fatigue.

Adapted from http://cme.medicine.dal.ca/online/demoecp/exertion.html

True or False?

Exercise will
increase your fatigue

Both - -True AND False

- Some fatigue is normal during exercise but it should not last longer than 30-90 minutes after you stop
- BUT regular exercise has been shown to **increase energy** levels in individuals with MS.

True or False?

Exercising can increase the risk of an exacerbation.

False

- Experts agree that currently there is no scientific evidence that exercise will result in an exacerbation or worsening of the disease
- To the contrary, there are numerous benefits!

True or False?

It is unsafe for individuals with MS to exercise because of the risk of overheating.

False

- It is not unsafe but exercise does increase the body's core temperature
- For some, this makes nerve transmission more difficult and can **temporarily** make symptoms worse
- This is a **transient** increase in symptoms, (which subside with cooling off) and is **NOT** an exacerbation

True or False?

In order to get the benefits of exercise, you need to engage in continuous physical activity for a minimum of 30 minutes daily.

False

- The Canadian Physical Activity Guidelines for Adults with MS recommends
  - 30 minutes of moderate intensity aerobic activity, 2x per week
  - strength training for major muscle groups, 2x per week

www.csep.ca/guidelines & www.mssociety.ca

BUT…

- For those who are inactive, a lesser dose of exercise which is gradually increased will bring benefits

DO WHAT YOU CAN!!

Some Common Barriers to Exercise

- Knowledge of how/where to exercise
- Fatigue
- Fear of an adverse event (exacerbation/ overheating)
- Increased tone
- Fear of falling
- Lack of motivation
- Transportation and cost

Tips to Help Manage Fatigue during Exercise

- Maintain a **moderate** exercise intensity (RPE scale)
- Avoid exercising to point of exhaustion
- Listen to your body and take rests as needed
- If fatigue after exercise is prolonged (more than 30-90 min), adjust your program, (i.e. decrease reps/sets, time, intensity)

Tips to Help Avoid Overheating during Exercise

- Choose a cool place and time to exercise
- Hydrate before, during and after exercise
- Wear breathable, loose clothing
- Consider using a cooling band (or similar) to help keep your body temperature down

Tips for Managing Barriers cont'd:

- Tone: Incorporate stretching

- Balance problems:
  - Get the support you need (do seated exercise or hold onto external support for stability e.g. a rail)

Tips for Overcoming Lack of Motivation

- Find an activity you truly enjoy doing
- Find an exercise buddy/ check-ins with family and friends
- Small rewards
- Set achievable goals for yourself
- Don’t get discouraged

Tips for Addressing Financial Barriers and Transportation

- YouTube.com search:
  - “It’s Your Choice MS exercises”
  - "Cara Kircher" for gentle yoga and Tai Chi
- T.I.M.E. Program
  - UHN.ca website search: “T.I.M.E.” for locations
- Local community centres
- Check your local MS Society Chapter website for other group classes in your area
- Home exercise program; consult a Physiotherapist

- Four main sections:
  - Warm up (13 min)
  - Main component: strength, balance and aerobic exercises (24 min)
  - Hoola hoops (12 min)
  - Mat exercises (15 min)
  - Cool down (8 min)
- Three different levels- choose the most appropriate person to follow

Self Reflection Exercise

Why is exercising important to me?

❑ Improved strength	❑ Better mobility	❑ More flexible
❑ Better mood	❑ Sleep better	❑ Fight diseases better
❑ Improved memory	❑ Slowed aging	❑ Better immune function
❑ Greater bone density	❑ Healthier joints	❑ More energy
❑ Stronger heart	❑ Easier breathing	❑ More balanced blood sugar
❑ Better balance	❑ Lower blood pressure	❑ Easier to do daily life activities
❑ Cope better with stress	❑ Feel more confidence	❑ Weight management

Adapted from Motivating People to be Physically Active

Self Reflection Exercise

What is the impact of inactivity on my life?

❑ Less strength	❑ Poor mobility	❑ Higher blood pressure
❑ Low mood	❑ Sleep problems	❑ Getting sick more often
❑ Loss of bone density	❑ Stiff joints	❑ More risk of heart disease
❑ Fatigue	❑ Less lung capacity	❑ More risk of diabetes
❑ Poor balance	❑ Less flexible	❑ Harder to do daily life activities
❑ More risk of stroke	❑ More risk of injury	❑ More vulnerable to stress
❑ Increased pain	❑ Weight changes	❑ More risk of dementia

Adapted from Motivating People to be Physically Active

Making a Lifestyle Change

- Think about previous lifestyle changes you've made
- What helped you make and maintain those changes?
- Can you use a similar strategy with respect to exercise and physical activity?

Adapted from Motivating People to be Physically Active

Setting Activity Goals

- **WHAT** exactly are you going to do?
- **HOW** are you going to do it?
- **WHEN** are you going to do this?
- **WHERE** are you going to do this?
- **FREQUENCY**: how often are you going to do this?
- **BARRIERS** and **SOLUTIONS** – are there any obstacles that may prevent you from following this plan?

When can a Physiotherapist Help?

- Recent change in function or relapse
- Frequent falls or fear of falling when exercising
- Advice and guidance for adapted exercise and/or individualized exercise prescription
- Rehabilitation for MS-related physical challenges (e.g. gait or balance impairments) or for an injury (e.g. sprained ankle)

Exercise:
Find a safe, appropriately challenging and enjoyable way to keep moving

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