

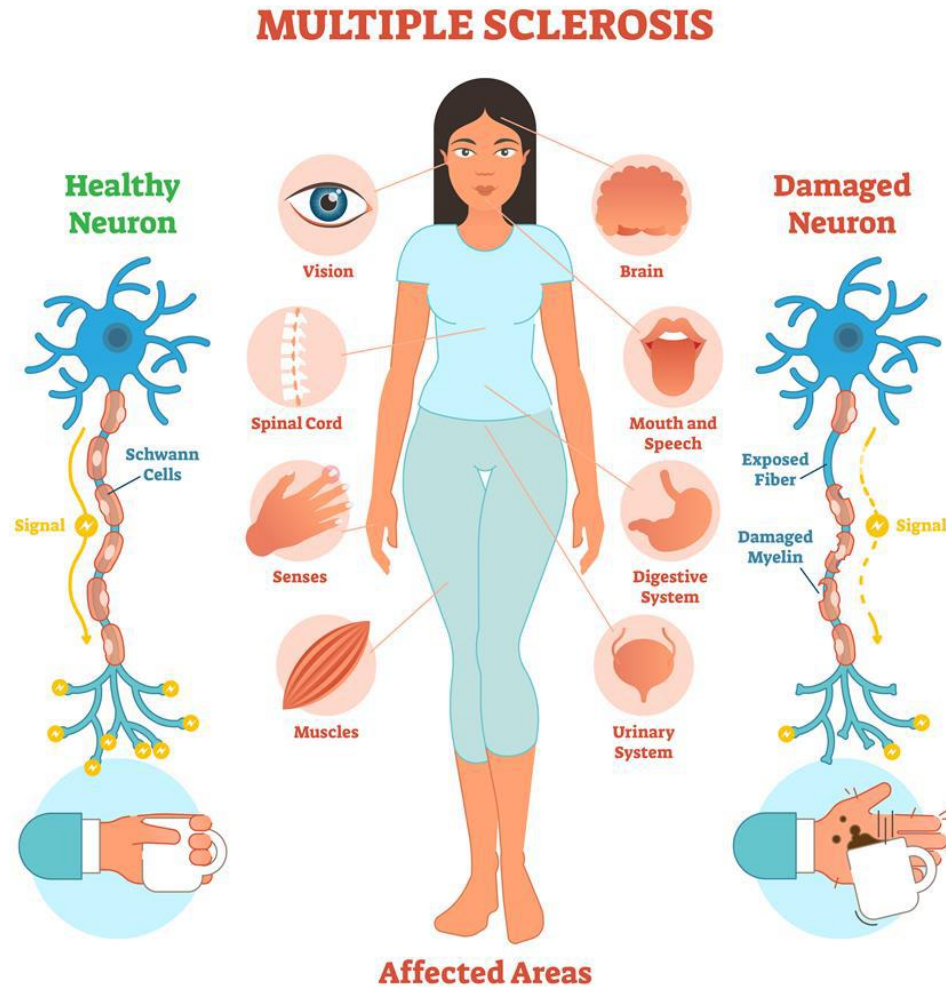
FITNESS & STRENGTH TRAINING AND HOW IT PERTAINS TO MS

