

AQUATIC EXERCISE & MULTIPLE SCLEROSIS:

A Guide for Patients



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The Multiple Sclerosis Association of America is a national nonprofit organization and leading resource for the entire MS community, improving lives today through vital services and support. MSAA provides free programs and services, such as: a Helpline; award-winning publications including a magazine, *The Motivator*; website featuring educational videos and research updates; S.E.A.R.C.H.™ program to assist the MS community with learning about different treatment choices; a mobile phone app, My MS Manager™; a resource database, My MS Resource Locator; safety and mobility equipment; cooling accessories for heat-sensitive individuals; educational events and activities; MRI funding and insurance advocacy; and more. For additional information, please visit mymsaa.org or call (800) 532-7667.

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Aquatic Exercise and Multiple Sclerosis: A Guide for Patients

About this Publication:

The Multiple Sclerosis Association of America (MSAA) recently collaborated with the Consortium of Multiple Sclerosis Centers (CMSC), the International Organization of Multiple Sclerosis Rehabilitation Therapists (IOMSRT) and the Aquatic Exercise Association (AEA) to produce *Aquatic Exercise & Multiple Sclerosis: A Healthcare Professional's Guide*, a comprehensive manual for professionals working with individuals with MS in an aquatic exercise setting.

Aquatic Exercise and Multiple Sclerosis: A Guide for Patients represents an abridged version of the healthcare professional's guide and has been adapted for the multiple sclerosis patient population. MSAA would like to express its tremendous gratitude and appreciation for the authors and reviewers of these two publications who contributed their collective time, talents and expertise to enhance the understanding and awareness of this important topic.

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MSAA strives to provide useful, up-to-date information on matters of concern to the MS community. This material is intended for general informational purposes only and it does not constitute medical advice. Individuals are urged to consult their physician prior to the start or change of any exercise program or routine. MSAA, its staff, and those affiliated with the writing of this publication cannot be held responsible for any unintentional errors.

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Forward

"I love swimming and being in the water. For me, it is a lot of fun and a great way to exercise. As part of Swim for MS, MSAA is helping to bring water exercise programs to the MS community. For those who are interested, I encourage you to ask your doctor about aquatic exercise and MS. You might find real benefits from being in the water, and have a lot of fun too! See you in the pool!"

— Missy Franklin
Olympic Gold Medalist and
MSAA Swim for MS Ambassador



Introduction

The Multiple Sclerosis Association of America (MSAA) sponsors Swim for MS. This national initiative encourages water-based exercise for people with MS and fundraising events where volunteers can create their own swim challenges. Funds raised through Swim for MS help support MSAA's services, including our national program on aquatic exercise and MS.

As part of the Swim for MS initiative, MSAA's goal is to increase awareness, understanding and availability of water-based exercise programs as a positive wellness opportunity for the MS community. Through a collaborative sponsorship with Genzyme, a Sanofi company, MSAA is proud to develop a variety of print, video and web-based educational materials on this important topic, along with several inspiring stories of people living with MS who incorporate swimming and aquatic exercise into their healthy lifestyle.



The Importance of Exercise

Overall wellness is important for everyone - with or without a condition such as multiple sclerosis (MS). As part of an overall wellness strategy, starting and adhering to a treatment plan with one of the MS disease-modifying therapies (DMTs) approved by the United States Food and Drug Administration (FDA) is vitally important. For the majority of individuals with MS who can benefit from a DMT, this is the only proven way to slow disease activity and proactively manage MS relapses. Individuals with all types of MS may benefit by: treating symptoms proactively through prescribed medications and rehabilitation approaches, maintaining regularly scheduled health examinations and adhering to proper nutrition and exercise.

During the last decade, several studies of individuals with MS support the use of physical exercise to help maintain strength, balance, coordination, walking, and endurance as well as offset muscle atrophy. However, people with MS may find it difficult to exercise through traditional land-based methods due to increased physical demands placed on the body and a rise in body temperature, which may cause a temporary worsening of symptoms.

The use of water-based exercise for individuals with MS has received noticeable attention in recent years. The unique properties of water combined with its cool temperature can create an inviting and sometimes ideal exercise environment for people with MS. Although there are a limited number of studies evaluating the effectiveness of aquatic exercise for individuals with multiple sclerosis, those that have been conducted consistently demonstrate positive outcomes. Research on individuals with multiple sclerosis suggests that aquatic exercise is effective for improving flexibility and range of motion, cardiovascular endurance, fatigue level, muscle strength, mobility function (including gait and balance), quality of life, and psychological well-being. In addition, none of the studies identified an increase in relapse or reported any other adverse change in neurologic status.

