

The Benefits of Aquatic Physical Therapy for Patients with Pain

Intro: The aquatic environment is well-known for its positive effects on pain reduction. Evidence demonstrates improvement in pain for persons with musculoskeletal as well as neurologic conditions following aquatic therapy^{1-7,9,11,13,15}.

Why it Works: Aquatic physical therapy incorporates individual assessment, evidence-based practice and clinical reasoning skills by physical therapists in order to create treatment plans based on the principles of hydrostatics, hydrodynamics and the physiologic effects of immersion⁶. Neural tissue has three critical requirements from an anatomical and physiological perspective: space, movement and blood flow⁸. The properties of water including buoyancy, temperature, and hydrostatic pressure provide unique advantages in relation to the musculoskeletal and nervous systems for people in pain.



Buoyancy acts to reduce load or weight bearing on sensitive joints (space) and can result in greater tolerance to functional activities that are painful or difficult to perform on land⁵. Greater ease, adaptability and comfort of movement can reduce the

“threat” of performing physical activity. Warm water (88-94°F; 31-34°C) promotes muscle relaxation and reduces stiffness, resulting in greater freedom of mobility (movement)⁵. Both warm and cold (50°F; 10°C/cryotherapy) water temperatures increase blood flow to aid in tissue healing (blood flow)⁵. Hydrostatic pressure reduces edema and blood pooling and improves circulation (blood flow, movement)⁵.

The hydrodynamic properties of flow, inertia, drag and viscosity can also enhance movement.

Benefits: Aquatic PT can improve...

- Pain
- Sleep patterns and mood
- Functional mobility
- Cardiovascular endurance

- Muscular strength and endurance
- Balance
- Quality of life and well-being
- Range of motion and flexibility
- Consistency and compliance with physical activity^{3-6,9,11,13,15}

PNE and Aquatic Physical Therapy: Pain Neuroscience Education (PNE) is an effective treatment for patients with chronic pain. PNE uses cognitive restructuring to change cognitions, beliefs and fear before re-engaging a movement-based approach of therapeutic exercise, manual therapy, pacing and graded exposure¹⁰. PNE facilitates a strong therapeutic alliance and is based upon four key pillars: education, sleep hygiene,



exercise and appropriate goal setting⁸. The aquatic environment readily lends itself to incorporating PNE – pain reduction and greater ease of mobility facilitate an active approach. The combination of PNE and aquatic exercise has been shown to be clinically effective in improving pain and functional disability when compared to aquatic exercise alone¹⁴.

Summary: Aquatic therapy is an effective intervention for treating pain. The combination of aquatic therapy and PNE is an evidence-based approach for improving treatment outcomes.

For More information: For additional information on aquatic physical therapy, please contact the APTA Academy of Aquatic Physical Therapy.

Our Mission is to Champion the Aquatic Physical Therapy practice to optimize lifelong movement, function, and wellness.

References:

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2. Al-Qubaeissy K, Fatoye F, Goodwin P, Yohannes A. The effectiveness of hydrotherapy in the management of rheumatoid arthritis: a systematic review. *Musculoskeletal Care* [serial online]. March 2013;11(1):3-18.
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6. Hinman RS, Heywood SE, & Day AR. Aquatic Physical Therapy for Hip and Knee Osteoarthritis: Results of a Single-Blind Randomized Controlled Trial. *Physical Therapy*. 2007; 87(1), 32-43. therapists can manipulate these properties to vary resistance, facilitate stabilization and provide increased reaction time during gait and balance activities. Aquatic immersion results in an increase in proprioceptive and somatosensory input, as well as stimulation of the parasympathetic nervous system 5, which can lead to reduction in muscle tone/spasm, stress and pain.
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