

Web site information on Exercise

Please note: I am not endorsing any of the website below. This was a result of a basic Google search to be used as a starting source.

1. Range of Motion: with Google type in Range of motion and exercise

<http://www.drugs.com/cg/passive-range-of-motion-exercises.html>

http://www.orthop.washington.edu/uw/livingwith/tabID_3376/ItemID_83/PageID_87/Articles/Default.aspx

http://www.ehow.com/how_2070391_do-range-motion-exercises.html

2. Exercise Videos/books:

Go to Amazon.com and type in “exercise and wheelchairs” or “exercise and disabilities”

There are several books and videos listed that can be done sitting down. Also, a resource for finding videos on Tai Chi.

3. Ball exercises:

http://exercise.about.com/cs/abs/1/bl_core.htm?p=1

4. Theraband exercises:

http://www.thera-bandacademy.com/exercises/exercise_programs.asp

<http://www.ultimatewatermassage.com/rehab/rehab-thera-band-exercise.htm>



exercises programs

Consult your healthcare provider before beginning this exercise program. If you experience any pain or difficulty with any exercises, stop and consult your healthcare provider. The Hygenic Corporation is not liable for any injuries incurred while using exercises or programs accessed via this website. User must wear suitable eye protection such as safety goggles to protect against possibility of eye injury as a result of the band or tube snapping towards the face if grip is lost or if the band or tube breaks.

 [Print Exercise Program](#)

[Close Window](#)

Functional Band: Lower Body Function: This exercise routine helps improve strength and function associated with gait, mobility and balance.

Use a resistance level that allows you to complete 2 sets of between 10 and 15 repetitions to a point of moderate fatigue in the last repetition.



Thera-Band Hip Abduction (Kick Outs) in Standing

Begin by looping the middle of the band around the ankle of the exercising leg. Place the ends of the band under the opposite foot to stabilize the band and grasp the ends in your opposite hand. Keeping your knees straight, kick your leg outward against the band. Hold and slowly return.

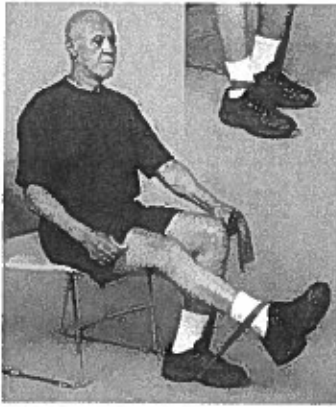
TIP: Keep your back straight; don't lean over.



Thera-Band Hip Extension (Kick Backs) in Standing

Begin by looping the middle of the band around the ankle of the exercising leg. Place the ends of the band under the opposite foot to stabilize the band and grasp the ends in your opposite hand. Keeping your knee straight, extend your leg backwards against the band. Hold and slowly return.

TIP: Keep your back straight; don't lean over.



Thera-Band Knee Extension in Sitting

Sit on the edge of a sturdy chair with feet together. Begin by looping the center of the band around the ankle of your exercising leg. Bring the ends of the band underneath the foot of the opposite leg to stabilize and grasp the ends by your knee. Slowly extend your knee against the band. Hold and slowly return.



Thera-Band Knee Chair Squat

Begin with center of band under feet. Grasp ends of bands with hands by sides. Keep tension in the band with elbows straight. Keeping your elbows straight, slowly bend your knees while leaning forward slightly at the hips. Slowly return to starting position.

TIP: Keep your back straight.



Thera-Band Hip Flexion in Sitting

Sit in a sturdy chair. Begin by looping the center of the band around the top of the knee of your exercising leg. Bring the ends of the band underneath the foot of the opposite leg to stabilize and grasp the ends by your knee. Slowly flex your hip against the band, pulling upward. Hold and slowly return.

TIP: Keep your back straight; don't lean forward.



Thera-Band Ankle Dorsiflexion (Foot Raises) in Sitting

Begin by wrapping the middle of the band around the foot of the ankle you are exercising. Place the ends of the band under the opposite foot to stabilize the band. Grasp the ends of the band at your opposite knee. Lift your foot upward against the band. Hold and slowly return.



Thera-Band Leg Press in Standing

Begin by wrapping the middle of the band around your foot. Grasp the ends of the band at your chest, taking up the slack while you lift your knee upward. Press your foot downward into the band, extending your hip and knee. Hold and slowly return.

TIP: Keep your back straight. Don't lean over.



Thera-Band Knee Curl in Standing

Begin by looping the center of the band around the ankle of your exercising leg. Bring the ends of the band underneath the foot of the opposite leg to stabilize and grasp the ends by your knee. Slowly bend your knee against the band, pulling upward. Hold and slowly return.

