

## **INDICATIONS FOR WARM WATER THERAPY**

### **A. Impaired circulation improved by:**

1. Hydrostatic pressure
2. Vascular resistance reduced by 30%
3. Venous return increased by 32% cardiac output
4. Heart rate slows down approximately ten to seventeen beats per minute, due to longer filling time.
5. Blood absorbs oxygen more readily under partial pressure conditions, reduces the effects of Hypoxia.
6. Warm water and turbulence increase peripheral blood flow.
7. Considerable improvements in high blood pressure after just a few weeks of water therapy.
8. Increased blood flow provides more efficient cleansing of waste products from muscles and tissues.

### **B. Weakened respiratory system improved by:**

1. Water pressure on chest encourages stronger contraction of diaphragm and intercostal muscles.
2. Pressure reduces residual lung capacity, encouraging all lung surfaces to be used.
3. Encourages complete turn over of lung gases, stagnant residuals are exhaled.
4. Increase in oxygen blood gases due to the effects of partial pressure.

**C. Abnormal Muscle Tone/Tension improved by:**

1. Warmth decreases gamma fibre activity, which inhibits muscle spindle activity allowing for a decrease in muscle tone and spastically.
2. Warm Water facilitates relaxation.
3. Slow active exercise promotes muscular relaxation.

**D. Pain improved by:**

1. Relaxation of muscle tone/spasm.
2. Buoyancy reduces weight bearing through joints, trunk and extremities, without compression pressure from gravity and weight bearing, increased circulation is able to penetrate the interior of reach joint.
3. Constant low-grade sensory input can over ride pain stimulus.
4. Water therapy is indicated when land therapy is too painful.
5. Deconditioned clients often experience painful muscles from initial activity or therapy. These effects are minimized or non-existent in the water.

**E. Limited range of motion (ROM) improved by:**

1. Improved circulation, muscle relaxation, decreased pain and weight relief improves ability of soft tissues to stretch.
2. Buoyancy can be used to assist a motion into greater range.

**F. Limited weight bearing ability improved by:**

1. Buoyancy of water decreases weight throughout body. Muscles strengthen more easily without joint compression from load bearing stress.
2. Many buoyancy options are available 90%, 75%, 50% weight bearing.

**G. Weakness improved by:**

1. Water can be used to assist, support or resist a movement so a wide variety of muscle strength grades can be treated.
2. Increase ROM, circulation, decreased pain and muscle tone allows for more effective range of strengthening.
3. Constant resistance of water helps to equally strengthen the working and opposing muscle groups.

**H. Decreased trunk stability, chronic lower back pain, weakness and imbalance improved by:**

1. Deep-water exercise removes weight bearing and the effects of gravity and familiarity to land based muscle patterns. Muscle re-education occurs more readily in this new water environment. Gluts, quads, abdominals, and lower back must work in balance to maintain vertically. Verticality is progressively challenged with each appropriate deep-water or shallow water exercise.

**I. Muscle imbalance, such as, strong hip flexor, weak abs and gluts are improved by:**

1. The constant and equal resistance, provided by the water facilitates an improvement in muscle balance. Flexion and extension require equal muscle effort in water. Weak muscle will strengthen more readily in this environment.

2. The Aquatic specialist can further isolate and focus on strengthening weak muscle groups.

**J. Limited functional mobility improved by:**

1. Decreased weight from buoyancy, increased ROM, decreased muscle tone and pain makes movements easier.
2. Support of the water increases confidence, ROM, and decreases abnormal muscle tone, pain/guarding and fear of falling.

**K. Impaired sensation improved by:**

1. Hydrostatic pressure and turbulence increase sensory input, while producing all body message effect.
2. Swimming and water exercise facilitates bilateral movements, righting reaction, crossing midline and other sensory integrative activities.

**L. Perceptual/spatial problems improved by:**

1. Water medium allows orientation to self.
2. Swimming strokes and water exercise allows bilateral activities, crossing midline, etc.
3. Creating turbulence around an extremity can increase awareness. Turbulence can be used to challenge balance.

**M. Decreased ability to relax improved by:**

1. Warmth of water

2. Improved ability to move muscles.
3. Recreational setting, can be done with peers, goals can be achieved while incorporating enjoyable or play activities.

**N. Moral improved by:**

1. It is easier and more comfortable to perform exercise in the water, which is encouraging to the client.
2. A higher level of physical mobility can be achieved in the water.
3. It is easy to provide the client an opportunity to succeed in the therapeutic activities.
4. Provides clients an opportunity to socialize, and be encouraged by others.
5. People are participating in a "normal" recreational activity.
6. Water therapy is available in the medical setting and the community setting. A continuation of service is available, adherence to health maintenance more likely.

**O. Decreased aerobic fitness improved by:**

1. Water exercise/swimming can be performed by very low level participants, progressions over a period of time can facilitate cardiorespiratory endurance training at varying intensities.
2. There is less joint stress in the water and clients can perform exercises that would not otherwise be possible.

**P. To provide recreational opportunities via:**

1. Allow adults and children with disabilities to participate a leisure activity/sport, whereas on land may not be able to.

2. Exercise and play in the water can be fun (activities can be done in the form of play).

**Q. Improved safety:**

1. Learning at least the basic water skills (floating, righting one self and breath holding) will help prevent panic and water accidents. Falling in the water is not injuries to bones or soft tissue.
2. Fully qualified instructors & lifeguards trained in water safety, lifesaving skills, CPR, and water exercise therapy techniques minimizes risk to clients.
3. Water slows down movement, allowing participants time to. Thus preventing jerky or ballistic movements.
4. Injuries or re-injuries are rare in water.
5. Falling in water is less dangerous.
6. Passive rehabilitation contributes to muscle atrophy and loss of ROM. Water exercise is safe enough to start right after injuries and 7 to 10 days after surgery. A head start with water therapy can reduce recovery time and recovery needs.

**S. Decreased post menopausal bone loss:**

1. Recent studies indicate bone density improvements with feet on pool floor water walk or jog classes. Results are similar to weight training.
2. Muscle contractions pull on the bone attachment and stimulate bone production in those locations.