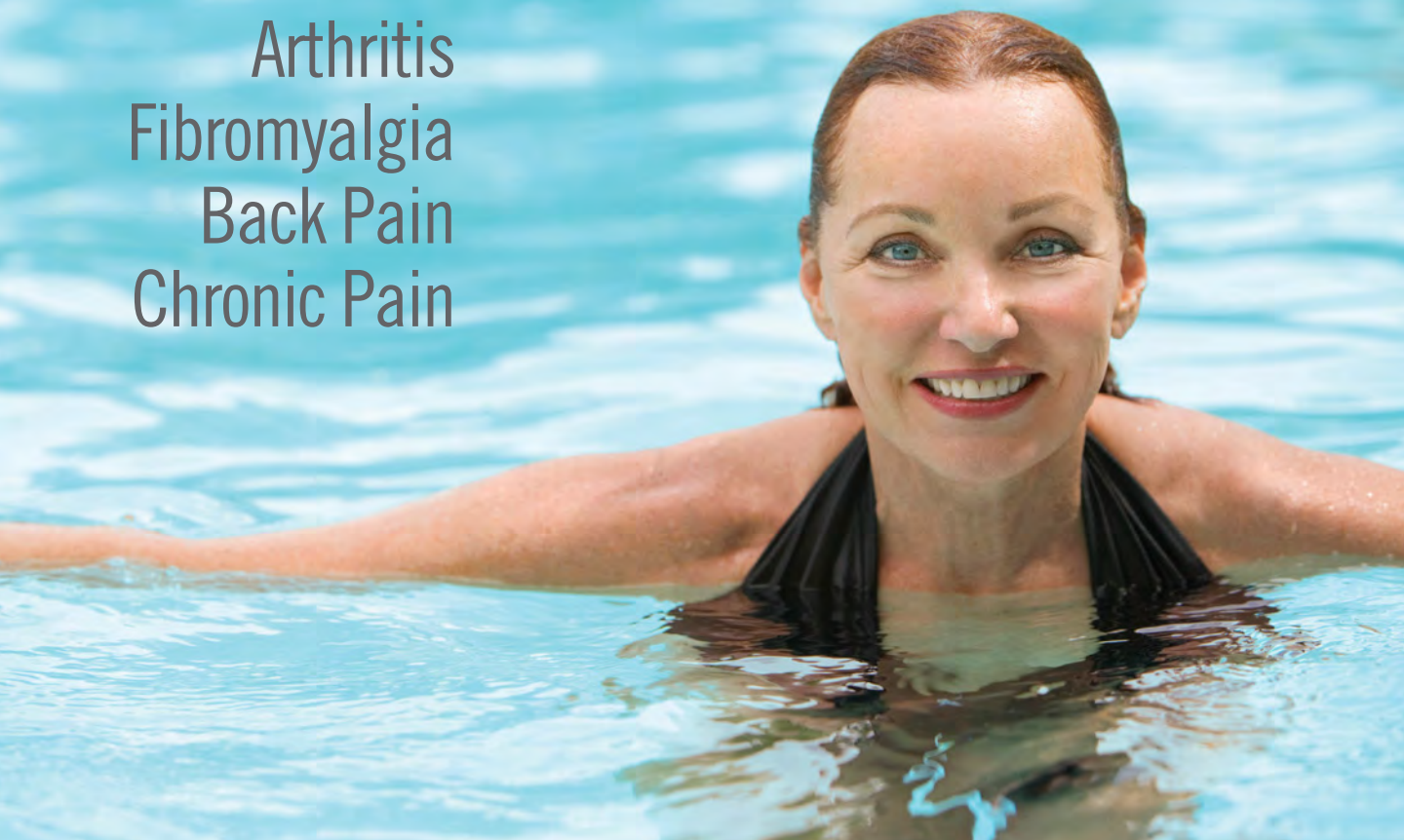


Arthritis  
Fibromyalgia  
Back Pain  
Chronic Pain



# Pain Relieving Power of Aquatic Therapy

DR. RICK McAVOY PT, DPT, CSCS

## INSIDE

How water offers a solution and new hope to those who suffer from pain.