By

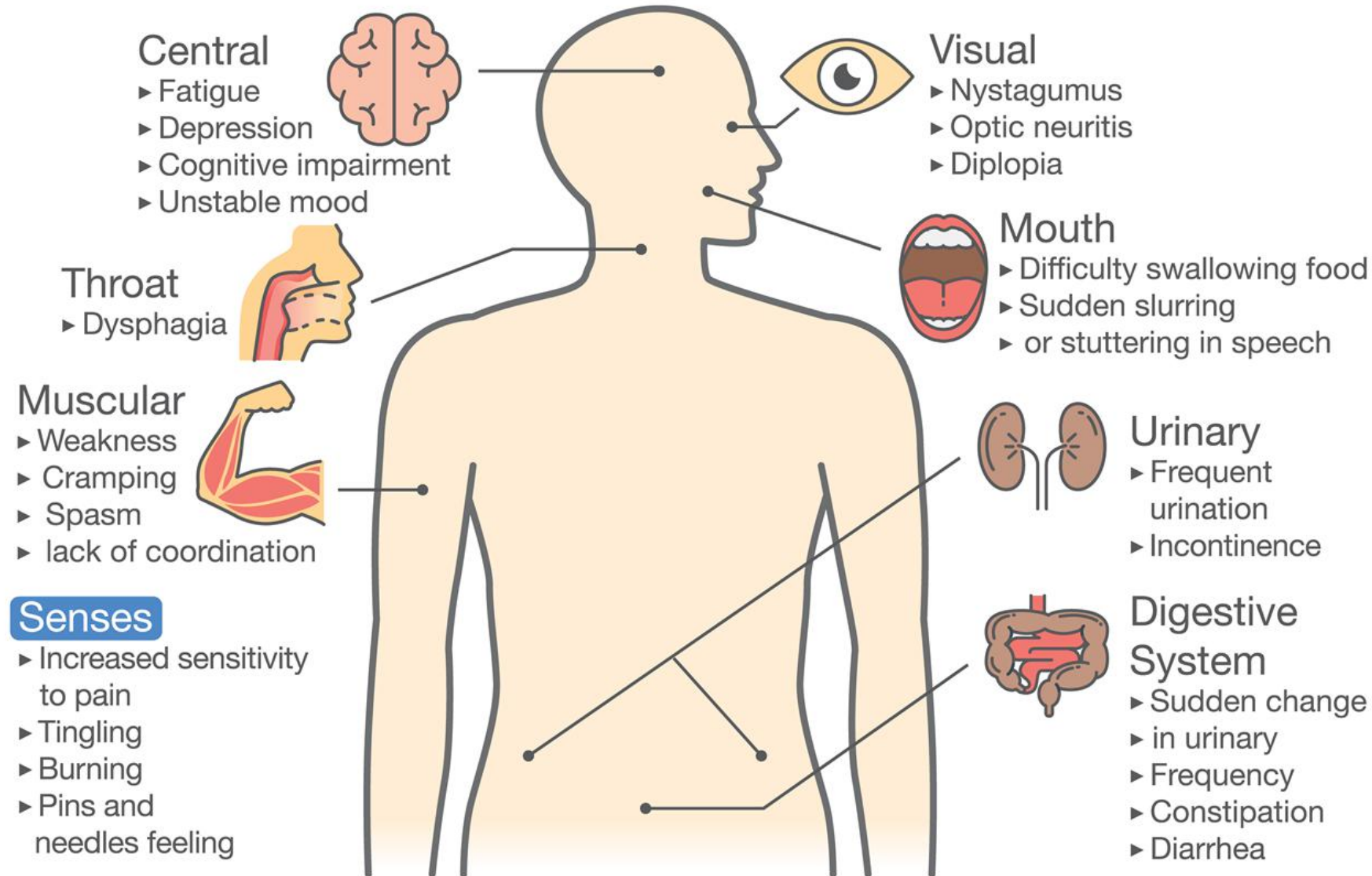
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What is Multiple Sclerosis?



