

Guidelines and Indications for the Use of Aquatic Therapy

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Water is an excellent medium for achieving maximal exercise levels in those with or without disabilities. As previously mentioned, water has several unique qualities, such as buoyancy, hydrostatic pressure, thermodynamics, and specific gravity, that make aquatic therapy an ideal choice for individuals with musculoskeletal, cardiopulmonary, or neurological impairments as well as individuals with general deconditioning and debility. Aquatic therapy can be used for both acute and chronic conditions.¹ Aquatic therapy provides a useful and safe environment for initiating an exercise therapy program and can complement all phases of the rehabilitation process while providing a margin of therapeutic safety that is wider than almost any other type of treatment environment.¹ The physical properties of water provide certain benefits to patients that land-based programs do not offer, making aquatic therapy the ideal rehabilitation environment for many individuals and conditions.

Aquatic therapy uses the physical properties of water to provide assistive, supportive, or resistive exercises.^{2,3} Assistive exercises occur when movements are toward the surface of the water and can be used when wanting to increase range of motion (ROM) and flexibility of joints.³ Supportive exercises involve those that occur in a direction perpendicular to the upward thrust of buoyancy or parallel to the bottom of the pool.³ Examples of this type of exercise include glenohumeral horizontal abduction/adduction while standing or hip abduction/adduction in supine. Resistive exercises occur by opposing the force of buoyancy by moving a body part away from the surface of the water.³ Hip extension in standing beginning at 90 degrees of

flexion and extending to neutral is an example of a resistive strengthening exercise (Figure 2-1).

The properties of viscosity and fluid resistance allow the resistance of exercises to easily be altered by merely changing the position of a limb, speed of movement, or direction of movement.³ Any change in limb speed or direction therefore changes the resistance felt, and because human motion is highly variable in its direction and velocity, greater functional gains can be made from resistance exercises via aquatic therapy.⁴ Aquatic strengthening exercises can be designed in a way that closely mimics everyday movements to allow for neuromuscular adaptations that can help decrease levels of difficulty with completing activities of daily living (ADL).⁴ Water also has accommodating resistance, meaning that the resistance of the water is matched to the individual's applied force or effort.⁴ Therefore, the likelihood of exacerbation of symptoms or reinjury is significantly decreased, as most individuals will not exert enough force to reach those levels.

The property of specific gravity aids in the flotation of individuals once in the water, with individuals with lower specific gravity (those with a greater percentage of adipose tissue) floating more easily and those with higher specific gravity (those with a high percentage of lean body tissue) floating less easily and possibly requiring flotation devices for assistance.^{1,3} The thermal conductive properties of water increase the versatility of aquatic therapy because different goals can be achieved using colder or warmer water temperatures. Water retains heat or cold while delivering it easily to the immersed body part; therefore, therapy in colder water temperatures can be used to decrease muscle pain and speed recovery from overuse injuries,¹ whereas