

Aquatic Physiotherapy: A Much Used and Little Studied Treatment Modality

Cuesta-Vargas AI**Faculty of Medicine, Psychiatry and Physiotherapy Department, University of Malaga, Spain*

Editorial

Aquatic Physiotherapy (APt) refers to the special practice of physiotherapy, with therapeutic intent toward the rehabilitation or attainment of specific physical and functional goals of individual using the medium of water [1]. Aquatic therapy similarly refers to water based activity of therapeutic intent, is common among American literature. In other hand, aquatic exercise has the intention of fitness training in both healthy and symptomatic individuals, and water exercise is its synonym [2]. The Aquatic Physiotherapy Association of Chartered Physiotherapists defines aquatic physiotherapy as: "A therapy programme utilising the properties of water, designed by a suitably qualified physiotherapist specifically for an individual to improve function, carried out by appropriately trained personnel, ideally in a purpose built, and suitably heated hydrotherapy pool" [3]. APt programs for achieving fitness and restoring function may be designed for a broad range of individuals through an understanding of the fundamental principles of aquatic physics and the application of those principles to human physiology [4]. It differs from the more generic term "hydrotherapy" which connotes any water-based therapy conducted by an array of professional specialties, drinking and immersing in mineralized water, the application of water of various temperatures and pressures via showers and towels, mud therapy, climatherapy, thalassotherapy and colonic irrigation (medical hydrology and balneology) [5]. The aquatic physiotherapy, water exercise and hydrotherapy are deemed to be useful to the physiotherapist. However, hydrologist develops balneology.

Aquatic facilities exist at or are used by numerous health care centres, major books have been published on rehabilitation in water and numerous courses are offered under postgraduate's physiotherapy courses or "copyright methods", however research core about topic is growing but is not strength yet. Nevertheless, in exhaustive review of literature on the use of aquatic therapy state that most of the available articles are mild quality level with the notable exception of musculoskeletal practice. The musculoskeletal practice in APt cover 85% of participants of research studies [1] and 75% of participants in survey of aquatic physiotherapist through a questionnaire in UK [6].

The evidence-base for aquatic physiotherapy practice continues to grow and improve in quality. The descriptions of aquatic interventions are improved qualitatively and quantitatively. The intensity of exercise performance appears to have been standardised. Similarly, the functional and patients report outcome measures selected for aquatic physiotherapy studies by researchers are of reported reliability and validity [7,8].

Exercise instructors deliver many aquatic interventions for the benefit of arthritic conditions, but there is a concern by physiotherapists who argue that additional knowledge and professional cost cannot provide additional efficacy, but research shows that to the contrary [9]. The area of acute orthopaedic rehabilitation is under studied perhaps in comparison to practice of musculoskeletal aquatic physiotherapy in conditions such as post limb- fracture, joint instability, muscle imbalance and fear to movement [10]. The area of adult and paediatric neurology has a low level of evidence but their genesis is based on

evidenced-based practice [1], however is the second area more interest of aquatic physiotherapy practice in UK [6], after musculoskeletal APt. Other emerging aquatic physiotherapy areas how; frail older, chronic widespread pain [11], COPD [12], Parkinson's disease, lymphedema and oncology [13] are a little studied and much used for these patient groups [6].

A number of studies have attempted to measure the same movement or exercise performed in water or on land, failing to control for increased effort imbued by viscosity, or finding similarly paced movements, by metronome, are harder, and conflict in heart rate monitoring of effort by measuring an increase with exercise and a decrease by immersion [4,14,15]. The therapist correction of preferred movement patterns, and therapist modifications to prescribed movements based on hydrodynamic variations and patient performance, is not captured in the evidence-base to date. Research never replaces the experience and reasoning of the professional for deciding which intervention is effective or not for a particular patient [16]. These remains as a challenge to aquatic physiotherapy efficacy and may in the immediate future, be best documented in descriptive and comparative case-studies. For this reason, we developed a research project at Malaga University (Spain) titled: "Functional task assessments in aquatic human movement: a challenge in biomedical engineering" and first results will be presented in The XIX Congress of International Society of Electrophysiology and Kinesiology in Brisbane, Australia from July 19-21, 2012.

As key messages in summary

- Cardiovascular fitness and conditioning in an aquatic environment deserves greater use within clinical programs in chronic disease management.
- The research in musculoskeletal aquatic physiotherapy must continue to increase specificity with exercise prescription, dose response and functional outcome measurement remain high priorities.
- All clinicians should consider a more formal consideration of the balance of land and aquatic based exercise in acute orthopaedic rehabilitation.
- Aquatic physiotherapy methods have a great deal to offer in expanding clinical options but need further investigation in neurology and other emerging areas.

***Corresponding author:** Cuesta-Vargas AI, Faculty of Medicine, Psychiatry and Physiotherapy Department, University of Malaga, Spain; E-mail: acuesta.var@gmail.com

Received April 17, 2012; **Accepted** April 17, 2012; **Published** April 20, 2012

Citation: Cuesta-Vargas AI (2012) Aquatic Physiotherapy: A Much Used and Little Studied Treatment Modality. J Novel Physiother 2:e120. doi:[10.4172/2165-7025.1000e120](https://doi.org/10.4172/2165-7025.1000e120)

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- Physiology of immersion, hydrostatics and hydrodynamics, clinical reasoning and evidence-based practice remain as the key teaching content in aquatic physiotherapy education.

- Aquatic Physiotherapy must consider developing one or two key messages for the community and for medical and physiotherapy colleagues related to movement and exercise.

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