4

Indications, Contraindications, and Considerations for Aquatic Therapy

Indications

Aquatic therapy is a useful treatment modality for a variety of patient problems, including:

- Pain
- Pain with movement
- Limitations of motion
- Decreased strength
- Edema

Contraindications

When choosing aquatic therapy, it is important to consider the safety of both the patient and others using the swimming pool. Some contraindications for aquatic therapy may include:

- Skin infection, including ringworm, *tinea pedis* (athlete's foot), and open wounds or ulcers
- All infections, including ear boils, sore throats, influenza, and gastrointestinal infections
- Water-borne infections such as typhoid, cholera, and dysentery
- Current or recent radiation
- Kidney diseases where the participant cannot adjust to fluid loss
- Diseases affecting the body's ability to regulate its temperature

- Perforated eardrums
- Incontinence of feces or urine
- History of cardiac disease with high or low blood pressure

Note: Participants with these conditions can be treated for short periods with frequent rests between activities.

Common Problems Appropriate for Therapeutic Aquatic Activities

Aquatic therapists may treat participants with varied diagnoses including back injuries, arthritis, fibromyalgia, multiple sclerosis, postpolio syndrome, amyolateral sclerosis, and more. Common problems appropriate for therapeutic aquatics activities include but are not limited to:

- Weak abdominal muscles
- Weak postural muscles
- Poor body mechanics often secondary to general weakness
- General weakness and lack of endurance
- Inappropriate compensatory use of muscles secondary to pain and weakness. This is present in most participants and usually is ingrained in those who have chronic pain.
- Proprioceptive deficits

- Spasticity
- Decreased joint range of motion secondary to systemic diseases
- Decreased joint range of motion secondary to surgical procedures

Movement Considerations

Buoyancy will alter a participant's ability to stabilize the trunk. It is important to observe each participant on land before entering the water. When working with participants in the aquatic environment, the therapist must structure the program of movements to the following:

1. Avoid positions that cause pain.
2. If a participant demonstrates inappropriate compensatory use of muscles secondary to pain and weakness, focus the therapeutic aquatics program on teaching that person to isolate and control movements of the arms and shoulders, pelvis and legs, neck, and trunk without using the developed protective guarding patterns. When the participant has achieved reliable control of isolated movements, introduce strengthening and endurance activities at levels that the participant can perform without lapsing back into guarding patterns. *Initiating strengthening and endurance activities with a client who demonstrates compensatory protective guarding patterns of movement will only reinforce those patterns.*
3. Emphasize abdominal strengthening and postural stability with emphasis on the participant learning how to maintain spinal and pelvic stabilization within pain-free or least painful range of trunk movement.
4. Before entering the water, have the participant do land activities (including walking, jogging, and bicycling) to tolerance and working up to 15 to 20 minutes. When this is not possible, have the participant do similar activities in the water. These activities warm the participant's core temperature and increase circulation throughout the body.
5. Stretching activities follow, both in and out of the water.

Entering and Exiting the Pool

For hygienic purposes, participants and staff must shower before entering the water.

Entry options include:

Steps. The width between the rails should allow participants to grasp railings on both sides when ascending and descending the steps. Safety color strips or other demarcation should mark the front edge of each step.

Wet ramp. Inclination of the wet ramp should be shallow, with each foot of ramp height spread over a linear distance of 12 feet. This allows participants in wheelchairs to be wheeled easily and safely in and out of the water. Use wheelchairs specifically designed for water use.

Dry ramp. Dry-ramp entry and exit from the pool is used for patients who are able to do pivot or sliding transfers independently. The ramp inclination runs parallel to and is outside of and next to the pool. The low point of the dry ramp allows positioning of a wheelchair's seat at the same level as the pool deck. This enables pivot or sliding transfers from the wheelchair into the pool without the need for special equipment.

Hoists and lifts. One-person operator hoists are preferable because they require minimal space.

The Noland lift is hydraulic and uses water power to operate. It is appropriate for participants with good trunk control but who cannot walk up and down stairs. It can lift as much as 250 pounds.

The Arjo lift is hydraulic and uses water pressure to operate. Participants who have trunk control and are able to sit in a chair unsupported are appropriate for the Arjo lift.

The Hoyer lift is hydraulic. It is used for patients who have no trunk control and are unable to walk. It can lift up to 400 pounds.

Acclimating the Participant to the Water

Therapists often work with participants who are nonswimmers. Some fear the water. For these participants, provide an adjustment period before the session. Allow some time for the participant to

become accustomed to the water temperature and the sensation of being weightless. Buoyancy decreases weight bearing, and buoyancy combined with hydrostatic pressure alters proprioceptive and kinesthetic awareness. Provide some adjustment activities after entering the water, such as jumping, walking, sitting on the pool steps or underwater bench and doing flutter or whip kicks, and moving the arms in all directions under the water. These also serve as warm-up activities.

Remember that:

1. Once in the water, participants may feel stronger and be able to do more activities.
2. Most movements take place below the surface of the water.
3. To make movements more difficult, increase the speed or change the position of the participant.
4. Paralyzed arms and legs are less dense than normal arms and legs, and they tend to float.
5. Men's lower extremities have a greater tendency to sink than women's (relative density/specific gravity).
6. Participants with back pain tend to have increased pain when prone until they've mastered stabilizing the spine in the pain-free or least painful range of motion.

When performing activities, a participant's pain level on a perceived pain index of 1 to 10 should never exceed 5. If the participant's average perceived pain index is greater than 5, the activities should not increase the pain.

