



**THE OHIO STATE
UNIVERSITY**

WEXNER MEDICAL CENTER

Rehab and Exercise for the Person with MS

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Exercise and MS

Why is physical activity important?

DECREASED physical activity:

- higher disability score on EDSS
- progression of deficits (fatigue, depression, spasticity, cognition)
- deconditioning

Research: 25% of patients had prematurely retired from work due to MS.

- Greatest effects on employment status: impaired mobility, pain, gait disturbances, and cognitive impairments

INCREASED physical activity:

- Improved
 - Flexibility
 - Muscle endurance
 - Bone density
 - Muscle strength
 - Quality of life
 - Balance
 - Aerobic Capacity
 - Mood
 - Mobility/functional abilities
- Reduced
 - Fatigue
 - Pain

Exercise and MS

Research

Research supports exercise benefits for individuals with **mild to severe** mobility deficits related to MS.

No increased risk of exacerbation or relapse.

Physical and occupational therapy have had **positive impacts** on **physical function, cognition and other neuropsychological symptoms** in MS patients.

Rehabilitation

How do I know if physical rehabilitation is appropriate for me?

- Difficulty tolerating exercise
- Loss of balance or falls
- Difficulty completing daily tasks (ADLs, walking, using stairs)
- Symptom management
- Unable to perform activities in the same way or in the same amount of time



Rehabilitation

The rehab team

- Physical Therapy
- Occupational Therapy
- Speech-language Pathology (Speech Therapy)
- Neuropsychology
- Rehab Psychology
- Vocational Rehab



Rehabilitation

Adapting exercises

- Body weight supported training with a harness
 - Over-ground or treadmill
- Aquatic therapy
 - Provides body weight support
 - Decreased risk of falling
 - Improved tolerance to exercise (cold pool)
- Electrical stimulation
 - Assisted muscle contraction
 - Combined with traditional exercise (cycling, walking, resistance training)



Getting Started

Exercise Guidelines

Exercise Type	Potential Benefits	Modes	Frequency
Flexibility Training	Decrease spasticity Prevent contractures	Traditional stretching, yoga, Pilates, pool	Daily to prn Before/after exercise
Resistance Training	Reduced fatigue Improved walking Improved task performance	Body weight resistance, free weights, machines, resistance bands	2-3x/week
Endurance Training	Reduced fatigue Improved recovery from exertion Improved walking abilities	Swimming, stationary bike, walking, NuStep, arm bike	3-4x/week 20-30 minutes
Balance Training	Decrease falls	Sitting balance, standing balance, pool, yoga	“it depends”

Getting Started

Examples of general exercise

Aquatics

- Pool temperature should not exceed 84° F for people with MS
- Studies show improvements in walking speed and dynamic balance



Pilates

- Exercises based on whole-body movement
- Emphasizes body alignment and stabilizing core muscles during movement
- RCT: improvement in walking distance and speed after two 50-min sessions/week for 12 weeks



Getting Started

Examples of general exercise

Seated Exercise

- ChairFit with Nancy
- <https://www.youtube.com/channel/UCCAFFLNiOjqR5FXtuH8ySxA>



Yoga

- Traditional vs adapted
- Focus: Balance, flexibility, core strength
- Virtual vs in-person



Getting Started

Cardio: OSU's 8 Week Walking Program

Week #	Walking interval	Rest interval	Repeat the intervals	Total activity time (minutes)
1	2 minutes	1 minute	5 times	10
2	4 minutes	2 minutes	4 times	16
3	5 minutes	2 minutes	4 times	20
4	7 minutes	2 minutes	3 times	21
5	5 minutes	2 minutes	5 times	25
6	10 minutes	2 minutes	3 times	30
7	15 minutes	2 minutes	2 times	30
8	20 minutes	2 minutes	2 times	40

Getting Started

How else can I increase physical activity?

- Gardening
- Chores
- Walking the dog
- Cooking
- Taking the stairs
- Dancing

Community Resources

OSU Adapted Sports program

For more information on OSU Adapted Sports, visit the community calendar:

<https://teamup.com/ksd5ut3ac3immpgxdg>

Franklin Park

*Medical provider must complete a referral/registration form

For more information about Franklin Park, visit:

<http://columbus.gov/recreationandparks/programs/Therapeutic-Recreation/>



Community Resources

National MS Society

National MS Society Resources

- Ask an Expert
- Educational Videos
- Free from Falls program
- Relationship Matters program
- Webinar Series to learn strategies to life your best life with MS

To access the **National MS Society calendar of virtual events**, click [here](#) or visit <https://www.nationalmssociety.org/> and go to the Resources & Support tab to find the Calendar of Programs and Events.

National MS Society

Exercise Tips

- Stay hydrated-cold water will help keep your body temperature low
- Exercise in a cool room and if outside, exercise at cooler times during the day
- Remember to stretch afterward
- No pain no gain should not be your mantra
- Start low and go slow
- Prioritize safety to reduce risk of injury
- Consult a medical professional before starting a new exercise routine

Special considerations	Precautions to Take
Fatigue	Schedule resistance training on non-endurance training days.
Spasticity	Consider foot and/or hand straps with cycling. Use machines instead of free weights.
Heat intolerance and reduced sweating response	Adequate hydration, keep room temperature between 20 and 22 ° C. Using of cooling fans and precooling. Plan exercise in the morning when body temperature is at the lowest.
Cognitive deficits	Follow written instructions/diagrams. Exercise tasks should be initially performed with minimal resistance. May require additional supervision during exercise to ensure safety.
Lack of coordination	Consider upright or recumbent arm/leg cycling to ensure balance and safety.
Sensory loss and balance problems	Perform exercises in a seated position; use machines or elastic bands instead of free weights.
Higher energy cost of walking	Adjust workloads to maintain target heart rate and check heart rate regularly.
Daily variations in symptoms	May need exercise supervision, make daily modifications to exercise.
Urinary incontinence /urgency	Adequate hydration, and schedule exercise in close proximity to restrooms.
Symptom exacerbation	Discontinue exercises and speak to a provider (PT, physician) Resume exercise program once symptoms are stable and medically ready.

Resources

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8. Duff WRD, Andrushko JW, Renshaw DW, et al. Impact of Pilates Exercise in Multiple Sclerosis: A Randomized Controlled Trial. *Int J MS Care*. 2018;20(2):92-100. doi:10.7224/1537-2073.2017-066

