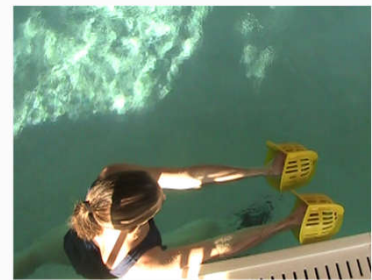




Justifiable Aquatic Therapy for Multiple Sclerosis

Andrea Salzman, MS, PT



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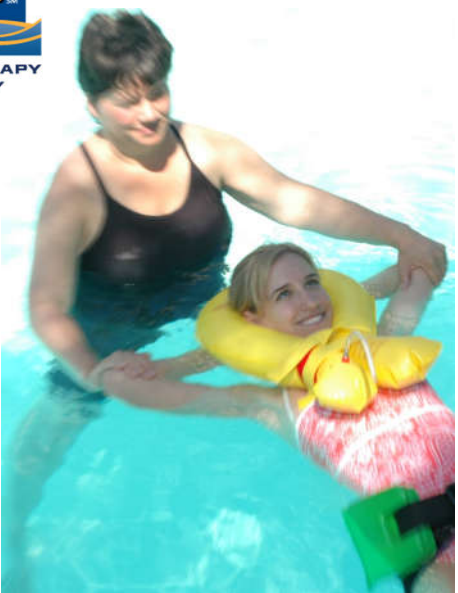

Learning Outcomes

After this course, participants will be able to:

- List three reasons why aquatic therapy should be considered the treatment of choice for patients with multiple sclerosis (MS).
- List at least two evidence-based precautions for the patient with MS who chooses to work in an aquatic setting.
- List 3-4 examples of justification language that should be integrated into the documentation to demonstrate an ongoing need for aquatic therapy.
- Differentiate at least three evidence-based treatment ideas for the patient with MS.
- Distinguish two ways to progress treatment ideas from dependence to independence.


2

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#1. List 3 reasons aquatic therapy should be considered the **treatment of choice** for patients with multiple sclerosis.

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Overview of MS

Let's consider a patient with multiple sclerosis (MS).

Multiple Sclerosis is the **most frequent disabling neurological disease** in young and middle-aged North Americans. MS involves inflammation of and injury to the white matter of the brain and spinal cord, but its cause has not yet been determined.

Almost 100,000 people over 18 are affected by multiple sclerosis. Women predominate over men by at least **2 to 1**.

The risk of developing MS in the general U.S. population is about **1 in 333** and the incidence of new MS cases appears to be increasing.



National Multiple Sclerosis Society (2019). Who gets MS (Epidemiology)? Retrieved from <https://www.nationalmssociety.org/What-is-MS/Who-Gets-MS>.

5

5

Overview of MS

MS results in a variety of negative symptoms, such as weakness, sensory loss or incoordination in gait, as well as positive symptoms like pain, paresthesias, and involuntary movements.

- Symptoms may occur in periodic attacks (**relapsing form**) or continuously (**progressive form**), with the latter having a worse prognosis.
- The disease tends to wax and wane over a period of about 15 years and patients are often left at that time with **permanent neurological deficits**.
- **Life expectancy** is reduced by 5 to 10 years as compared to the general population.



National Multiple Sclerosis Society (2019). Who gets MS (Epidemiology)? Retrieved from <https://www.nationalmssociety.org/What-is-MS/Who-Gets-MS>

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6

Overview of MS

Certainly, regardless of task complexity or sensory condition, individuals with MS show **significant deficits** in postural control and balance in comparison to the general population.

Although incurable, MS symptoms can be managed by an increasing number and variety of therapeutic approaches, and both OT and PT have an important role.

So, what about aquatic therapy's **effectiveness and efficiency** for this population?



National Multiple Sclerosis Society (2019). Who gets MS (Epidemiology)? Retrieved from <https://www.nationalmssociety.org/What-is-MS/Who-Gets-MS>

7

7

Q1

BUOYANCY



Upward offset to gravity.
REDUCED wt bearing.

8

8

Q1

What does Water Offer Therapeutically?

Buoyancy

The hydrodynamic phenomenon wherein water imparts an upward force counteracting the gravitational pull on the human body.

Buoyancy as an Upward Force:

Buoyancy, the upward force exerted by water, becomes a cornerstone in reducing the compressive load on the spine and lower extremities.

