ACADEMY OF
AQUATIC PHYSICAL THERAPY
American Physical Therapy Association

Academy of Aquatic Physical Therapy Fact Sheet
The Benefits of Aquatic Physical Therapy for Osteoarthritis of the Knee and Recovery after a Total Hip or Knee Arthroplasty

Aquatic physical therapy utilizes the principles of water, known as hydrodynamics, to cause physiologic change. These principles: buoyancy, density, viscosity, thermodynamics, and hydrostatic pressure act collectively to provide the patient with a unique sensory experience by which to facilitate range of motion, functional strength and balance.[2,6,9]

Why it Works

The principle of buoyancy allows a therapist to approximate the percentage of weight bearing the patient receives by altering the level of immersion. For example, at the level of the xyphoid process, about 75% of the patient's weight is supported by the water allowing the patient to perform exercise at 25% of their body weight. Buoyancy allows the patient to exert less effort to move, a crucial factor when intensity of pain limits movement.

Uniform pressure results from the density of water. In the portion of the body immersed, density adds stability and increases the amount of time the patient needs to make corrections in balance, technique, or posture.[2,6,9]

Viscosity of water provides the patient with uniform resistance throughout the ranges of motion. The intensity of exercise is increased as the depth of immersion decreases or the speed of the movement increases.

Thermodynamics refers to the effect the temperature of water has on the body. Warm water environments of 90-92 degrees promote relaxation, whereas cooler water temperatures enable facilitation of muscle activity.

For patients experiencing edema, hydrostatic pressure acts to promote uptake of fluid and redirect blood flow to improve efficiency in the cardiorespiratory system.

Benefits for patients with OA of the knee.

The benefits of aquatic physical therapy extend beyond those of reduced pain and improved joint movement. Research indicates patient have improvement in Activities of Daily Living (ADL) function, report higher Quality of Life (QOL) scores, and have made gains in walking speed.3,4

The American Academy of Orthopaedic Surgeons recommendations for non-surgical management of osteoarthritis of the knee include "self-management programs, strengthening, low-impact aerobic exercises, and neuromuscular education; and engage in physical activity consistent with national guidelines" and "weight loss for patients with BMI greater than or equal to 25".[1] Patients who participated in an aquatic exercise physical therapy program demonstrated higher levels of compliance and greater satisfaction with the program.[5]

Post-surgical Care

Although there is a lack of consensus on the timing, frequency, duration, and intensity of aquatic physical therapy after surgical intervention for a total hip or knee arthroplasty, research indicates to support early

participation does not increase the risk of wound-related infection.[5] In addition, patients who participated in aquatic PT after TKA experienced earlier return to function, whereas patients who participated after a THA, experienced greater gains during later stages of healing.[3,4,7]

The conclusion from the 2014 study on the effects of aquatic exercise on symptoms and function in patients with osteoarthritis of the lower extremity states "In conclusion, this meta-analysis confirmed that TAE (therapeutic aquatic exercise) is an effective treatment option for people with lower limb OA and should be considered a frontline management option.[8]

For additional info on aquatic physical therapy, contact the Academy of Aquatic Physical Therapy at www.aquaticpt.org.

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

[1]American Academy of Orthopaedic Surgeons: treatment of osteoarthritis of the knee: evidence-based guideline, 2nd ed. http://www.aaos.org/research/guidelines/Treatment of Osteoarthritis of the Knee Guideline.pdf. Accessed 4/28/17.

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