Main symptoms of Multiple Sclerosis

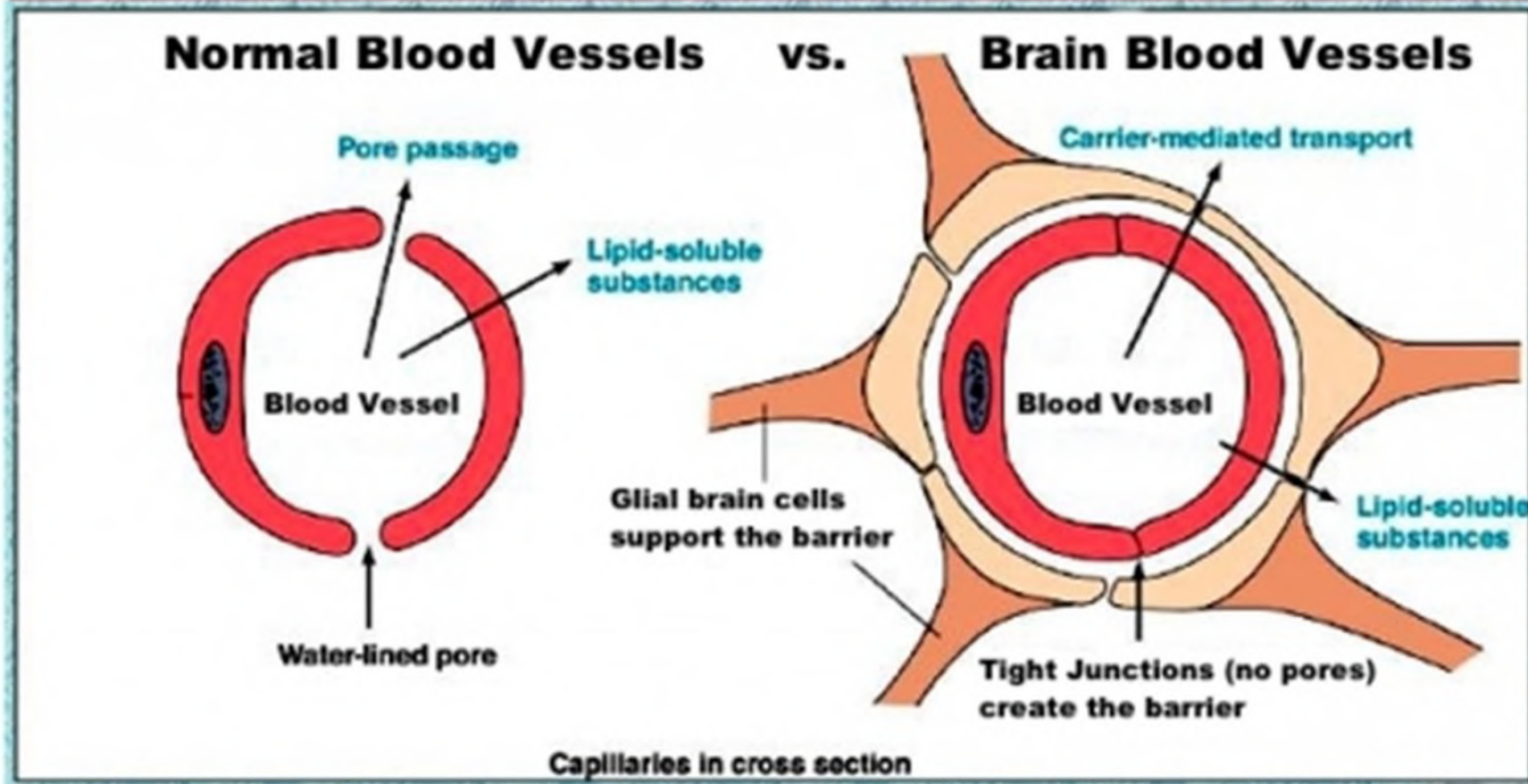


Who Gets MS?

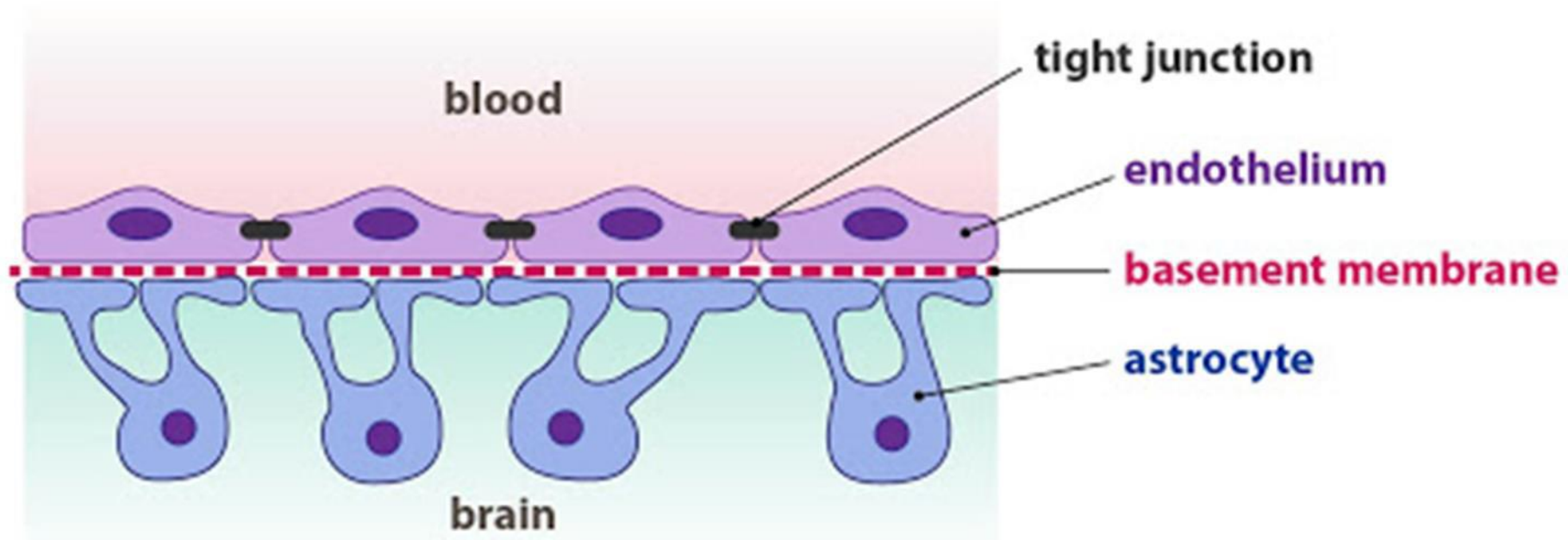
- 2.3 million people are affected by multiple sclerosis (MS) worldwide
- CDC does not require physicians to report new cases.... prevalence can only be estimated
- Age: 20 and 50
- Geography: In general, MS is more common in areas farthest from the equator.
- Gender: MS is three times more common in women than in men.
- Genetics