When the participant is acclimated to the water, progress to gentle underwater stretching of the entire body.

Begin stretching activity at the head and progress to the toes. This is easy for the participants to remember when working independently, and it ensures better follow-through.

The following is an example of a stretching program.

1. Neck. Forward bending, side bending, and bending with rotation. Avoid backward bending.
2. Shoulder. Horizontal adduction and abduction, extension, flexion, and rotation.
3. Trunk. Rotation as tolerated, forward bending, side bending, and knee to chest, as tolerated.
4. Hip. Abduction, flexion, extension, and rotation.
5. Knee. Flexion and extension.
6. Ankle, foot. Circles, dorsi and plantar flexion.

After stretching, start cardiovascular activities such as underwater jogging in chest-deep water for 5 to 10 or more minutes. Establish the target heart rate during this time. (See page 5.) Begin strengthening activities. This is the fun part because you can do almost anything within the pain guidelines. Remember, do not exceed 5 on the participant's perceived pain scale or cause the pain level to increase. Incorporate flotation equipment, including hand paddles, water wings, kickboards, trays, and empty plastic gallon water jugs. (Do not use empty plastic milk jugs because they may contaminate the water.) For participants with fully intact mature central nervous systems, biomechanical techniques can be incorporated in the strengthening activities. Biomechanical techniques involve maximal resistance for increasing strength, endurance, and range of motion.

For participants who have dysfunctional central nervous systems, use a neurodevelopmental approach. These techniques may include proprioceptive neuromuscular facilitation (PNF) as described by Voss, Ionta, and Myers (1985). Techniques also may include Bad Ragaz, which is a resistive handling technique developed in the hot spring of Ragaz, Switzerland. The original technique was titled the Bad Ragaz Ring Method. It was so named because of the use of buoyant rings placed over the head and neck, hips, arms, and legs to provide support. Bad Ragaz has evolved through the centuries and is now based on PNF theory. Many of the techniques demonstrated in this text were acquired from the original Bad Ragaz Ring Method.



Stretching Activities

The stretching activities are performed in chest-deep water.

Although 15 seconds is suggested for holding the following stretches, stretching a particularly tight area of the body for one to two minutes also is recommended. When stretching, avoid causing sharp or intense pain. Where pain is already present, avoid increasing the level of that pain. Creating pain or increasing pain already present can cause even more tightness to develop in the affected area.

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Warm-Up Activities to Achieve Target Heart Rate

Perform the activities for 5 to 20 minutes. Begin by jogging underwater, and continue to jog while performing the warm-up movements.

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Upper-Extremity Movements

Upper-extremity movements are performed while standing in chest- or shoulder-deep water, or prone and using a mask and snorkel.

When doing bilateral arm movements in a prone position, you will need the therapist's assistance for stabilization.

Movements with one arm can be performed by grasping an underwater pool bar with one hand and assuming a stride stance with one foot two or more feet ahead of the other, and bending at the hips and knees to position the trunk parallel to the water's surface.

Follow these rules when performing upper-extremity movements:

1. Wear pool shoes or aqua socks.
2. Each movement is done with the lumbar spine held in position within the safe range of motion. The safe range of motion is the amount of spinal motion that can be performed without causing or increasing pain.
3. Performing to tolerance means you cease doing a PNF pattern or movement when onset of fatigue or pain affects the quality of performance.
4. Midline refers to an imaginary line running lengthwise down the middle of the body.
5. The movement should be constant. Each PNF pattern or movement should be continued to tolerance without pausing.
6. The faster you move your arms, the greater the resistance and the harder you work. The more turbulent the water, the greater the resistance to movement. Changing direction also increases turbulence as well as resistance. Producing a streamline flow can assist the movement.
7. Keep the hands and forearms under the water unless the directions state otherwise.
8. If possible, move the arms through a full range of motion without causing pain (or, where chronic pain is present, while keeping within your pain tolerance).
9. Stretch and move both arms.
10. At first you may have to use buoyant devices, hold onto the side of the pool or underwater pool rail, or have the therapist assist you with balance as you perform some movements. The goal is to increase your strength, endurance, and control to the point where you can perform the movements without assistance.
11. *Do not cause pain! Where there is chronic pain, keep the performance of each movement within your limit of pain. If your pain increases, stop performing the PNF pattern or movement.*

Upper-Extremity Movements

1. Stand in chest- to shoulder-deep water, with one foot slightly ahead and to the side. Maintain position within your lumbar spine's safe range of motion.
Begin with your arms and hands down in front of you, palms facing the upper thighs.

2. Push your hands and arms up and forward, palms facing down, wrists and elbows straight. Swing your arms out to the sides, and pull your hands and arms down sideways, palms facing down, and keeping your wrists and elbows straight.

3. Push your arms forward and up to just under the water's surface, palms facing down and keeping your wrists and elbows straight.

