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### TESTING THE WATERS

#### *The Ultimate Soft Workout*

Despite the fact that land is where we spend the majority of our lives, our existence began in an aquatic environment and the physical and mental benefits of that environment remain very real. We northern knee surgeons are jealous of our brethren in the south where pools and aquatic classes for rehab are more widely available. Water exercise is not an imperative, but it certainly feels good.

When a person attempts most weight room exercises, the muscle is not actually working through a full range of motion. I call water exercises "*isophysiological*" since they present your muscles with uniform resistance through the entire arc of motion. In water you can strengthen muscles with minimal risk of tearing or injury. Strengthening through the full range of motion also ensures that flexibility is not sacrificed for strength improvement. The relaxation effect of water, combined with the decrease in gravity, allows opposing muscle groups to relax and thereby gain flexibility.

To enhance your water training program, get some type of flotation device such as a vest, foam noodle, belt, or barbells, as they will allow you to perform certain exercises more efficiently. This equipment, available at many sporting goods stores, will be a worthwhile investment since after rehabilitating your knee, you (or the kids) can continue to use it for years to come. Soft workouts such as water sessions are a terrific way to burn calories and keep fit without constantly beating up your joints.

The following are five basic water exercises followed by workout charts according to your recovery level. Try doing the exercises for a set number of minutes rather than number of repetitions. This is a good way to avoid rushing any motion. Concentrate on practicing each motion deliberately and let yourself be a kid!

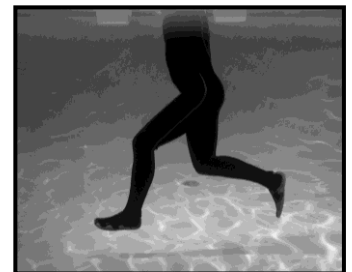
### Water Exercise 1: Deep-Water Walking & Jogging Forward/Backward

**Purpose:** Ideally, doctors would have everyone walking and jogging in the water before attempting these activities on land. This way you practice these basic movement patterns in a safe, forgiving environment. Not always practical, but certainly ideal.

**Starting Position:** Standing vertical in deep water with a flotation device.

**Action:** Start with some easy "walking" both forward *and backward*. The deep water eliminates gravity, and your knee loves it. Once you feel you are water-walking smoothly in the deep end, shift into an area with neck-deep water. Proceed to the shallower areas as you get stronger. Pretend you are in finishing school, with a tall, upright position. Glide! In addition to countering the effects of gravity, water provides resistance for muscle strengthening. Once you're walking well in the pool, head back to the deep end and start jogging. Before you know it, you'll be running up a mountain!

**Note:** Do not forget to do everything forward and backwards, starting with slow, deliberate motions. The variations of the walking/running theme are endless, so feel free to make up games for yourself, such as interval "sprints" (speed changes).



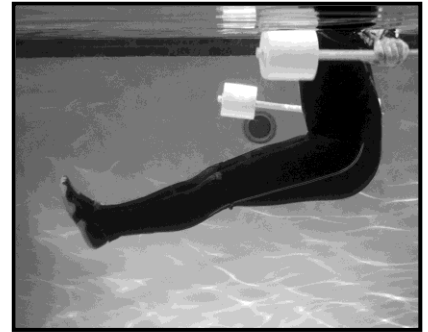
## Water Exercise 2: Leg lifts

**Purpose:** This is a great core-strengthening exercise and again, there are endless variations.

**Starting position:** Using your flotation device, stand upright in deep water.

**Action:** Maintaining an upright posture, raise your legs as high as possible to the "L" position. Feel the strength in your back and abdomen.

**Note:** The water is a great place to work on core exercises since the buoyancy is constantly pushing you to the surface and challenging your position.