Reduced Impact on Joints:

Aquatic environments significantly reduce the impact on joints, making exercises more comfortable for individuals with MS, who may experience joint sensitivity.



Becker, B. E. (2020). Aquatic therapy in contemporary neurorehabilitation: an update. *PM&R*, 12(12), 1251-1259.

9

9

VISCOSITY

Added resistance for strength training.
Slows down the speed of falls.

10

10

What Does Water Offer Therapeutically?

Viscosity

Viscosity, the resistance of water to flow, adds an element of controlled resistance, enhancing the benefits of aquatic exercises.

Added Resistance for Strength Training:

In water, water viscosity can be used to provide a resistive exercise program that matches effort and disappears instantly when effort ceases.

Slowed Down Falls:

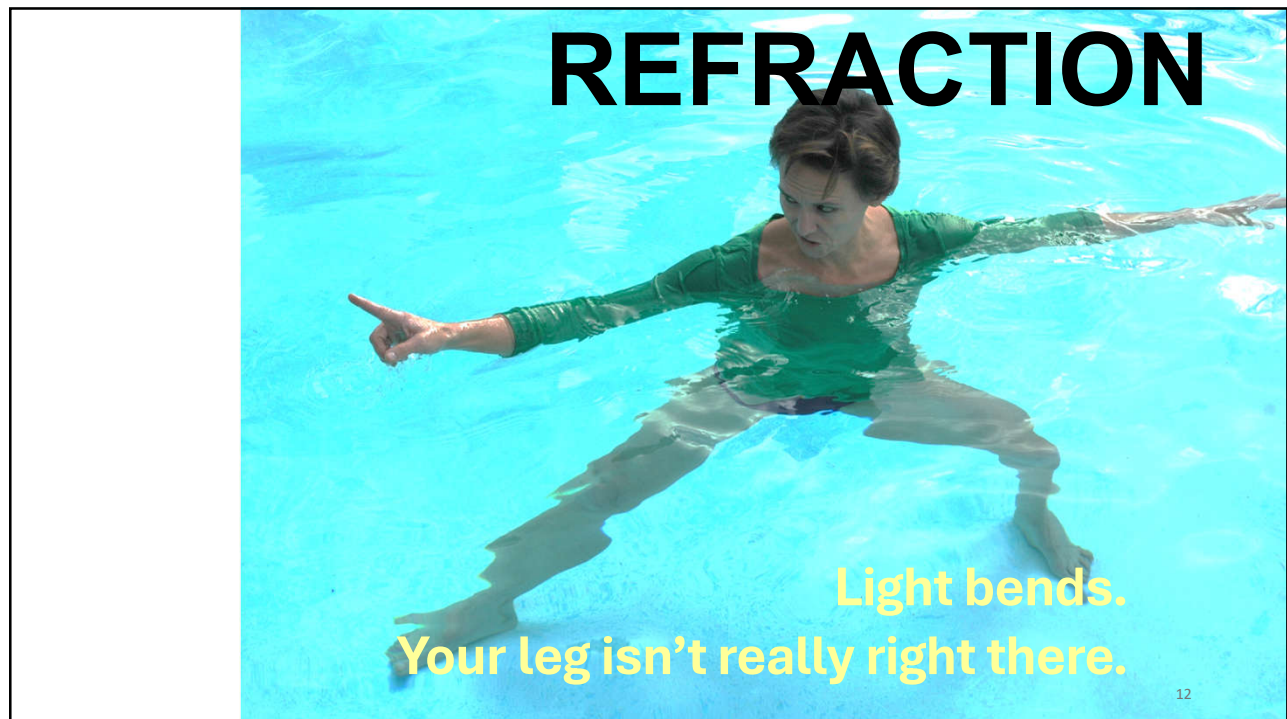
Water's viscosity also reduces the speed of a fall, allowing additional processing time for compensatory reactions.



Becker, B. E. (2020). Aquatic therapy in contemporary neurorehabilitation: an update. *PM&R*, 12(12), 1251-1259.

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What Does Water Offer Therapeutically?

Refraction:

Refraction, the bending of light in water, alters the perception of depth, creating a unique environment for therapeutic exercises.

Altered Perception of Pool Depth:

Visual perception of the body in varying water depths is altered. This can lead to a greater dependence on other sensory feedback loops.

Enhanced Motor Planning and Coordination:

Without visual cues, patients are left to rely on enhanced spatial awareness, vestibular input and joint perception to correctly motor plan.