4. Reverse the movement, beginning with your arms and hands in front of you and just under the water's surface.

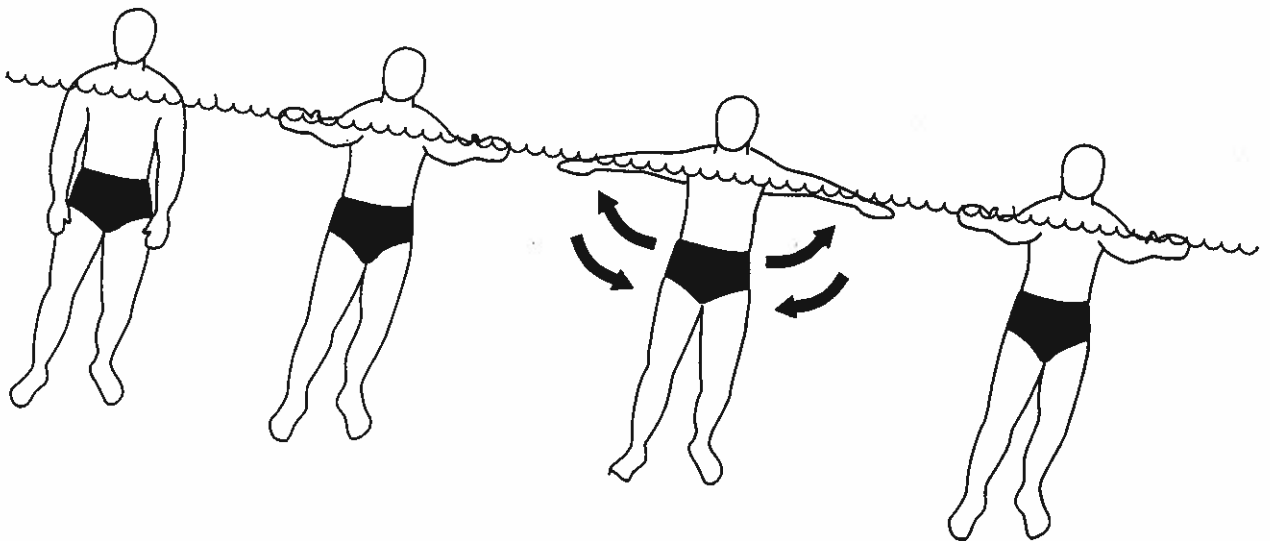
5. Pull your arms down to your thighs, palms facing down and keeping your wrists and elbows straight.

6. Push your hands and arms up sideways to just under the water's surface, palms facing down and keeping your wrists and elbows straight.

7. Swing your arms forward, palms down.

8. Continue to tolerance.

Note: Aquatic hand-held devices may be used underwater to assist or increase resistance to movement.



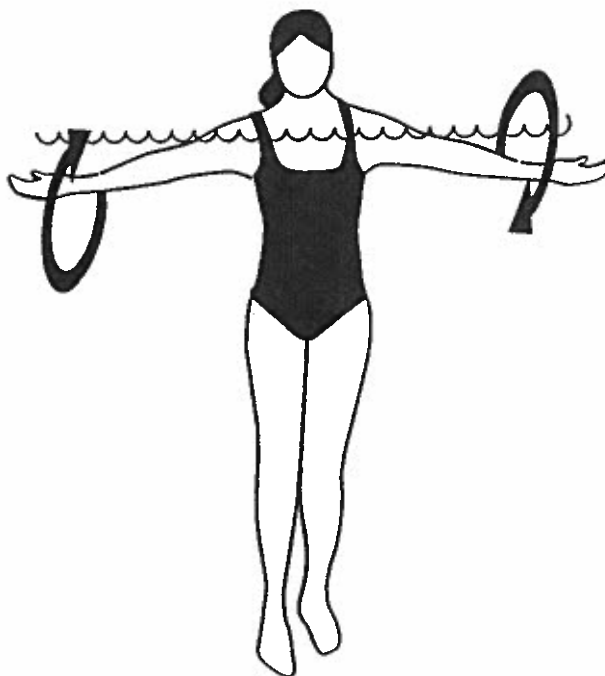
Upper-Extremity Movements

1. Stand in chest- to shoulder-deep water, with one foot slightly ahead and to the side. Maintain position within your lumbar spine's safe range of motion.

Begin with your palms facing up, arms out to the sides, and hands just under the water's surface.

2. Keeping your palms up, do small backward arm circles.
3. Keeping your palms up, do small forward arm circles.
4. Turn your palms down and do large forward arm circles.
5. Keeping your palms down, do large backward arm circles.
6. Continue to tolerance.

Note: Aquatic hand-held devices may be used underwater to assist or increase resistance to movement.