*Millions of people who suffer from pain can enjoy an improved quality of life through aquatic exercise and therapy.*

# 26 million

Back pain is the leading cause of disability in Americans under 45 years old. More than 26 million Americans between the ages of 20-64 experience frequent back pain.<sup>1</sup>



## Exercising in warm water

will help arthritis sufferers loosen up tight and stiff joints. Those with rheumatoid arthritis receive huge benefits to their health when they swim and participate in hydrotherapy. Swimming also reduces the pain of osteoarthritis.<sup>4</sup>

## fibromyalgia

Water exercise is the easiest workout for people with fibromyalgia pain. “Warm water can be very comforting. The exercise improves blood flow to muscles and tendons. And if you’re in the water, your joints are not being stressed during exercise” says Doris Cope, MD, director of Pain Management at the University of Pittsburgh Medical Center.<sup>2</sup>

## 14 POUNDS

Water’s buoyancy virtually eliminates the effects of gravity – supporting up to 90 percent of the body’s weight for reduced impact and greater flexibility. For example, a 140 lb person weighs only 14 lbs in the water.<sup>3</sup>

## 76.2 million

Acute pain is your body’s way of waving a red flag for immediate attention, often because of an injury. Chronic pain, on the other hand, is pain that lasts for weeks, months, or years, and it affects more than 76.2 million Americans — more than cancer, diabetes, and heart disease combined.<sup>5</sup>

## Losing 10 = 40

A growing body of research indicates that exercise, weight management and the avoidance of joint injury can go a long way in helping to prevent osteoarthritis.

A 2005 study in *Arthritis & Rheumatism* of overweight and obese adults with knee osteoarthritis found that losing one pound of weight resulted in four pounds of pressure being removed from the knees. In other words, losing just 10 pounds would relieve 40 pounds of pressure from your knees.<sup>6</sup>

## Stress relief for aching joints

Using a swim spa is a temperature controlled solution for aquatic therapy and exercise, and it has an additional benefit – massage. Jet nozzles release a mixture of warm water and air, massaging your body and helping relax tight muscles.

<sup>1</sup> National Centers for Health Statistics, Chartbook on Trends in the Health of Americans 2006, Special Feature: Pain. <http://www.cdc.gov/nchs/data/hus/hus06.pdf>.

<sup>2</sup> Webmd.com/fibromyalgia/features/water-exercise-for-fibromyalgia-easing-deep-muscle-pain

<sup>3</sup> Health.howstuffworks.com/wellness/aging/retirement/10-health-benefits-of-swimming.htm

<sup>4</sup> Healthstatus.com/health\_blog/plan-for-weight-loss/health-benefits-swimming/

<sup>5</sup> Everydayhealth.com/pain-management/fascinating-pain-facts-you-didnt-know.aspx

<sup>6</sup> Arthritis Foundation, arthritis.org



# Pain Relieving Power of Aquatic Therapy

## Could Aquatic Exercise Be Your Pain Relief Solution?

Millions of people suffer from chronic pain or chronic fatigue. If you're one of them, then aquatic exercise may be the answer to help better manage your symptoms and improve your overall quality of life.

Having a chronic pain condition such as fibromyalgia, myofascial pain syndrome or chronic fatigue syndrome can be very frustrating. People often become very inactive because it hurts too much to move which leads to tightness and weakness of the muscles as well as increased

fatigue. People then develop poor postures from trying to avoid certain painful movements and this often leads to the development of what is termed a "Pain Cycle". If you suffer from chronic pain you are probably too familiar with this term.

The good news is that this pain cycle can be broken. The best way to do it is to begin a gradual aerobic exercise program in the water. Exercise has been proven to release endorphins to the brain and help heal the body. Even though it may seem that exercise will cause a flare up of pain and symptoms, exercising in the water is actually the easiest first step to reduce your pain and injury. You'll also increase your fitness level. It's a win-win.





## Why Water?

Water exercise is important to help chronic pain for numerous reasons. Let's look at a few of water's properties and why they are beneficial to help with chronic pain.

### Buoyancy

Buoyancy counteracts gravity, thereby decreasing the weight placed on painful joints and the spine. In fact, when immersed to neck level, buoyancy supports 90 percent of the body's weight, and in waist-depth water, buoyancy can support 50 percent of your body weight. One of the many advantages of exercising in water is that the diminished weight bearing stress helps aid in strengthening weak muscles and improving balance and confidence.