Thorpe, D. E., & Paul, E. E. (2020). Aquatic Therapy for Individuals with Cerebral Palsy Across the Lifespan. *Cerebral Palsy*, 2641-2660.

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What Does Water Offer Therapeutically?

Hydrostatic Pressure

Hydrostatic pressure in the therapy pool setting refers to the continuous force exerted by the surrounding water on a submerged body. This pressure is uniform in all directions and increases proportionally with depth.

Hydrostatic Pressure for Improved Circulation: The hydrostatic pressure in water supports blood circulation to the core, reducing swelling and enhancing overall blood return to the heart and lymphatic flow through lymphatic channels.

Joint Compression and Swaddling Effect: The pressure of immersion can enhance joint compression and create a swaddling effect which can be soothing and comforting.



Becker, B. E. (2020). Aquatic therapy in contemporary neurorehabilitation: an update. *PM&R*, 12(12), 1251-1259.

Becker, B. E. (2018). The Science of Aquatic Therapy Marches On: The Brain, the Vascular System and Respiration. *The Journal of Aquatic Physical Therapy*, 26(2), 10. 15

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THERMAL SHIFTS

Q2

Let's talk overheating.

16

Q2

What Does Water Offer Therapeutically?

Thermal Shifts

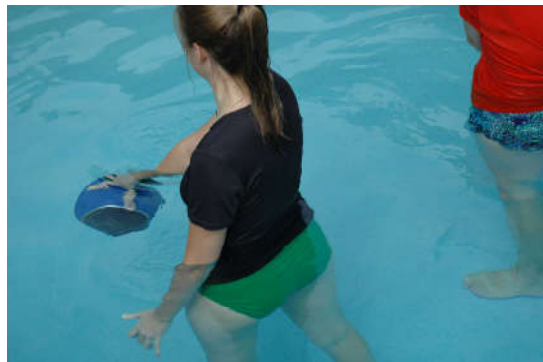
Immersion in water will produce a net gain or net loss in body temperature depending on the water temperature (thermoneutral is approx. 93-94).

Reduced Spasticity Effect of Cool Water

Immersion in cool water can produce a net drop in spasticity over time.

Calming Effect of Warm Water:

Water immersion coupled with buoyancy and pressure can produce a swaddling effect which is calming. However, the MS patient can overheat easily and must be monitored.



Thorpe, D. E., & Paul, E. E. (2020). Aquatic Therapy for Individuals with Cerebral Palsy Across the Lifespan. *Cerebral Palsy*, 2641-2660.

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Ask: Does Water Bring More Bang for the Buck?

When a patient with MS walks into the clinic, consider the alternative universes that land and water provide... and choose well.

Take Home Concept

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#2.

List at least 2 **precautions** for the patient with multiple sclerosis who chooses to work in an aquatic setting.

19

19

What precautions do you think may be an issue for MS?

1	2	3
4	5	6

20

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Precautions vs. Contraindications:

What is the difference? Why does it matter?

- There are as many different lists of precautions and contraindications as there are therapy pools.
- Labeling a condition a “precaution” allows the therapist the **discretion** to treat or not treat the patient.
- Labeling a condition a “contraindication” **takes the discretion out of the aquatic therapy provider’s hands.**
- If a facility chooses to label something a contraindication, they must make sure never to allow a person with that condition into their pool. A contraindication means “**no exceptions**”.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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Bowel Incontinence:

There is a difference in solid and loose stools.

- The CDC has now instructed facilities to discourage individuals with diarrhea from entering the pool for **2 weeks after the last bout of loose stools.**
- This may be an abundance of caution but is a response to the alarming rise in water-borne illnesses which have occurred, especially those caused by highly **difficult-to-kill pathogens** such as cryptosporidium.
- Firm stool **fecal incontinence** is less likely to transmit pathogens than diarrhea because of the surface area of fecal matter which touches water.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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Fall Risk

On the Deck & In the Lockerroom... Slips & Falls Await.

- Individuals with MS may have balance and coordination problems, so precautions should be taken to prevent slips and falls on the deck and in the lockerroom. Additionally, their balance responses **may not be predictable** from week to week.
- The pool deck should have non-slip surfaces, and the pathway between lockerroom and pool should be **clutter-free and well-lit**.
- A **chair positioned at the top** of the exit point of the pool can prevent an orthostatic hypotension moment when patients exit the water and lose external **pressure support**.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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Heat Sensitivity:

Some patients will have trouble with a thermoneutral pool.