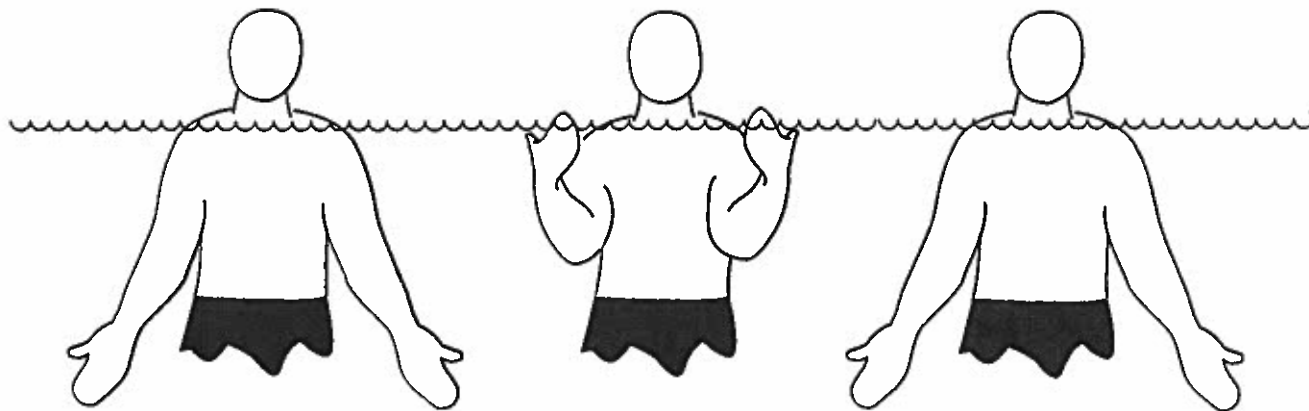
Upper-Extremity Movements

1. Stand in chest- to shoulder-deep water, with one foot slightly ahead and to the side. Maintain position within your lumbar spine's safe range of motion.

Begin with your arms down by your sides, palms facing forward.

2. Bend your elbows, pulling your hands to your shoulders.
3. Keeping your palms facing up, straighten your elbows and push your hands down to the starting position.
4. Continue to tolerance.
5. Perform the movement by alternately bending and straightening the elbows.
6. Continue to tolerance.

Note: Aquatic hand-held devices may be used underwater to assist or increase resistance to movement.



10

Lower-Extremity Movements

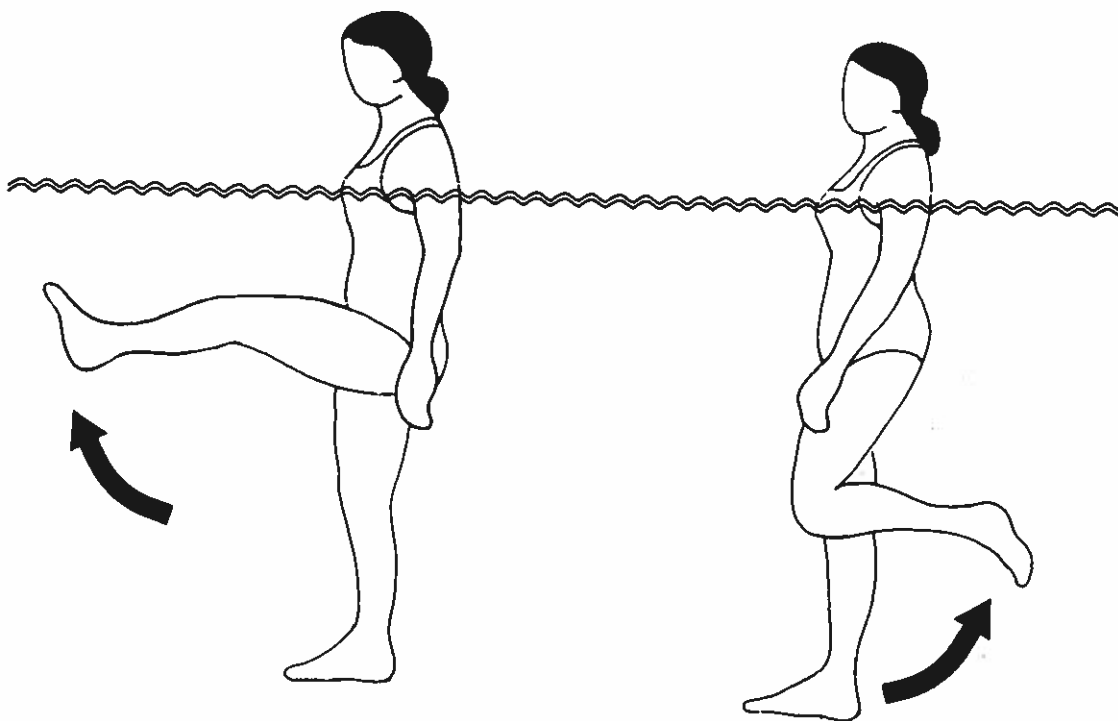
Lower-extremity movements are performed while standing and initially in chest-deep water. The deeper the water, the less you “weigh” and the easier it is to exercise. In chest-deep water you experience approximately 25% of your body weight; in waist-deep water you experience approximately 50% of your weight. As your strength increases, you can progress to shallower water.