A recent study in 2013 published in *Clinical Rehabilitation* studied aquatic exercise performed in

chest deep water for breast cancer survivors who had cancer related pain. The results concluded that aquatic exercise reduced the subjects' pain levels.

A 2009 study published in *Spine Journal* studied the effectiveness of aquatic exercise to treat chronic low back pain. It concluded that water based exercises produced better improvement in disability and quality of life in chronic low back pain patients than land based exercises did.

### Resistance

Water can provide up to 15x more resistance than air. It provides a very safe accommodating resistance which means that the harder you push against the water the more resistance you will get. This drag resistance can help build muscle strength and endurance throughout your body.



According to the *National Library of Medicine*, research shows that strength training can significantly reduce the pain of fibromyalgia while improving overall well-being as long as the intensity is not too aggressive. This is why the water is such a great place to exercise. You are able to safely and quickly control your resistance.

A 2006 study published in *Physical Therapy Journal* studied the effectiveness of aquatic therapy on patients with hip and knee arthritis. The results showed a 6 week program resulted in significantly less pain, improved strength, function and quality of life.

## Hydrostatic pressure

Another characteristic of water that helps make aquatic therapy so effective is hydrostatic pressure. Pressure of the water increases every inch that you are submerged. If you stand in 4 feet of water you are subjected to a force that is significant enough to assist in the reduction of swelling. This pressure will also provide increased body awareness when exercising in the water. The surrounding pressure acts as a pair of supporting hands that will assist with proper posture, core muscle engagement and coordinated movements.

Heart rate and breathing are significantly changed in the water because of hydrostatic pressure. While exercising in the water, blood is pushed from your arms and legs and returns to your heart easier so your heart rate decreases up to 11-17 beats per minute. This means your heart functions more efficiently. The surrounding pressure of the water also pushes on your chest so that your lungs have to work harder during water exercise. This allows you to increase your cardiovascular fitness levels quickly.

“ I am 62 years old, and I suffer from arthritis in my right leg and hip. I experienced pain and cramps when walking, but it was worse when I'd try to climb stairs. It was like I needed to coach each leg up, then the other. Then one day I ran into a friend that I hadn't seen since high school. We found that we had similar struggles, and she told me about the Michael Phelps Swim Spa. I had heard about the spas before, but I thought they were only used for athletic training. I didn't realize that they were also used for someone like me - someone needing an exercise program for arthritis.

In the past, I tried going to the gym, using a treadmill, and doing my stretches, but I was discouraged with the results. I remember starting in the swim spa on a Tuesday. Within two days I could go up stairs!

And I mean straight up, only one foot per step! I said to my friend Paul, 'Look at this - its working!' After the third day, I felt incredible!

Exercising in the swim spa is now my normal. I love the propulsion of the swim spa. At the end of my workout, I turn the speed up to 40 and let it massage my legs, thighs and my IT bands. That has also played a big part in my therapy. Using the swim spa is fun and I not only have relief of my arthritis pain, but I feel stronger and healthier. My clothes are even fitting better! ”

“ In the past, I had tried going to the gym, using a treadmill, and doing my stretches but I was discouraged with the results. I remember starting in the swim spa on a Tuesday. Within two days I could go up stairs! ”

Patricia K., Saco, Maine





Using a swim spa adds an additional benefit – massage. Jet nozzles release a mixture of warm water and air, massaging your body and helping relax tight muscles.

## Temperature

Everybody knows how great it feels to soak in a warm, soothing bath. For someone who suffers with chronic pain, warm water is the best place to exercise. Colder water tends to cause muscles to tense up. Experts say if people with arthritis spent more time in warm water, they'd be able to move better with less pain.

A recent research study published in *Arthritis Research & Therapy* found that women who exercised in a heated pool for just an hour three times weekly noticed fewer fibromyalgia symptoms than those who skipped a warm water workout.

A study published in the *Arthritis Care Research Journal* compared the benefits of warm water

exercises compared to land based exercises and general relaxation techniques. After one month all groups showed improvements but the water group showed significantly greater improvement in joint tenderness.

## Relaxation

Stress reduction and relaxation are the most important aspects of controlling any type of chronic pain. The water's hydrostatic pressure helps to provide pain and stress relief by providing sensory stimulation throughout the entire body.