- People with MS may have heat sensitivity. Pools that are warmer than **thermoneutral (92-94 degrees F)** can potentially exacerbate symptoms in individuals who are sensitive to heat. And this is if minimal work is done in the water. If a patient generates heat, the water must be cooler for the patient to not gain heat during exercise.
- It's important to monitor the water temperature and **modify as needed**; however, there is no one pool temperature for all patients with MS.
- The key is for a patient to **try it** during a “non important” week and see how they function 1-3 days later.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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Fatigue & Daily Variability

With MS, there is no telling what tomorrow will bring.

- MS patients often experience fatigue. Aquatic therapy sessions should be designed with appropriate rest intervals, and the intensity and duration of exercises should be carefully monitored to **prevent excessive fatigue**. However, it is important for therapists to realize that a patient who appears to be “**tolerating**” the load while at the pool may experience excessive fatigue later.
- MS is a **highly variable condition**, and the symptoms can differ significantly from day to day. Therapy should be individualized based on the needs, abilities, and limitations of the person as he/she presents each day.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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Cognitive Impairment:

Confusion and impulsivity may appear... and disappear.

- Common cognitive symptoms in MS may include problems with memory, attention, **processing speed**, and **executive functions**. Executive functions encompass a set of cognitive skills that include planning, organization, decision-making, and impulse control.
- **Impulsivity problems** may be experienced by individuals with MS, and the severity can vary.
- The impact of MS on cognitive function is **highly individual**, and some people may not experience significant cognitive changes at all.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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Respiratory Compromise:

Sometimes, it is hard to breath in the pool. Take them shallower.

- Individuals with MS may have respiratory problems. Exercises in the water should be tailored to avoid excessive strain on the respiratory system, and individuals should be **monitored for any signs** of respiratory distress.
- Individuals with severe respiratory problems may find it challenging to breathe properly in the aquatic environment, and **immersion beyond waist-deep** may exacerbate respiratory distress.
- That said, it is possible to use the aquatic environment to produce a **progressive exercise program** for respiratory muscles.



Salzman, A. (2023). The Definitive Aquatic Therapy Precautions and Contraindications List. Aquatic Therapy University; Oak Ridge, TN. www.atuseminars.com

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What precautions do you think may be an issue for MS?

Bowel Incontinence	Bowel Incontinence	Heat Sensitivity
Fatigue & Daily Variability	Cognitive Impairment	Respiratory Compromise

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Sometimes, it just doesn't work.

Sometimes, the pool is NOT the answer. But it can be worth a try if the conditions are right.

Take Home Concept

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#3.

List 3-4 examples of **justification language** that should be integrated into documentation to demonstrate an ongoing need for aquatic therapy.

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What reimbursement issues have you run into with AT?

1	2	3
4	5	6

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PAYER TRENDS:



Restricting the use of aquatic therapy to post-operative, newly injured or frail individuals (as just described in payer examples).



Restricting the initiation of aquatic therapy to patients who have failed at land-based therapy.



Using cross-walks (a mandatory link between diagnosis codes and CPT code).

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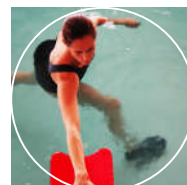
PAYER TRENDS:



Restricting the number of aquatic therapy visits (usually 6-8) without prior authorization to continue.



Requiring special documentation verbiage to justify provision of care in aquatic setting.



Requiring published research demonstrating that aquatic therapy is equally (or MORE) beneficial than land-based therapy.

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Published Research Support

PROBLEM: Balance, Fatigue, Motor Function

JUSTIFICATION STATEMENT: A 2022 systematic review with meta-analysis concluded that aquatic therapy produced benefits on fatigue in all 4 tested domains and on balance as assessed with a standardized valid tool.

Q3

Balance, Fatigue, Motor Function

Shariat, A., Najafabadi, M. G., Fard, Z. S., Nakhostin-Ansari, A., & Shaw, B. S. (2022). A systematic review with meta-analysis on balance, fatigue, and motor function following aquatic therapy in patients with multiple sclerosis. *Multiple Sclerosis and Related Disorders*, 104107.

EFFECTIVENESS:

- Aquatic therapy had a positive effect on fatigue compared to control group based on Modified Fatigue Impact Scale (MFIS) in physical, cognitive, and psychological domains, and Fatigue Severity.
- In addition, aquatic therapy improved balance based on the Berg Balance Scale compared to the control group.

