

## Aquatic Goal Oriented Documentation Jessica Huss

- Hydrostatic pressure to decrease edema
- Buoyancy to assist range of motion
- Buoyancy to progress gait skills in a reduced weight bearing environment
- Buoyancy, warm water, and turbulence to decrease pain and muscle spasm for progression of weight bearing activities and functional skills
- Hydrostatic pressure to improve lung capacity
- Buoyancy for support, turbulence for resistance to trunk stabilization, balance, gait and transfer activities
- Warm water and aquatic techniques to decrease rigidity (or hypertonicity) and therefore increase ROM
- Buoyancy for increased response time for equilibrium reactions which will enable patient to learn higher level gait and balance activities in a safe environment
- Buoyancy to increase reaction time and decrease fear of falling
- Improve balance control through use of buoyancy and metacentric forces
- Viscosity to improve proprioceptive feedback and body awareness
- 60% increase in central blood volume for increased cardiovascular fitness and increased metabolic burn
- Decreased blood pressure as result of changes in cardiovascular fitness and increased metabolic burn
- Improved muscle balance as result of uniform resistance provided by viscosity of water
- Drag force for increased resistance and improved strength
- Buoyancy provides decreased joint stress while performing sport specific activity for earlier and safer retraining
- Movements are slowed allowing for skills analysis and correction
- Increased sensory input from internal friction of the water increases proprioception
- Increased body awareness (spatial awareness) through increased tactile input (water molecules moving around the touch receptors) for improved balance
- Decreased muscle soreness due to increased removal of toxic waste as result of improved circulation and effects of hydrostatic pressure
- Improved healing as a result of increased circulation and decreased edema
- Hydrostatic pressure to decrease inflammation improving function and decreasing pain
- Decreased tone and muscle spasm from increase in PNS and decrease in SNS activity
- Increased pain tolerance as result of change in catecholamines and sensory overload from receptors
- Buoyancy for distraction to create negative pressure in inter-vertebral discs for facilitation of healing and improved tolerance to exercise

Rationale for Aquatic Therapy: Andrea Saltzman [aquaticnet.com](http://aquaticnet.com)

- **Access:** Immersion in water facilitates treatment of multiple sites simultaneously/in rapid succession; allows ease of positioning and access to patient's body; and/or facilitates ease of handling of patient by therapist.
- **Aerobic effect:** Aerobic exercise in water promotes physical conditioning. This conditioning creates positive health benefits.
- **Balance and safety:** Patients may be challenged beyond limits of stability in the water without the fear of consequences of falling often present with land-based balance training. The environment leads to improvement in balance reactions.
- **Cardiovascular stress:** Exercise in water produces training effects with less cardiovascular stress than the identical exercise (or exercise) performed on land. This reduction in stress creates a training environment without compromising safety.
- **Edema:** Immersion in water reduces edema and effusion in lower extremities via the effects of hydrostatic pressure.
- **Graded resistance:** Exercise in water is velocity-specific, 3-dimensional, graded and safer to perform
- **Graded weight-bearing:** Exercise in water produces less spinal and lower extremity loading than the identical exercise performed on land
- **Movement freedom:** Exercise in water promotes more movement freedom and thus promotes improved ROM, reduced stiffness and increased functional strength and mobility while diminishing the negative consequences of lack of movement
- **Muscular effort:** Standing in water results in less spinal and lower extremity weight-bearing than standing muscles. It takes more muscular effort to elevate a limb against gravity on land than while immersed
- **Pain Immersion:** in water produces a pain palliation effect due in part to the effects of buoyancy (off-loading of spine and LE joints), thermal shifts, and desensitization.
- **Proprioception:** Movement of a body part through water results in greater somatosensory input to receptors than movement of that body part through air
- **Thermal effect:** Exercise and relaxation in water provides a thermal effect which can alter tone, arousal, muscle spasm, pain
- **Well-being:** Exercise in a therapeutic pool promotes socialization and promotes psychological well-being.

**Aquatic Goals/Justifications** developed for North Shore Physical Therapy Associates by Susan Finigan BS, AS, certified Personal Trainer, ATRIC

Goal: Patient will tolerate functional dynamic lumbar stabilization and abdominal strengthening program including lumbar stabilization exercises

Justification: Water assists w/balance and core stability w/reduced load on spine and extremities

Goal: Patient will demonstrate improved performance with gait and dynamic balance activities

Justification: Water supports postural muscles, reduces effort moving extremities, and assists w/balance

Justifications: Aquatic exercise reduces load, decreases effort, increases resistance, and assists balance

Goal: Patient will perform progressive LE resistance activities with core stability without symptoms

Justification: Water provides increased sensory input and improved kinesthetic awareness

Goal: Patient will perform UE or LE resistance activities with core stability w/reduced load on spine and extremities

Justification: Water provides increased sensory input and improved kinesthetic awareness, Aquatic exercise reduces load, decreases effort, increases resistance and assists balance

Goal: Patient will demonstrate proper scapular stabilization exercises during all UE movements

Justifications: Water provides increased sensory input and improved kinesthetic awareness,

Goal: Patient will perform progressive LE resistance activities with core stability without symptoms

Justification: Aquatic exercise reduces load, decreases effort, increases resistance and assists with balance

We establish both water and land based goals. Aquatic goals help to evaluate progress toward strength, endurance and help to reassess progress toward land goals. Patient's return every 6 visits to land for re-eval toward land goals and to assess transition to a land based program.