The Unique Properties of Water

Water is a unique environment. The physical properties of the water provide individuals the opportunity to exercise in a reduced-gravity environment. The **buoyancy** (uplift force that is experienced when submerged) of the water reduces the influence of gravity on the body and can provide postural support in people with weakness and balance deficits, allowing these individuals the opportunity to exercise with greater ease.

Viscosity is a measure of a fluid's resistance to flow and is a sense of the water feeling thicker or heavier compared to performing the same movement in the air. As the speed of a movement and the surface area used increases, the resistance also increases. In addition, viscosity slows movement and gives more opportunities for higher-level skills and balance work than may be possible with land exercises.

Another property of water is **hydrostatic pressure**, which is the concept that fluids exert pressure in all directions. The positive aspects of hydrostatic pressure include providing the individual the increased ability to stand, ambulate, and balance.

As mentioned, the therapeutic use of **water temperature** includes its ability to transfer heat energy much more efficiently than air. Since many people with MS are heat intolerant, an appropriate temperature of water will help facilitate greater success with exercise. At this time, there is no definitive research supporting water temperature guidelines for an MS exercise program. The general recommendation is for water temperature to be between 80 and 86 degrees Fahrenheit.



Aquatic Exercise and MS

The information in this booklet focuses on aquatic exercise (individual or community-based) rather than aquatic therapy. Aquatic therapy is a short-term, rehabilitation process that involves rehab professionals such as physical therapists who guide the session in the water. It is commonly prescribed to rehabilitate an injury or, in the case of MS, can be recommended to address certain deficits due to a severe relapse. Insurance coverage of aquatic therapy for people with MS is minimal and limited to very few visits. Aquatic exercise is an ongoing wellness strategy and generally *not covered* by insurance. When performed in a community setting, aquatic exercise is often affordable and becomes part of a person's overall wellness plan.

The topic of aquatic exercise is as broad and varied as the individuals with MS who might want to participate. The aquatic environment offers numerous techniques and options for exercise participation for almost all levels of physical abilities. There are many different types of fun, water-based exercise options that support individual or group exercises. Participation in a group exercise class is a great way to socialize and build peer connections, develop camaraderie, and stay motivated to continue exercising.

Individuals are urged to consult their physician prior to the start or change of any exercise program or routine. Additionally, people with multiple sclerosis who are considering an aquatic exercise program should seek the guidance and recommendation of a physical therapist as well as an aquatics fitness instructor. This instructor should be familiar with MS, its symptoms and common issues such as fatigue, heat intolerance and mobility limitations.

For individuals with mild impairment related to MS, high-level aerobic/endurance training activities can include swimming laps, aquatic treadmills, walking, water running and aquatic aerobic programs such as Aqua Fluid Pilates, Aqua Combat, and Creative Cardio Stride. Recommendations for aerobic training are three to five times per week for 30 to 60 minutes for an individual with MS. Training exercises should begin with proper pacing and reasonable amounts of activity that are challenging but not too fatiguing. Frequent rest periods are recommended to avoid fatigue.

People with MS who may experience moderate disability and some mobility limitations can benefit from a wide range of aquatic exercise activities that are often performed in a class setting. Class length can range from 30 to 60 minutes, with special consideration given to a person's fatigue level. It is important for individuals with MS to monitor their own fatigue level and feel comfortable informing the aquatic fitness instructor of their needs and making adjustments as needed. Classes can also be designed to incorporate rest periods into the exercise format.

Aquatic exercises, while standing, are typically performed in shallow water (mid-ribcage to mid-chest depth) and focus on improving fine motor skills, flexibility, balance, strength, and many other functions to help perform activities of daily living. Many of these exercises incorporate resistance training, which can help correct muscle weakness as well as improve muscle power and endurance. The water environment allows for many options for resistance training from the viscosity of the water, adjustments in body surface, and use of added equipment including mitts, paddles, noodles, and bands. In people with MS, it is recommended to perform these activities two times per week, generally eight to 12 reps with light to moderate loads.