SAFETY:

- Aquatic therapy has positive effects on fatigue and balance.
- Further research is needed to confirm the clinical utility of aquatic therapy for multiple sclerosis patients in the long term.

34

34

Published Research Support

PROBLEM: Fatigue, QOL, Pain, Balance, Walking, Mood

JUSTIFICATION STATEMENT: A 2020 systematic review with meta-analysis supported the contention that aquatic PT benefits patients with MS in the following domains: fatigue, quality of life, pain, balance, walking and depression.

Q3

Fatigue, QOL, Pain, Balance, Walking, Mood

Amedoro, A., Berardi, A., Conte, A., Pelosin, E., Valente, D., Maggi, G., ... & Galeoto, G. (2020). The effect of aquatic physical therapy on patients with multiple sclerosis: a systematic review and meta-analysis. *Multiple sclerosis and related disorders*, 41, 102022.

EFFECTIVENESS:

- Aquatic PT is beneficial for individuals with MS, with significant improvements in fatigue, quality of life, pain, balance, walking ability, and depression
- The aquatic environment has unique properties such as buoyancy, turbulence, hydrostatic pressure, and resistance, which can be used to gain a range of exercise benefits

SAFETY:

- Did not report any adverse events or injuries related to aquatic therapy.
- Aquatic physical therapy is a valid means of rehabilitation for people with MS.

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35

Published Research Support

PROBLEM: Fatigue, QOL

JUSTIFICATION STATEMENT: A 2023 meta-analysis of the scientific literature supports the conclusion that aquatic exercise programs can extend the benefits of aquatic exercise beyond the skilled care phase of rehab. Therapists should consider implementing home or community-based aquatic exercise programs as another method of the continuum of care to address symptoms of fatigue and QOL in individuals with MS.

Q3

Fatigue, QOL

Ko, N. H., Balderama, E., Sarmiento, C. V., & Roos, J. (2023). The Effectiveness of Aquatic Exercise on Improving Fatigue and Quality of Life in Individuals with Multiple Sclerosis: A Meta-Analysis. *Journal of Aquatic Physical Therapy*, 31(1).

EFFECTIVENESS:

- Aquatic exercise improved both physical and mental quality of life; however, both reported high heterogeneity.
- Aquatic exercise programs were significantly effective at decreasing all 3 domains of fatigue: physical, psychosocial, and cognitive fatigue
- Aquatic exercise programs had a positive impact on both physical and mental QOL.

SAFETY:

- Extra safety education should also be considered for individuals with heat-sensitive conditions such as MS, as the pool's temperature may result in an exacerbation of MS symptoms.
- Recognition of symptom exacerbation, what to expect, and appropriate management can help prepare the patient for independence in a home or community aquatic exercise program.

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Q3

Function, Balance, Fatigue

Kargarfard, M., Shariat, A., Ingle, L., Cleland, J. A., & Kargarfard, M. (2018). Randomized controlled trial to examine the impact of aquatic exercise training on functional capacity, balance, and perceptions of fatigue in female patients with multiple sclerosis. *Archives of physical medicine and rehabilitation*, 99(2), 234-241.

EFFECTIVENESS:

- Study rated **7/10** on the PEDro score.
- Aquatic exercise training improved functional capacity, balance, and perceptions of fatigue in women with MS.
- Further research is needed to confirm the clinical utility of aquatic therapy for multiple sclerosis patients in the long term.

SAFETY:

- No adverse effects noted.

Postural Control, Hand Function

Gurpinar, B., Kara, B., & Idiman, E. (2020). Effects of aquatic exercises on postural control and hand function in Multiple Sclerosis: Halliwick versus Aquatic Plyometric Exercises: a randomised trial. *Journal of Musculoskeletal & Neuronal Interactions*, 20(2), 249.

EFFECTIVENESS:

- Study rated **6/10** on the PEDro score.
- Limits of stability improved significantly in both groups (Halliwick versus Aquatic Plyometric Exercises).
- Halliwick group completed the test in a significantly shorter time.
- Hand dexterity improved significantly in both groups.
- Halliwick group showed significantly higher improvement in hand dexterity and overall limits of stability test score.

SAFETY:

- No adverse effects noted.

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Q3

Emphasize that the pool provides a safe place to exercise for MS pts.

The literature supports the choice of aquatic therapy. Fight for it. But if the payer does not allow aquatic therapy to continue, you cannot continue.

Take Home Concept

38

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#4.