Follow these rules when performing lower-extremity movements:

1. Wear pool shoes or aqua socks.
2. Each movement is done with the lumbar spine held in position within the safe range of motion. The safe range of motion is the amount of spinal motion that can be performed without causing or increasing pain.
3. Performing to tolerance means you cease doing a PNF pattern or movement when onset of fatigue or pain affects the quality of performance.
4. Midline refers to an imaginary line running lengthwise down the middle of the body.
5. The movement should be constant. Each movement should be continued to tolerance without pausing.
6. The faster you move your legs, the greater the resistance and the harder you work. The more turbulent the water, the greater the resistance to movement. Changing direction increases turbulence as well as resistance. Producing a streamline flow can assist the movement.
7. Unless directed otherwise, move the legs through a full range of motion without causing pain (or, where chronic pain is present, while keeping within your pain tolerance).
8. When you complete a movement with one leg, repeat the movement with the opposite leg. Stretch and move both legs.
9. At first you may have to use buoyant devices, hold onto the side of the pool or underwater pool rail, or have the therapist assist you with balance as you perform some movements. The goal is to increase your strength, endurance, and control to the point where you can perform the movements without assistance.
10. *Do not cause pain! Where there is chronic pain, keep the performance of each movement within your limit of pain. If your pain increases, stop performing the PNF pattern or movement.*

Lower-Extremity Movements

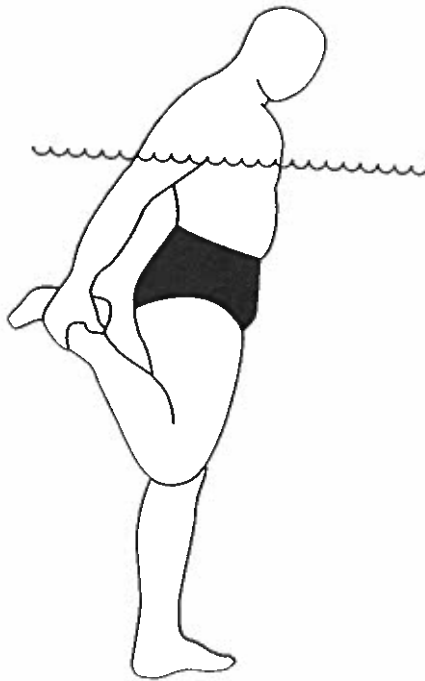
1. Stand in chest-deep water. Maintain your lumbar spine in position within its safe range of movement.
2. Keeping your right knee straight, kick your left leg straight forward and up.
3. Push your left leg down and back, stopping next to your right leg.
4. Bend the left knee and bring the left foot up behind you and toward your left buttock.
5. Straighten your left knee, and kick your left leg forward and up.
6. Continue to tolerance.
7. Repeat the movement, using your right leg.
8. Continue to tolerance.



Movements for Trunk Stabilization

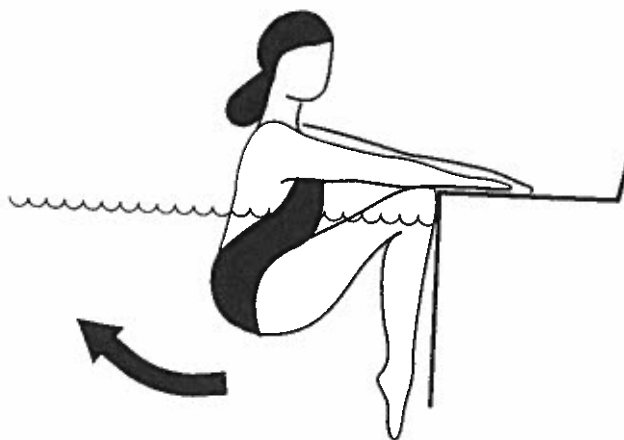
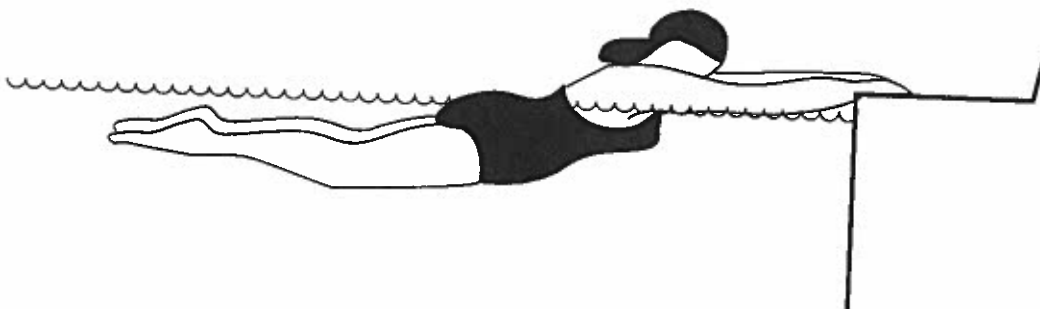
Do not perform this movement if you have had a total knee or total hip replacement.

1. Stand in waist- to shoulder-deep water. Maintain position within your lumbar spine's safe range of motion.
2. Balance on your left leg, and bend your right knee. Reach back with your right hand and grasp the instep of your right foot.
3. Pull the right foot up and back, at the same time pulling back the right thigh. Hold the stretch for 5 seconds.
4. Release the right foot, and return the right leg to the standing position.
5. Repeat several times.
6. Repeat the stretch with the left leg, using the left hand to grasp the instep of your left foot.
7. Repeat several times.



