Introduction to Aquatic Therapy: National Myositis Convention Orlando 09/12

WHY Exercise in WATER? SPECIFIC BENEFITS

This brief summary illustrates why water exercise is used for the specific benefit for individuals with Myositis, arthritis, chronic pain, chronic disease and inflammation disorders.

The combined influences of turbulence, resistance, hydrostatic pressure, buoyancy, thermal conductivity and exercise can restore flexibility and range of motion much faster, more safely and with less stress on the body than a typical land exercise program. Water creates opportunities for early rehab, cross training, and a precursor program that progresses to land exercise.

Resistance
Water provides modifiable resistance to movement in all directions. This effect encourages the balanced use and strengthening of all muscles, promotes trunk stability and postural alignment. The participant controls the intensity of the workout: the harder one pushes against the water the harder it pushes back. Water exercise provides excellent training opportunities for muscle balance and strengthening without putting undue stress on the joints. Water offers support or resistance, making it a flexible and progressive program

Buoyancy
The body is almost weightless in chest or shoulder depth water. The weakness in the legs from Myositis is not a problem in the water. Water will support you when your limbs can't, but when you are ready buoyancy will challenge you.
Exercise and movement forces have less impact in the absence of load-bearing compression on ankles, knees, hips, and spine. Without this compression, pressure, and impact to the joints, pain subsides. Buoyancy allows an improved blood supply into joint spaces and surrounding muscles which helps to support progress toward a fuller range of motion, increased strength, fitness, and function. Buoyancy assists any movement upward, it assists with upright posture, it assists flexion of the ankle hip and knee, conditions of Myositis are nicely supported in the aquatic environment.

Hydrostatic Pressure
The squeezing effect of water supports every movement and has a positive effect on the cardiovascular system. While standing upright in shoulder depth water, hydrostatic pressure causes a 60% increase in blood volume (700 ml) to the chest cavity. Prior to entering the pool this blood volume due to gravity is located in the hip area. Hydrostatic pressure causes the heart to take in a greater blood volume, and the heart stroke volume or output increases by 32% (Starling's Law). The greater blood volume at the heart causes an increased filling time of the right atrium and causes the heartbeat to slow down by 10 to 17 bpm. The resulting effect provides safety against high heart rates, a well-conditioned heart muscle from pumping larger volumes of blood, superior circulation deep into extremities and muscle tissues, and increased cleansing of toxins. Hydrostatic pressure also helps to reduce edema or swelling of the working joints and associated muscle groups especially the ankles and knees.

Turbulence
Movement through water creates turbulence. Turbulence has a massage like effect on the body and causes increased blood flow to the surface of the skin. Turbulence contributes to feeling invigorated and energized after a water exercise session. Working against turbulence demands increased muscle activity, and provides additional opportunities for stabilizing and strengthening against the turbulence. Turbulence increases sensory input and continues to slow down movement, allowing the mind the time to grasp and sense the activity in the body, hence contributing to greater body awareness.

Thermal Conductivity
Pool temperature has a significant effect on the results and outcome of Aquatic rehabilitation, and rheumatology programs. Therapeutic water temperature, usually 88°F - 92°F (29°C - 31°C) or more helps to warm the muscles so they stretch more easily. This effect is particularly good for people with myocitis, fibromyalgia, arthritis, scleroderma, and other flexibility deficits. Pools that are 84 to 88° F. are also helpful for clients of moderate fitness.

Safety, non-impact or modified impact
Water slows movement, allowing clients time to react. Falls happen slowly in the water allowing the client time to right themselves, or the myocitis patient can wear a safety floatation ring which can be worn to prevent falls. Multi-directional resistance prevents ballistic movement and promotes muscle balance. Buoyancy reduces the risk and fear of falling, making injuries in the water environment less likely to occur. Water exercise seldom contributes to muscle soreness or fatigue, and is safe enough to start 7-10 days after surgery (doctor's recommendation required). Water exercise can give a head start to recovery and reduce over-all therapy needs.

Pre- and Post-Surgery Applications
Therapeutic aquatic exercise helps to strengthen the muscles without impact on load-bearing joints. Pre-strengthening before surgery aids a speedy recovery. Once the incision has healed, and the physician has approved, the client may attend the pool for a safe, gentle, pain-free and expedient recovery from surgery.

Water Exercise is recommended when there is:

- Pain with land exercise
- Load-bearing injury
- Inadequate trunk stability
- Inefficient circulation
- Inadequate balance
- Obesity
- Back surgery
- Mastectomy - recovery
- Respiratory disorder
- Developmental delay
- Need for muscle conditioning
- Need for cardio-respiratory endurance training
- Fear of falling
- Poor postural alignment
- Muscle weakness and fragile bones
- Limited range of motion/inflexibility
- Chronic pain
- Hip or knee replacement
- Diabetes
- Arthritis, inflammatory and autoimmune disorders
- Sports and orthopedic injury
- Need for general fitness conditioning
- Requirement for flexibility training

Before your first pool visit:
If your doctor has not referred you, let him/her know what you are planning. If you are taking prescription drugs, ask your doctor what effect they may have on your exercise program, especially if you are taking muscle relaxants, pain medication or beta-blockers. Ask your doctor if the use of your pain medication should change to accommodate exercise, i.e. should the medication be taken before or after exercise. Have your physician fill out the consent form, if the therapy pool requires it.

What to Bring:
Yourself, arrive a little early on the first day.
Towel, swimsuit. a big t-shirt and leggings can be worn if you prefer more coverage or get cold easily. Long leggings can cover skin conditions like eczema, sparing other swimmers the worry

of it being contagious.
You may need toiletries to shower afterward. Bring deck shoes if you have them, some pools have a rough bottom that can wear skin off your feet.
Aqua shoes are highly recommended, for diabetes, for arthritic feet with bone remodelling close to the surface, thinning delicate senior skin and especially for feet not used to load being.

What to expect:
Swim skills are not required for aquatic therapy. For the most part your feet will be on the floor of the pool for upright exercise, strengthening, stretching, and relaxation exercises.
I will teach you the skills for deep-water exercise after a proper orientation. Do not worry if you are not comfortable in deep water; exercises can be performed in shallow water if you prefer.
If Possible choose a pool with warm water 86-90 degrees, with stairs entry or a ramp and/or a hydraulic lift for entering and exiting the pool.

Drink water:
Drink water before, during and after your class. Muscles work much better with proper hydration. Because water exercise increases the blood flow through the kidneys, you will likely feel an urgency to pee. Make sure you go before entering the pool

Ask questions of your practitioner.
Do not continue any movement that causes an increase in pain. Do let the practitioner know if you feel dizzy or unwell, or if a movement causes an increase in pain. Do come to class even if you feel fatigued. You will feel better for making the effort. Modifications can be made to the exercise to accommodate your energy and pain and ability levels.

How hard should you Work: Some people can work with a good amount of effort and feel good after, others experience pain. Know there is good pain and bad pain. If you have pain right after exercising and it goes away quickly or in a few hours your work out was challenging and ok, just be mindful of good breathing, posture and more consistent core strength next time. If you are sore after class and it lasts for more than two hours, if it poorly affects your sleep, then you have done too much, keep track of time and effort to know how to adjust for less time, effort or staining, to prevent flaring of symptoms and to obtain the desired training effect. If a day or so after exercise you get muscle soreness, this is called late onset muscle soreness. It happens less in water exercise, more for land exercises. It is caused from the waste products of muscle work, not clearing out of the body, as well as muscle micro tearing from over exertion and errors in technique. If you experience strong discomfort you have done too much, mild pain is okay and means you did some more work that you are used to. Debilitating pain means you need to look at the program and choose a more appropriate amount of exercise and be more mindful about proper stabilization and muscle recruitment.

Sample Exercises for a Low level to Moderate Arthritis Class

Warm Up: 5 to 8
Healthier populations can warm up in 5 minutes or 8-10 for more complex health conditions i.e. hypertension, asthma, obesity, arthritis**,** neurological conditions etc.
Many degenerative diseases respond better to dynamic stretching over static stretching. The reason is the joint is not forced into compression with the dynamic stretches. Use the static and dynamic stretches adapted as needed for individual client/pathology needs. Overly dynamic stretching can cause micro tearing.
If you have arthritis with chronic pain and generalized tenderness may need to stretch in a

variety to positions to integrate stretching of deeper muscle fibers and fascia, to incorporate different lines of pull.
Many stretches can be integrated into warm up walking patterns
If you are being seen one on one by a therapist, if possible, do your own warm-up before being treated. It will save time and you will get more out of your session.
Warm up exercise can vary greatly but should address the whole body generally, and focus on the hips shoulders and spine, then moving outward to all the joints of the extremities. For some a long warm-up will be the program until there is progress.

Walking exercises

Gentle forward walk, you may need floatation support for safety or may need to use the wall to hold on to, or hold the therapists/helpers hands. When walking in water progress to swinging the arms through the water as if walking on land. If this is the only move you do, it's a good move. Focus on body awareness, feeling your position, posture, the muscles working, the temperature and resistance of the water, be deliberate and conscious of each step and your breath. Breath in for one or two steps and breath out for one or two steps.. Match your pace with your breath. Being able to take 3 or 4 walking steps for an IN breath and 3-4 steps for an Out breath demonstrates a progress of the depth and volume of your breath, which is a demonstrator of improved physical health. Deeper longer breaths cultivate calmness, muscle relaxation (so they work better), inhibits hypoxia (poor oxygen level in the blood and muscles), activates the parasympathetic nervous system, which better activates the restorative functions of the body, such as the immune system.

Backwards walks with arm variations: allows the muscles that usually support movement, instead, lead the movement, Very Important for reversing muscle imbalance and postural irregularities.

Corkscrew walk: A walk with a wide outward leg swing then a controlled step in-front of the other foot, focus on solid posture, do not let the body twist around. Benefit strength, Hip stabilization balance and co-ordination.

Grape vine walk: step side walking placing the step alternately in front of or behind the other foot. Purpose: hip rotation, add and abduction of the hip, coordination, fun, can be done slow and big or faster with small twisting type steps

Tin soldier walk: a straight leg march, purpose: active hamstring stretches, soft heel placement (timing), and balance

Knee Dip walk: large step forward, then bend forward knee to dip, Purpose: Knee strength, balance, control

Power walk, Tall posture, strong stride with resistive arm action Purpose: Is difficult, trains whole body for strength, Trunk stabilization, the can be a good cardio & strength combined work out move

Diagonal walk: step forward at an angle away from the body, Purpose: body awareness, stabilization, mixing of side and front muscle activation which is more complex for the body's muscle groups

Exaggerated push off walk: exaggerate the toe push off when walking Purpose: works on

calf strength and plantar flexion of the foot, and trains strong core muscles

Walk the lines or narrow base of support walk: Purpose: Trains a narrower base of support, and challenges/improves balance

Walk stop stabilize…walk…stop...pause..walk...etc: Purpose: It is harder to walk and stop then it is to keep walking. Used to train, strength and co-ordination, Also improves body awareness, control and balance. Do quickly if possible.

Walk pivot turn Walk: Upper and lower body integrated movement, complex co-ordination

Walk and elevate up onto toes: Calf strength Balance

Walk with tightened abdominal muscles try 20-40-60-% effort: helps with gentle abdominal strengthening to train better posture and support when walking on land.

Walk stop… rock from heal to toes…. walk: Weight Shift and balance, foot flexibility

Walk on heels, walk on toes, walk on outside edges of the feet, and walk on inside edges of the feet
Walking with Big wide closing and opening arms: adds resistance if closing the arms in front and walking forward, if walking backwards the arms assist.

Hip hike walk: Hike upward one hip and step forward, repeat on the other side continue to walk this hiking hips Purpose: for hip control, improved ROM, stabilization and balance

High knee march with toe up hold and balance: Balance in single leg stance, calf strength,

Jogging or rebound moves: Traveling jogs, forward and backward, hamstring curl jogging, jumping moves: hop from side to side, forward and back, diagonals, jumping jacks,

Anchored Marches: As if feet were glued and difficult to remove from the floor, do slow strong narrow marches and wide march, large to small and quicken the pace

Shoulder Exercises:
Shoulder protraction, retraction, elevation, depression,
move the water with the arms in every way, use long arms, swing arms front to back with paddle shaped hands, flap arms as if flying, open and close arms in front of chest or in front of hips, clap arms in front of body and behind, arm/hand circle big and small, moving circles around
Use buoyant barbells or noodle to sink and move through the water in every direction

Seated Exercises Options:
Bum Walk or Hip hike: walk to edge of seat by lifting a hip and rotating if forward then do the other side and to the back of the seat,
Cross elbow or hand toward lifting opposite knee: hip and knee flexion elbow adducts toward midline and the opposite knee, provides a nice strong abdominal contraction
Sitting knee flexion and extension and leg raises
Foot exercises, plantar flexion and dorsal flexion, ankle circles, figure 8's
Seated trunk rotations, forward fold, side bends, reaches up,
Seated shoulder rolls, scapula retraction, protraction, elevation depression

Standing Exercises:
slide heel up to knee and down do other side
Squat Variations: forward lung squat, one leg squat, narrow and wide squats, shallow and deep squats,
One-leg swing exercises: swing one leg with strength while the body holds strong and stable, swing one leg forward and back, side to side, leg circles, diagonal leg swing, figure 8's in every directions and reverse directions
Weight shift exercises: Step side recover, step forward recover, back and diagonals
Heel pumps to move edema, and stimulate vascular flow, standing with feet almost together, alternate lifting one heel then the other, try to do quickly
Squat and squeeze

Pelvic Clocks: with back against the wall, imagine a clock on your hips, press hip to wall to tell a time, rock hips around the clock.
Truck Rotation (slow and controlled), Trunk side bends, truck rotations, press the hip out
Hip circles with soft knees, circle left right and up and down too

Hand and Wrist Exercises:
Pray to Fan hands, Finger push-ups, Thumb circles, Fist and fan, Play piano, Touch each finger to the thumb, Princess Di wave, wringing out the noodle,

Foot Exercises
Ankle circles, toe raises, heels raise, double calf stretch, and ankle 8s, pick up a ring or toy from the bottom of the pool

Deep Water: jogging, cycle, skiing, hamstring curls, backwards sideways and forward, wide and narrow
Stabilized heel slides
Side lying bicycle
Seated packman, vertical pogo or frog legs, narrow and wide tucks, tall swivel, kneeling swivel, Jumping Jacks, inward and outward jacks, seated knee extension alternate or together, leg raises singles and doubles, seated double leg circles and 8's,
Full body swings front to back and side to side with noodle under arms

Cool Down
Glut stretch, hamstring stretch, double calf stretch, shin stretch, lunge inner thigh stretch, side stretch, deltoid stretch, triceps stretch, upper back stretch, lower back stretch, chest stretch,
If you are in warmer water, just float and relax and breath.

Thank You for coming to this Workshop, do contact me if you have any questions, I am happy to help..

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