For individuals with more limitations due to their MS who lack sufficient range of motion or often experience pain while attempting to exercise on land, the gentle, buoyant and forgiving environment of water creates beneficial opportunities for movement and flexibility, which might not exist otherwise. Many people with MS are familiar with the slow-movement forms of Tai Chi as a popular land-based exercise. For the aquatics setting, Ai Chi is the water-based version of this gentle exercise which combines the slow, fluid rhythmic versions with breathing patterns. The benefits of Ai Chi include improving balance, strength, weight shifting, body awareness, postural control, and stress management. This technique also teaches a person how to move efficiently without over utilization of muscle force or energy.

Other slow-moving aquatic exercises to assist with mobility, strength, balance, and stretching include water-walking, toe and heel lift, knee extension, and fun games such as the hokey pokey. The particular combination of activities is determined by the participants' abilities and limited only by the imagination of the aquatic therapist or fitness instructor.

As described earlier, there are many different types of water-based exercises designed to meet just about everyone's interests and exercise abilities. Whether you are interested in swimming independently or participating in aquatic exercise classes (which can range from high intensity to gentle movements), it is important to seek medical guidance and clearance from your doctor and physical therapist. Your healthcare team should evaluate your health history, medications, and fitness levels, including heart rate, blood pressure, flexibility, muscle strength, and current levels of mobility. Other important considerations to evaluate, which may be associated with specific MS symptoms include issues of spasticity, sensory changes, fatigue, heat sensitivity, skin issues, continence, personal-care needs, and transfer abilities. Participants may benefit from bringing a friend to class to assist with mobility or personal-care needs prior to or following the session.



Selecting an Appropriate Pool Facility and Qualified Fitness Instructor

Based on discussions with your doctor and physical therapist, a thorough health assessment and a general understanding of water-based exercise options, you should be able to develop an individualized aquatic exercise plan with specific goals tailored to meet your needs and physical abilities. To locate an appropriate pool facility in your community, ideal resources to search include the national network of YMCAs, recreational centers, college/university campuses, and national and local gyms and fitness centers. Additionally, a variety of MS centers and hospital rehabilitation facilities may offer aquatic therapy and/or exercise classes.

There are certain aspects of a pool facility to consider when planning to participate in individual or group-based aquatic exercises. These include:

Safety: Most accidents involved in aquatic exercise occur while entering and exiting the pool. When visiting a pool facility, individuals should make sure the pool area includes a hand railing, nonslip surface, sufficient clearance around the pool deck, proper lighting, and a lifeguard on duty.

Accessibility: Fitness facilities, including swimming pools, which have been built or altered since 1990 must be accessible to individuals with disabilities as per the Americans with Disabilities Act (ADA). In 2004, the United States Access Board issued updated accessibility guidelines applying to new or altered facilities covered by the ADA and the Architectural Barriers Act (ABA). Requirements include pool lift chairs, pool stairs/railings, accessible changing rooms and bathrooms, and ramps/elevators.

Location: Look for a facility that is conveniently located within a reasonable driving distance, and with accessible parking.

Activity/Class: Depending on your interest and ability, you may be able to join an existing aquatic exercise class led by a trained fitness instructor or work with the facility to help organize an MS-specific class.

Schedule: Try to find a program that is available at a time that suits your schedule around work, travel issues, child care, and personal preference.

Pool Temperature: As mentioned earlier in this publication, pool temperature for people with MS is generally recommended to be between 80 and 86 degrees Fahrenheit. This temperature range should apply to most fitness centers and community facilities, but should be checked prior to joining a facility.

In addition to locating a suitable pool facility, selecting the appropriate aquatic fitness professional is integral to the overall safety, effectiveness and enjoyment for group exercise, small-group training, or personal training. The aquatic professional choosing to offer water-exercise programs should hold a nationally recognized certification in aquatic fitness, aquatic therapy and rehab, or both. It is imperative that the fitness professional understands basic anatomy and physiology, the principles of exercise, the physical laws and properties of water, muscle actions in relation to the aquatic environment, aquatic equipment, as well as class programming or personal training session formatting (depending upon the program being offered).

In addition to certification, the aquatic fitness professional should be knowledgeable in special populations with which he or she works. If offering personal or small group training to individuals with multiple sclerosis, the fitness professional must have an additional understanding of MS, its symptoms and how the water will impact a person's safety and ability to exercise in this environment.