Differentiate 3 evidence-based **treatment ideas** for patients with multiple sclerosis.



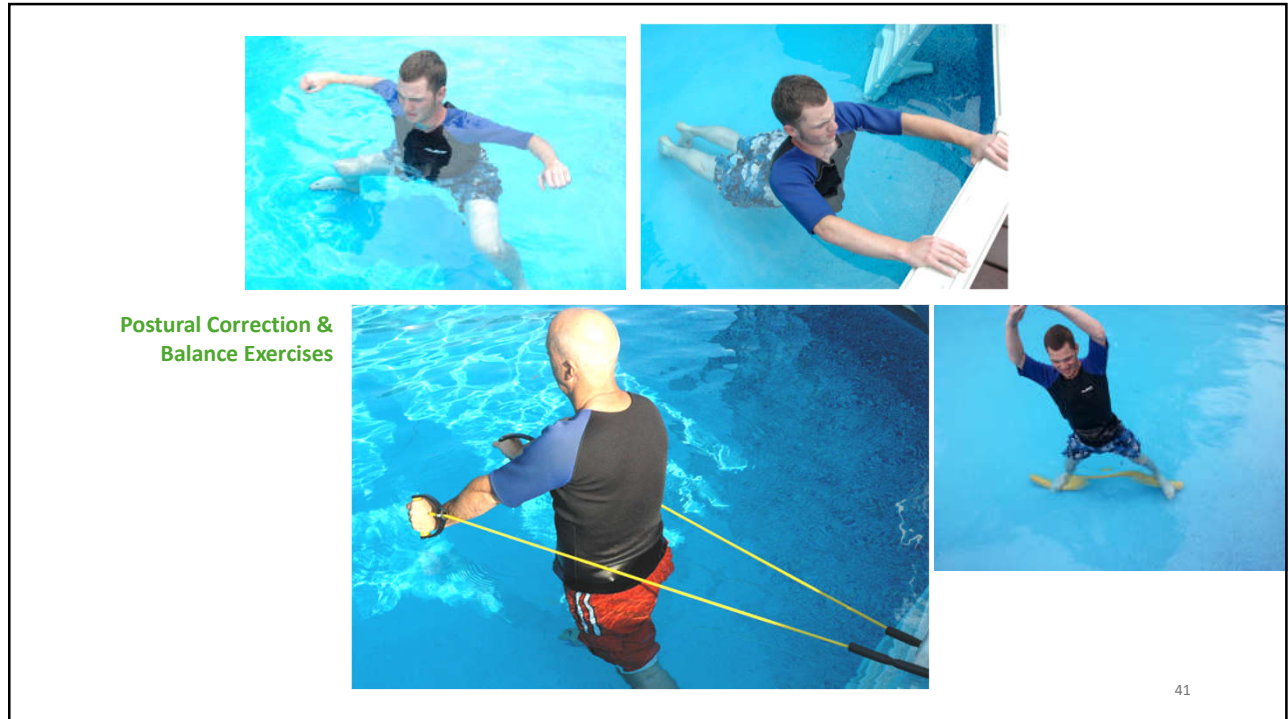
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What Aquatic Equipment Do You Use for Neuro Rehab?

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

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What Aquatic Equipment Do You Use for Neuro Rehab?

Balls (buoyant, sinkable & medicine)	Bells/ Bars (resistive & buoyant)	Pool Noodles	Resistive Cords (hydro-friendly)
Salzman Sarongs/ Bath Blankets	Belts/Cuffs	Mats (floatation & mesh)	Collars
Thermal clothing	Polyspots	Straws/Tubing/ Egg Flippers (for respiratory drills)	PVC pipe (for stretching)
Ropes (wax-coated boat ropes)	Party tub/ Mesh Clothes Hamper	Sinkable items (obstacle course flags, dive toys, hurdles)	Trays, buckets pitchers, cups, level, paint roller

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Aquatic Exercise as Described in the Literature

Aquatic Plyometric Exercise:

- Jumping tucks
- Kangaroo jumping
- Jumping to sides
- Jumping diagonals
- Star jump
- Lunge jump
- Reverse star jump
- Keep trunk stable during arm flexion and extension: symmetric reciprocal
- Keep trunk stable arm flexion and extension: asymmetric reciprocal
- Keep trunk stable arm abduction-adduction: symmetric reciprocal
- 3 minutes of relaxation lying in supine position with two noodles one under arms and one under knees

Aquatic Plyometrics

Gurpinar, B., Kara, B., & Idiman, E. (2020). Effects of aquatic exercises on postural control and hand function in Multiple Sclerosis: Halliwick versus Aquatic Plyometric Exercises: a randomised trial. *Journal of Musculoskeletal & Neuronal Interactions*, 20(2), 249.