A study on patients with rheumatoid arthritis who received aquatic exercise compared to a group who received land based exercises found that the water group reported feeling much better more frequently than did the land exercise group.

## The Power of Water

In my own clinical practice I witness every day the power that water has in helping people who suffer with chronic pain.

I evaluated a woman in my clinic that had recently been diagnosed with fibromyalgia pain syndrome. She was a middle aged woman who had suffered with "total body pain" for a number of years. She had seen numerous physicians over the years and had a trial of injections for her pain. She said these seemed to help but only lasted temporarily. She told me she gained a fair amount of weight and was unable to exercise on land because of the significance of her pain. She obviously was very frustrated and depressed regarding her condition. During my evaluation I discovered

she had extreme muscle tightness, trigger points and weakness throughout her entire body. Her tolerance to most physical activities was very low. After some education regarding her condition we decided the water would be the most logical place for her.

Her first aquatic session was truly amazing. She entered the water and her first words were “I am never getting out of this pool.” We slowly worked through a comprehensive flexibility, strengthening and endurance program in the pool. Over the next few weeks she worked up to three, 45 minute aquatic sessions per week and was aqua jogging in chest deep water as well. She reported that her pain level in the water was much lower and she had a carryover of pain reduction in between sessions as well. We added a thorough flexibility program and gentle

cardiovascular program that she was performing on her own at home. She began to lose weight and was in much better spirits. She continues to perform an independent transitional aquatic exercise program four days per week and is living an improved quality of life.

In another case, a woman came into my clinic in significant pain. She was fairly overweight, significantly out of shape and had to have the assistance of a walker to walk short distances before needing to sit down. She had sustained a low back injury approximately 10 years before from falling on the ice. She had treatment off and on throughout the years but nothing really seemed to help with her pain and mobility. She also had high blood pressure and diabetes. She was unable to exercise on land because of her pain level. I knew the place for her was the water.

Her first aquatic session was truly amazing.  
She entered the water and her first words  
were “I am never getting out of this pool.”





Dr. Rick McAvoy, PT, DPT, CSCS has specialized in Aquatic Physical Therapy for over 25 years. He received his Physical Therapy degree from

the University of Connecticut and his clinical Doctorate in Physical Therapy from Franklin Pierce University in New Hampshire. Rick is certified as a Strength and Conditioning Specialist through the National Strength and Conditioning Association.

He has invented aquatic exercise equipment and has developed exercise software which sells both nationally and internationally. He is a published author and researcher in the field of Aquatic Therapy and Conditioning.

Rick is the owner of McAvoy Aquatic & Sports Therapy, an aquatic therapy and sports conditioning facility in New Hampshire. He teaches the benefits of aquatic physical therapy and conditioning at both The University of New Hampshire in the Department of Kinesiology and Franklin Pierce University in the Doctoral of Physical Therapy program where he serves as an adjunct faculty member. He is a Master Instructor in the Burdenko Method, a specialized form of dynamic aquatic and land-based techniques.

Rick lectures nationally throughout the year teaching the benefits of Aquatic Therapy and Conditioning to health care practices and athletic institutions.



#### A NEW WAY TO EXERCISE.

Rick McAvoy, PT, DPT, CSCS and Professor of Hydrotherapy has authored an exercise program written exclusively for Master Spas swim spas. This program is designed specifically to help you get the most out of your swim spa and is presented in an easy-to-follow format.



When she entered the water on her first session her demeanor immediately changed. She was able to walk and exercise in the water with much less pain because of the unloading of weight that water provides. Her freedom of movement greatly increased and she grew stronger and more balanced. Within 6 weeks, she was able to walk with a cane and no longer needed the walker.

## Getting it Done Together

People are turning to independent aquatic exercise and therapy, and they are looking for credible in-home exercise protocols. That's where Master Spas comes in.