MSAA is currently working with the Aquatic Exercise Association (AEA) and other aquatic fitness organizations to educate their members on multiple sclerosis and the needs of the MS community through the development of print and electronic materials, including online continuing education courses. We also encourage individuals to contact the fitness instructor prior to joining the class and discuss their particular concerns with the trainer to help create a better understanding and awareness of MS. Having an open dialogue between the participant and the professional can ensure a safe and enjoyable experience for everyone.

In addition to education and experience, individuals taking an aquatic exercise program should also look for their instructor to show:

- ▶ Enthusiasm
- ▶ Empathy
- ▶ Motivation
- ▶ Good Interpersonal Skills
- ▶ Adaptability
- ▶ Responsibility
- ▶ Sincerity



How to Get Started

MSAA is working to develop national, comprehensive listings of pool facilities, existing community-based aquatic exercise classes (general and specific to MS) and fitness instructors familiar with multiple sclerosis. Information will be continuously updated and posted to our dedicated website, **SwimForMS.org**. We also encourage you to call our toll-free Helpline at **(800) 532-7667** and speak to one of our Client Services Consultants as well as conduct your own research to find facilities, classes and instructors in your area.

To help guide you in starting your own aquatic exercise program, we created a brief checklist of points to consider before dipping your toes in the water.

MSAA's Count Down to Splash Down!

1. Talk to your doctor and/or physical therapist about your health history, current MS condition and your ability to exercise through water-based activities.
2. Work with your healthcare team to develop a personal, aquatic exercise plan that sets realistic goals based on what you want to achieve (i.e., improve balance, increase strength, etc.) with reasonable timetables.
3. Locate a pool facility that works for you (i.e., convenience, appropriate classes, qualified instructors, accessibility, costs, etc.). MSAA will be happy to assist you in your search for a facility that meets your needs.
4. Speak up and feel comfortable talking with the aquatics trainer or instructor about your MS and healthcare needs before starting your exercise program/class as well as during the sessions.
5. Have FUN!!! The key to exercising is to have fun. A fun exercise session keeps you smiling, keeps you motivated, and keeps you healthy!

Words of Encouragement

"As a 30-year-old woman living with MS for three years, I've rediscovered a beautiful coping mechanism: swimming! The water brings me peace ...I am literally swimming for MS—for awareness of the disease, and to build strength back up in my body."

– Jenny

"I try to keep fit by doing some strength training at home, but I'm limited if my body temperature rises. Aerobic swimming keeps my body cool and by working against the resistance of the water I can do exercises for strength training, too. There is a social side benefit of swimming—I meet other people, especially when I participated in an MS group program."

– Tom

"Swimming helps me stay fit and healthy to be able to manage my MS."

– Jacob

"I am a person living with MS. I have found swimming to be an excellent source of exercise. I am excited to be able to combine my love for swimming with raising money to help others living with the disease."

– Debbie



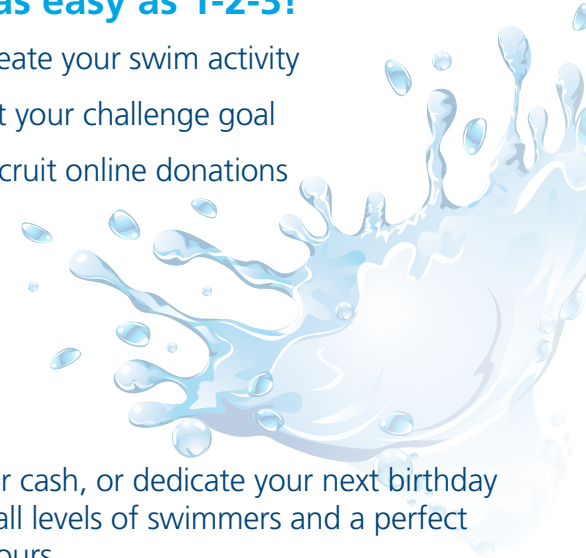
RAISE FUNDS AND AWARENESS TO HELP SUPPORT THE MS COMMUNITY!



The Swim for MS national fundraiser encourages volunteers to dive into action and create their own swim challenge to help support MSAA.

It's as easy as 1-2-3!

1. Create your swim activity
2. Set your challenge goal
3. Recruit online donations



Dive into Action

You can swim laps for pledges, jump cannonballs for cash, or dedicate your next birthday party as a Swim for MS Pool Party. It's great fun for all levels of swimmers and a perfect opportunity for students to earn volunteer-service hours.



To register, please visit **SwimForMS.org** or call **(800) 532-7667, ext. 157.**

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ANY POOL, ANY TIME