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Aquatic Exercise as Described in the Literature

Halliwick Program

SAGITAL ROTATION:

- Cervical lateral flexion in sitting
- Trunk lateral flexion in sitting to side lying
- Trunk lateral flexion in sitting to touching floor with feet

COMBINED ROTATIONS:

- Sagittal rotation and longitudinal rotation
- Transfers rotation and longitudinal rotation

TRANSFER ROTATION:

- Cervical flexion and extension in sitting
- Flexion and extension legs in sitting (symmetric/asymmetric)
- Kangaroo jumping
- Prone/supine

LONGITUDINAL ROTATION:

- Cervical rotation in sitting
- Lower trunk rotation in sitting
- 3 minutes of relaxation lying in supine position with two noodles one under arms and one under knees

Halliwick

Gurpinar, B., Kara, B., & Idiman, E. (2020). Effects of aquatic exercises on postural control and hand function in Multiple Sclerosis: Halliwick versus Aquatic Plyometric Exercises: a randomised trial. *Journal of Musculoskeletal & Neuronal Interactions*, 20(2), 249.

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Aquatic Exercise as Described in the Literature

Warm-up (10 min)

- Slow walking (forward/backward/side step)
- Ankle circles (both directions)—bilateral
- Up on toes/back on heels—tandem
- Hip pendulum (forward, back, side, across)—bilateral
- Rocking horse (forward/backward)—bilateral
- Rocking horse (side to side)
- Hamstring stretch (leg against wall or holding leg w/out support)—bilateral
- Gastrocnemius stretch (facing wall, front leg knee bent, ankles on floor)—bilateral
- Arm circles (clockwise/counterclockwise)—tandem
- Overhead reach (one arm at a time, alternate)
- Ai-Chi postures—uplifting, enclosing, folding, soothing, gathering, freeing

Warm-Up

Sames, C., & DeBlois, A. (2021). Pilot Study to Investigate the Effect of a 10-Week Aquatic Exercise Program on Individuals With High Levels of Disability Due to Multiple Sclerosis. *The Journal of Aquatic Physical Therapy*, 29(1), 2-13.

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Aquatic Exercise as Described in the Literature

Cardiovascular endurance and gait activities (20 min)

- Forward walking (heel roll to toe, shoulders back, proper posture, opposite arm to leg)
 - Backward walking (toe roll to heel, shoulders back, proper posture, opposite arm to leg)
 - High knee marching (opposite arm to leg)
 - Straight leg marching (opposite arm to leg)
 - Skipping (opposite arm to leg—bilateral arms forward/backward)
 - Toe walking
 - Heel walking
 - Monster walking
 - Cross country skiing (opposite arm to leg, flat hands—cupped hands—punching hands, gliding legs—switch legs)
 - Aqua jogging (on toes, slight forward lean)
 - Steps (4 and 8-in step) (up-up-down-down alternate feet and lead step, up and over and back, rocking horse alternate lead step, hop up step off, step up hop off, skateboard, fast feet tapping)
- *Progression from flat hands—open hands—cupped hands—gloves—hand buoys. progression speed from slow—medium—fast—turbulent water, progression time start at 20 s—30 s—40 s per activity

Cardio Endurance & Gait

Sames, C., & DeBlois, A. (2021). Pilot Study to Investigate the Effect of a 10-Week Aquatic Exercise Program on Individuals With High Levels of Disability Due to Multiple Sclerosis. *The Journal of Aquatic Physical Therapy*, 29(1), 2-13.

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Aquatic Exercise as Described in the Literature

Strengthening Upper Body/ Lower Body/ Core (10 min)

- Bicep curls
- Upper body/lower body/core (10 min)
- Triceps pushes
- Good mornings
- Lateral raises
- Lateral X's
- Punching arms
- Cross country ski arms
- Push downs slow up and down
- Chair position (kicking legs, pendulum, bicycle legs, double-leg kicks)—arm floats used if unable to balance with buoys)
- Chorus line standing kicks
- Plyometrics (skip, hop, double-leg jumps, vertical jump, line side to side/forward-backward, ankle pops)
- 4-Square step
- Rocking horse (alternate lead leg)

*Progression from gloves—small hand buoys—medium hand buoys—large hand buoys—noodles. Emphasize resist buoyancy resistance and assisted

Cardio Endurance & Gait

Sames, C., & DeBlois, A. (2021). Pilot Study to Investigate the Effect of a 10-Week Aquatic Exercise Program on Individuals With High Levels of Disability Due to Multiple Sclerosis. *The Journal of Aquatic Physical Therapy*, 29(1), 2-13.