The Michael Phelps Swim Spa by Master Spas is a great tool to help with managing your pain as well as improve your overall fitness. The ability to easily change the temperature of the water allows



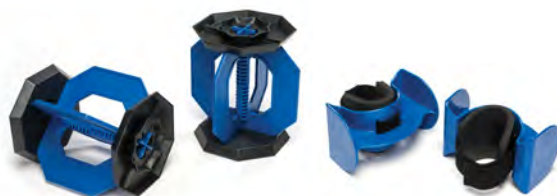


Dr. Rick McAvoy using the Michael Phelps Swim Spas by Master Spas at the Michael Phelps Skill Center in Saco, Maine, to treat this patient through aquatic therapy.

the user a wide variety of exercise temperatures for both pain relief and fitness exercises. The built in therapy seat is very comfortable and is equipped with jets for pain reducing massage to the upper body, lumbar area as well as the lower body. The Therapy Cove allows you to find the optimum position for massage or desensitization for most body parts. The large open area allows for walking and functional movement type exercises to be performed with ease. The increased depth of the spa allows for appropriate body weight unloading so that there is less compression on your joints. The built in railings are a great feature to perform stationary exercises or assist with balance and coordination exercises.

The patented Wave Propulsion System™ provides a smooth gradable current that can provide an increased challenge for weight loss, endurance and strengthening exercises.

Dr. McAvoy has developed exercise programs exclusively designed for Master Spas to help you get the most out of your swim spa and give you step-by-step activities with the H2Xercise book that will specifically help you reach your goals to a better quality of life. We include the H2Xercise book\* with each swim spa, along with the H2Xercise System\* which includes a rowing kit, resistance bands, dumbbells and ankle fins to maximize your exercise and fitness results.



H2Xercise Bells and Fins

\* FREE gift with the warranty registration of your swim spa.



A swimmer uses his customized workout with the SwimNumber iPad App.

## SwimNumber App (SNAPP)

Along with fitness equipment, Master Spas has also developed an innovative app for the Michael Phelps Swim Spa. Now it's even easier to achieve your personal goals in swimming, fitness, therapy and weight loss.

Designed to work with the Michael Phelps Signature Swim Spas by Master Spas, the new SwimNumber™ App (SNAPP) is easy to use, customize, and operate as it literally takes over the Wave Propulsion™ System of the swim spa. It intuitively changes the speed of the water current at timed increments while you are swimming or exercising, to range from high-impact training conditions to slow cool-down speeds. Water speeds range from 0-100, so you can choose your personal level of resistance depending on your workout.

Not only can you design your own custom workouts, the app also features preprogrammed workouts at

beginner, intermediate and advanced levels. Tracking fitness progress with metrics like distance, calories, time, etc. can be easily documented and stored. You can manage stored workouts for future reference, as well as share your results on social media or via email. This app can be custom tailored for up to 12 different users with numerous workouts for each one.

In addition to the control/workout technology, Master Spas has also brought expert aquatic professionals to you through SNAPP. When you connect SNAPP to your swim spa, you will receive access to videos that feature input from Bob Bowman, world-renowned swimming coach for 18-time gold medalist Michael Phelps. The videos also include instruction by aquatic fitness expert Dr. Rick McAvoy, as well as triathletes demonstrating toning and body building exercises.

SNAPP works only with 2014 or later Michael Phelps Signature Swim Spas by Master Spas and connects either point-to-point directly with the swim spa's sophisticated equipment, home WiFi network, or even the Cloud. The Cloud allows you to connect to the swim spa from anywhere in the world with Internet access.

With an optional waterproof case and a heavy-duty smart device mount, you can position your iPad conveniently in your swim spa for a workout. SNAPP is available to download through the Apple App Store.

## The Perfect Temperature Year-round

Developed by the world's leading swim spa manufacturer, with input from 18-time gold medalist Michael Phelps and his coach Bob Bowman, the Michael Phelps Swim Spas by Master Spas were designed to meet health and wellness needs. They were also designed to be the most energy efficient swim spas on the market. Michael Phelps Swim Spas are ready to be used at any time, year-round in every possible climate, and at your perfect temperature.

NOTE: If you have any medical conditions, consult your physician prior to starting a new exercise program.  
REMINDER: Never allow anyone to dive into a swim spa. Always enter feet first.





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or call 260-436-9100



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by  MASTER SPAS®

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OFFICIAL SUPPLIER



Master Spas is based in Fort Wayne, Indiana, 90 miles north of Indianapolis. Operating out of a state-of-the-art 27-acre manufacturing campus, we are the largest swim spa manufacturer in the world, and one of the largest portable spas and hot tubs manufacturers in the country. Our management team has over 100 years of spa manufacturing success, and one of the strongest track records in the industry.

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