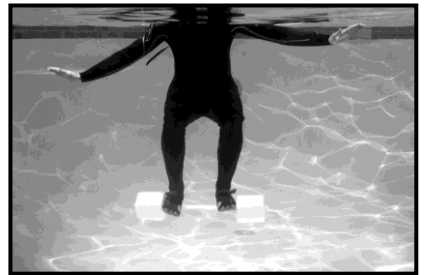
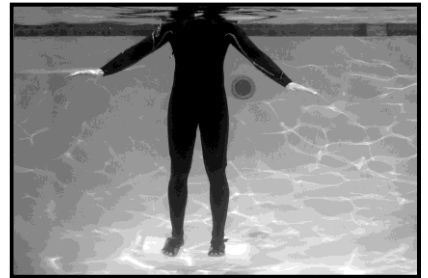
## Water Exercise 3: Flutter Board or Barbell Squats

**Purpose:** Balance and motion

**Starting position:** Stand with two feet on a heavy flutter board or barbell in deep water.

**Action:** Allow the board to rise while flexing your knees slowly. Then, press the board toward the pool bottom.

**Note:** Change speeds to increase the challenge.



## Water Exercise 4: Skiing

**Purpose:** A fun, dynamic exercise to work on lateral motion, speed and quickness.

**Starting Position:** Using your flotation device, stand upright in deep water.

**Action:** Bring both knees up toward the chest and push them down at a 45-degree angle to the right; then bring the knees back to the chest and push them down 45 degrees to the left. Think moguls!

**Note:** Arthroscopy patients can move to chest-deep water, pushing off the pool floor, as soon as they feel good. ACL and TKR patients should probably wait until 6 weeks post-op.



## Water Exercise 5: Ladder Squats

**Purpose:** To improve knee range of motion

**Starting position:** Stand on the bottom rung of the pool ladder or stairs and hold the hand bar without using a flotation device.

**Action:** Squat down into the water to stretch and work on ROM at the knee.

**Note:** The water takes the weight off so you can safely and comfortably squat lower than on land.



### SAMPLE WATER WORKOUT

#### LEVEL A:

<b>PURPOSE</b>	Flexibility, balance, and feeling better in general	
<b>AQUATIC</b>	<b>Activity</b> Deep-Water Walk Leg lifts Barbell squats Deep-Water Walk Ladder Squats	<b>Time</b> 5-10 min 1 min 2 min 5 min 2 min <b>Total = 15-20 minutes</b>
<b>COMMENTS</b>	<ul style="list-style-type: none"><li>• Used to promote greater range of motion after the wounds are closed and dry.</li><li>• These could be done 2 times a day if you have easy access to a pool.</li><li>• Go slow and steady – <i>deliberate practice!</i></li><li>• Excellent session for working out stiffness in the morning or at the end of the day.</li></ul>	

**LEVEL B:**

<b>PURPOSE</b>	Light strength, endurance, and speed	
<b>AQUATIC</b>	<b>Activity</b> Forward Jogging Leg lifts Backward Jogging Skiing Barbell squats Forward Jogging Ladder Squats	<b>Time</b> 5 min 1 min 5 min 2 min 1 min 5 min 1 min <b>Total = 20 minutes</b>
<b>COMMENTS</b>	<ul style="list-style-type: none"> <li>• Begin changing the speed of your movements in the water (e.g. 1 min. slow, 1 min. fast, 1 min. slow, etc.).</li> <li>• You can move from one exercise to the next without rest to get a bigger aerobic workout.</li> <li>• Always finish with a stretching session.</li> </ul>	

**LEVEL C:**

<b>PURPOSE</b>	Strength, endurance, and fun training	
<b>AQUATIC</b>	<b>Activity</b> Forward Jogging Forward Running Backward Jogging Backward Running Swim 2-4 pool lengths Forward Jogging Forward Running Forward Jogging	<b>Time</b> 5 min 5 min 5 min 2 min  3 min 5 min 5 min <b>Total = 30 minutes upright plus swim</b>
<b>COMMENTS</b>	<ul style="list-style-type: none"> <li>• Backward running is really tough. Do it for 2 minutes at a slightly higher speed than a jog.</li> <li>• Use a crawl, side, or backstroke on your swim. Feel the leg motion at your <u>hips</u>, not your knees!</li> <li>• Running is not sprinting. You cannot “sprint” for 5 minute intervals, but you could throw in some 15 second sprints along the way.</li> </ul>	