Trunk Movements Performed with Pool Steps or Underwater Bench

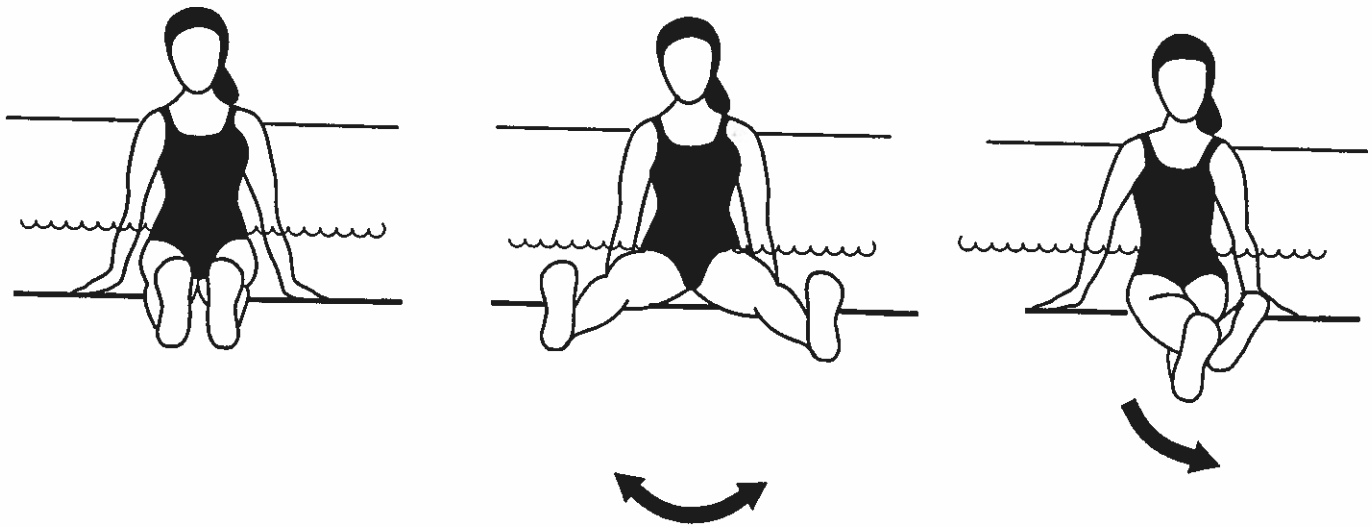
1. Float on your stomach, with your arms straight out. Reach down and place your hands on a pool step or bench. Maintain position within your lumbar spine's safe range of motion. Keep your head above the surface of the water. (A mask and snorkel can be used as an alternative.)
2. Slowly bend your legs, and pull your knees to your chest.
3. Straighten your legs.
4. Continue to tolerance.



Trunk Movements Performed with Pool Steps or Underwater Bench

If you have had a total hip replacement, do not cross your legs one over the other when performing this movement.

1. Sit on a pool step or bench in waist- to chest-deep water. Maintain position within your lumbar spine's safe range of motion.
2. Position your legs out in front of you with your toes just beneath the surface of the water.
3. Spread your legs apart. Then pull them toward each other and cross one over the other.
4. Continue this movement, alternating first one leg and then the other as they cross over each other.
5. Continue to tolerance.



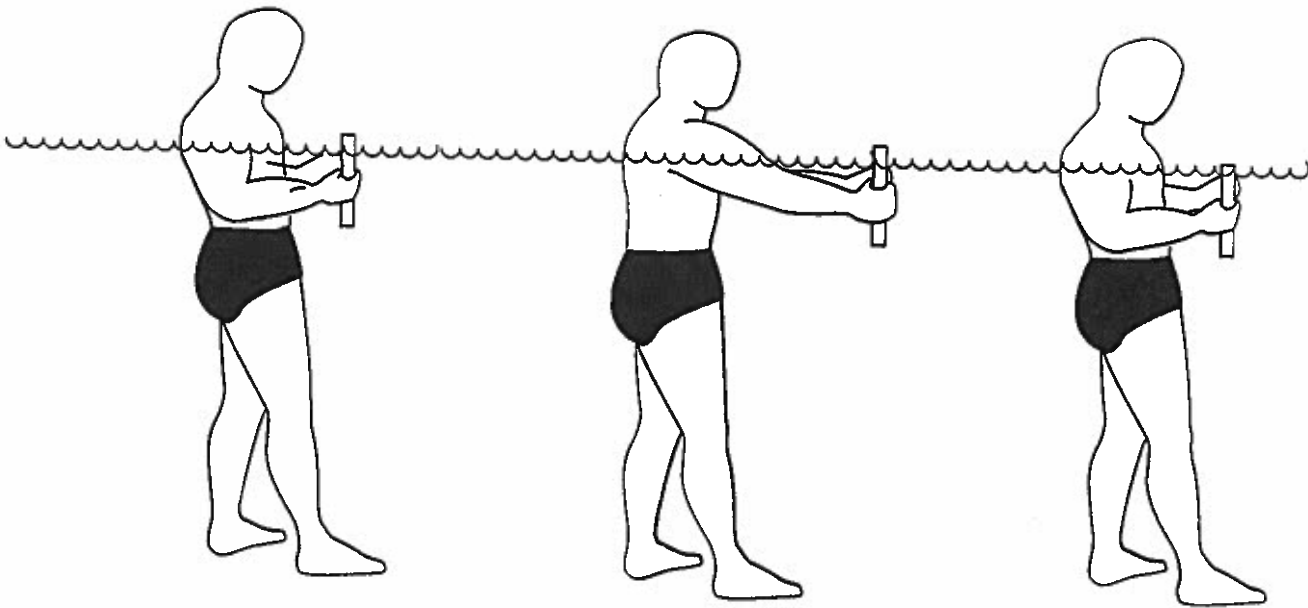
Trunk and Upper-Extremity Movements with Flotation Devices