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Aquatic Exercise as Described in the Literature

Balance and Proprioception (10 min)

- Balance beam stand (switch legs)
- Carioca walk (both directions)
- Tightrope walk (both directions)
- Stand one-leg pendulum (switch legs)
- Forward walking on line

*Progression from holding wall—away from wall—additional buoyancy, eyes open/eyes closed

Cool-Down or Free Time (5 mins)

- Any slow/easy movement activities with or w/out equipment

Cardio Endurance & Gait

Sames, C., & DeBlois, A. (2021). Pilot Study to Investigate the Effect of a 10-Week Aquatic Exercise Program on Individuals With High Levels of Disability Due to Multiple Sclerosis. *The Journal of Aquatic Physical Therapy*, 29(1), 2-13.

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Use Literature as a Spring Board for Creativity.

Read up, then ask yourself, "How can I use this idea today?"

Take Home Concept

Scorcine, C., Verissimo, S., Couto, A., Madureira, F., Guedes, D., Fragoso, Y. D., & Colantonio, E. (2022). Effect of 12 weeks of aquatic strength training on individuals with multiple sclerosis. *Arquivos de Neuro-Psiquiatria*, 80, 505-509.

Chen, M. H., DeLuca, J., Sandroff, B. M., & Genova, H. M. (2022). Aquatic exercise for persons with MS: Patient-reported preferences, obstacles and recommendations. *Multiple Sclerosis and Related Disorders*, 60, 103701.

Ogonowska-Slodownik, A., de Lima, A. A. R., Cordeiro, L., Morgulec-Adamowicz, N., Alonso-Fraile, M., & Güeita-Rodríguez, J. (2022). Aquatic Therapy for Persons with Neuromuscular Diseases—A Scoping Review. *Journal of Neuromuscular Diseases*, 9(2), 237-256. 51

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#5. Distinguish 3 **ways to progress** treatment ideas from dependence to independence.



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Fell's Methods of Progression

- A 2004 article in the Journal of Neurologic Physical Therapy changed how I did therapy.
- Fell introduced 13 methods to complicate or simplify exercises, tasks, or activities.
 - These methods have stood the test of time and continue to be relevant.
 - They provide PTs/OTs with a structured approach for exercise progression.
 - They offer therapists a clear decision-making pathway for enhancing outcomes.

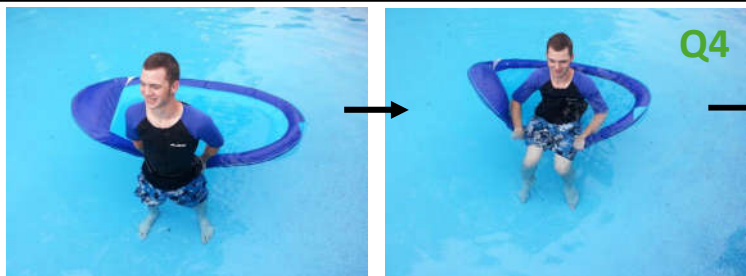


Fell, D. W. (2004). Progressing therapeutic intervention in patients with neuromuscular disorders: a framework to assist clinical decision making. *Journal of Neurologic Physical Therapy*, 28(1), 35.

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Bed Mobility With
Dual Task Processing
Overlay



54

54

Q5

Instead of Doing 20 Exercises, Do 5... and Then Build-a-Move.

Find an exercise that taps into what you are looking to achieve and then stick with it and build progressions on it.

Take Home Concept

Final thought! Water-based assessments do not provide a valid and reliable method to show land-based improvement at this time.

When progressing a patient with MS through aquatic-based exercises, one of the best ways to show progress is to test and retest with a valid performance tool.

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References

- Amedoro, A., Berardi, A., Conte, A., Pelosin, E., Valente, D., Maggi, G., ... & Galeoto, G. (2020). The effect of aquatic physical therapy on patients with multiple sclerosis: a systematic review and meta-analysis. *Multiple sclerosis and related disorders*, 41, 102022.
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