The Effects Multiple Sclerosis on the Immune System and BBB

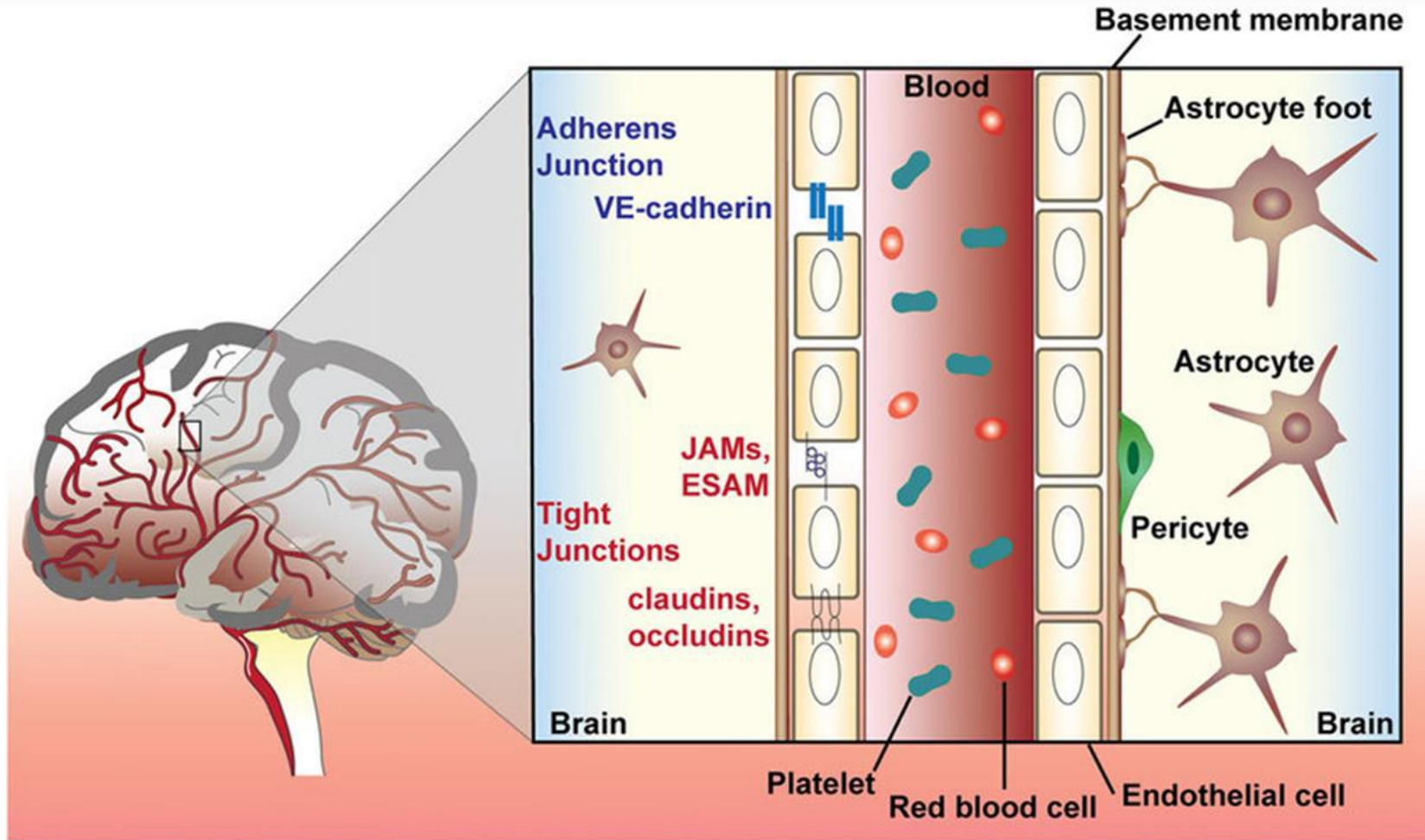
The Blood Brain Barrier



The Effects Multiple Sclerosis on the Immune System and BBB

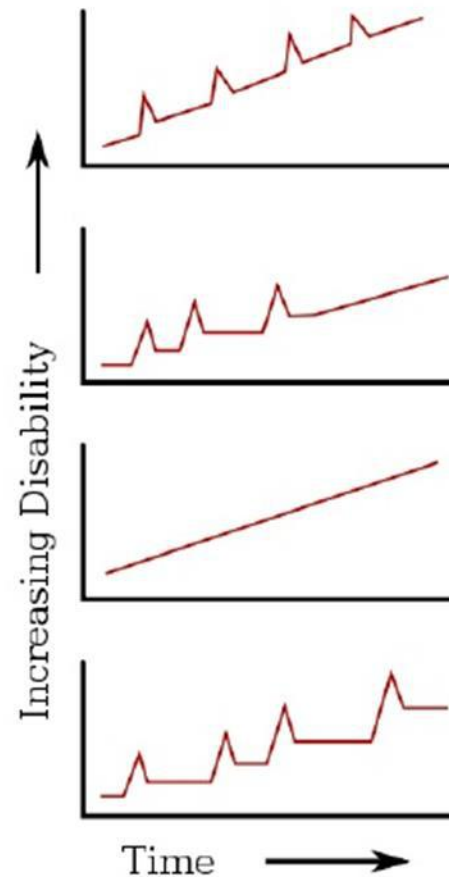


The Effects Multiple Sclerosis on the Immune System and BBB



4 Categories

CLASSIFICATION OF MULTIPLE SCLEROSIS



PRMS Progressive Relapsing MS
Steady decline since onset with super-imposed attacks.

SPMS Secondary Progressive MS
Initial RRMS that suddenly begins to decline without periods of remission and relapses.

PPMS Primary Progressive MS
Gradual progression of the disease from its onset with no relapses or remissions

RRMS Relapsing/ Remitting MS
Unpredictable attacks which may or may not leave permanent deficits followed by periods of remission

Diagnosis

- ▶ At this time, there are no symptoms, physical findings or laboratory tests that can – by themselves – determine if one has MS.
- ▶ One's physician uses several strategies to determine if he/she meets the MS diagnostic criteria. In order to make a diagnosis of MS, the physician must:
 - ▶ Find evidence of damage in at least two separate areas of the central nervous system (CNS), which includes the brain, spinal cord and optic nerves AND
 - ▶ Find evidence that the damage occurred at different points in time AND
 - ▶ Rule out all other possible diagnoses
- ▶ The Revised McDonald Criteria, published in 2017 by the International Panel on the Diagnosis of Multiple Sclerosis, include specific guidelines for using MRI and cerebrospinal fluid analysis to speed the diagnostic process.

FITNESS & STRENGTH TRAINING AND HOW IT PERTAINS TO MS

**Can a proper fitness regimen really
change the course of MS?**

- In my many years working with people with MS on fitness programs, it's been proven over and over again, that the negative direction MS is taking someone can be changed to a positive path.
- Whether that change is as drastic as being able to walk after being confined to a wheelchair or as simple as just feeling better, being involved in a proper fitness regimen will always have a positive effect on our MS.

4 KEYS TO FITNESS

- Mindset
- Nutrition
- Alternative treatments
- Exercise

EXERCISE - exercise is helpful in managing many MS symptoms. [A study published by researchers at the University of Utah in 1996](#) was the first to demonstrate the benefits of exercise for people with MS. Those patients who participated in an aerobic exercise program benefited from:

- better cardiovascular fitness
- improved strength
- better bladder and bowel function
- less fatigue and depression
- a more positive attitude
- increased participation in social activities

Additional studies have confirmed the benefits of Strength training exercise, including improvement in cognitive function and mood enhancement.

Inactivity in people with or without MS can result in numerous health problems including many risk factors associated with coronary heart disease, muscle weakness, decreased bone density, and shallow, inefficient breathing.



WHY STRENGTH TRAINING?

Strength training is the most important form of training for MS for many reasons.

- To have the ability to move functionally – walk, sit, stand, bend, grab, pull, push -
the muscles must be strong enough to perform these movements.
- To prevent the muscles from atrophy they must be challenged through resistance to remain toned and strong.
- To counteract muscle deterioration caused by the progression of MS the muscles must be put through “bodybuilding” training.
- Strength training, done properly, also serves as a means for cardiovascular improvement.

HOW TO DESIGN A PROPER MS EXERCISE PROGRAM

ASSUMPTION...YOU HAVE BECOME A CERTIFIED MS TRAINER

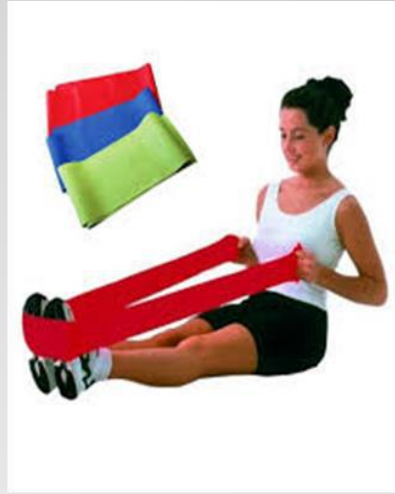
- Assess your MS client's abilities and limitations.
- Define their goals.
- Design their program around THEIR goals and not someone else's. No cookie cutter programs.
- Do not spot train weak body parts only.
- Find exercises the MSer can safely perform that work their full body.
- Use adaptive devices when needed such as lifting straps or hooks



❖ Use unconventional movements that challenge your MS with resistance.



- ❖ Incorporate different types of resistance such as Therabands, bands with handles, barbells, dumbbells, machines, free weight equipment.



❖ ***Cycle workouts for variety and to keep muscles from adapting and becoming stagnant.***

- Time Under Tension (TUT)
- Super sets
- Drop sets
- Partial repetitions
- Pause sets

- **Functional strength training** maximizes the efficiency of the body's physiological system to help manage activities of daily life. We want to incorporate exercises that focus on building a body capable of doing real-life activities in real-life situations. The key to a functional approach is integration. It's about training all muscles to work together for a specific purpose rather than isolating them to work independently. Once each muscle is strong enough to do what it should, it can work easily with the other muscles to perform normal tasks.
- **Functional strength training** exercise can help maximize strength and minimize overuse of muscles that may already compensate for weaker counterparts and /or changes in MS.
- Strength training uses resistance to challenge muscles, which can improve muscle strength, bone density, muscle mass, flexibility and balance to help prevent injury. Weakness is a common problem in MS and has numerous and varied causes. A properly designed and executed strength training program can help address areas of weakness and imbalance in the body and increase endurance during activity over time.

- An example of a good **functional exercise** for an individual who uses a wheelchair for primary mobility is triceps dips. This exercise is appropriate because the triceps muscles are necessary to help with pushing oneself up off/out of the wheelchair for transfers and/or repositioning within the wheelchair.
- An example of a good **functional exercise** for an ambulatory individual may be squats. This exercise is appropriate because it translates into functional mobility with getting into/out of a chair or a car, walking and other daily activities.
- For individuals living with MS, lack of movement can sometimes translate to loss of flexibility which limits range of motion. Strength training that incorporates a stretch phase within the set along with a contraction phase will increase Flexibility & Range of Motion which can improve joint integrity, prevent injury and release stress. Strength training only decreases flexibility if you **do not** stretch your muscles within the sets.

Resources

- ▶ www.msfitnesschallenge.org
- ▶ www.multiplesclerosis.com
- ▶ www.nationalmssociety.com
- ▶ www.mymsaa.org
- ▶ www.activemusers.org
- ▶ www.healthline.com
- ▶ www.abovems.com
- ▶ www.everydayhealth.com

MS Fitness Specialist Course

You can work with clients that suffer from multiple sclerosis to help develop strength, flexibility, balance, breathing, and improve their quality of life. In this Specialization course:

- You'll learn the causes, signs, and symptoms of multiple sclerosis along with traditional treatment and management techniques.
- You'll obtain a working knowledge of the anatomy and physiology affected by multiple sclerosis, and how they are used during exercise.
- You'll learn to design and prescribe a proper exercise program with progression for MSers and be able to cue proper technique and body alignment.
- You'll earn the title of MS Fitness Specialist.

Course Length: 10 hours.

<https://www.medfitclassroom.org/product/multiple-sclerosis-fitness-specialist-course/>

Thank You!



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