1. Stand in chest-deep water, with one leg slightly forward and out to the side. Maintain position within your lumbar spine's safe range of motion.

Hold a kickboard perpendicularly between your palms at arm's length and halfway under water.

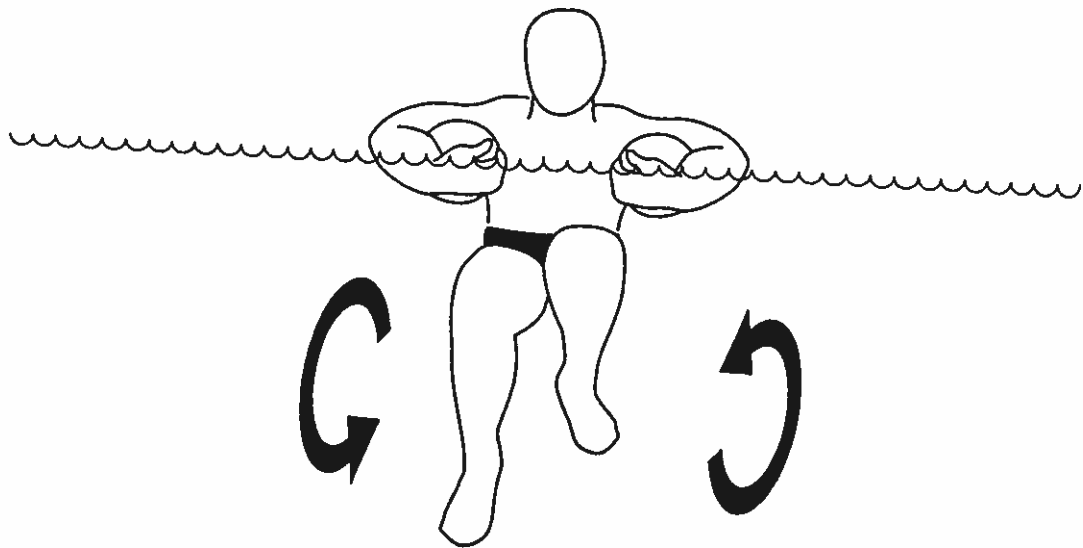
2. Pull the kickboard toward you, and then push it away.
3. Alternate the forward leg.
4. Continue to tolerance.

Note: To increase the resistance, hold more of the kickboard underwater.



Trunk and Upper-Extremity Movements with Flotation Devices

1. Stand in shoulder-deep water. Position flotation devices under your arms, and hold them in place with your hands. Maintain position within your lumbar spine's safe range of motion.
2. Pretend you are pedaling forward on a bicycle. This emphasizes the upper abdominal muscles and hamstrings.
3. Pretend you are pedaling backward. This emphasizes the lower abdominal and quadriceps muscles.
4. Continue to tolerance in both directions.



Trunk and Upper-Extremity Movements with Flotation Devices

1. Stand in shoulder-deep water. Position flotation devices under your arms, and hold them in place with your hands. Maintain position within your lumbar spine's safe range of motion.
2. Allow the back of your body to rise toward the surface of the water until you are floating on your stomach.
3. Pull your knees to your chest, at the same time turning yourself so you end up floating on your back.
4. Straighten your legs, and roll over to a floating position on your stomach.
5. Continue to tolerance.



HUEY'S ATHLETIC NETWORK
THE WATERPOWER WORKOUT®



CLIENT NAME: _____

DATE: _____

INSTRUCTOR: _____

<p>LUNGES</p>	<p>CROSS-OVERS</p>	<p>SIDE STRADDLE JUMPS</p>	<p>FRONT STRADDLE JUMPS</p>
<p>V-KICKS</p>	<p>ROCKING HORSE</p>	<p>LEG SWINGS</p>	<p>FRONT KICKS</p>
<p>BACK KICKS</p>	<p>FROG JUMPS</p>	<p>INTERVALS</p>	<p>POOL-SIDE BICYCLING</p>
<p>POOL-SIDE SCISSORS</p>	<p>DIG DEEP PULLS</p>	<p>UP-DOWN PULL</p>	<p>ARM CURLS</p>
<p>LATERAL LEG RAISES</p>	<p>LEG CIRCLES</p>	<p>QUADRICEP STRETCH</p>	<p>HAMSTRING STRETCH</p>

NOTES: