



Opinion

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# What can Functional Assessment Do for Older Adults with Osteoarthritis and Comorbidities When Participating in a Long-Term Aquatic Therapy Program?

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## Opinion

More than 350 million people have arthritis globally (Global RA Network, 2021). Older adults with Osteoarthritis (OA) symptoms, such as pain, limb dysfunction, and general weakness, showed decreased activities in daily living, disturbed balance when walking, and dual-task limitations [1-3]. The common pain cycle shows that people who become less active demonstrate more pain, thus continuing the cycle. Indeed, inactive persons need a higher stimulus to become active. In an effective exercise program for healthy aging persons, we can promote activity in a satisfying way [4,5]. Aquatic Physiotherapy (AP) exercise is an increasingly popular option, enabling inactive subjects to return to an active lifestyle [6].

Despite the increased popularity of Aquatic therapy, many Physiotherapists (PTs) still have limited knowledge about this therapeutic solution and patient responsiveness [7]. Aquatic load characterization and dose-response for each patient category is still a problem that needs to be addressed for most of the AP conditions and exercises [8,9]. More information is needed before better

promotional programs and activity sessions can be developed. This seems to be particularly relevant for elderly people, due to their frailty and limited plasticity [10]. These subjects have chronic diseases, use daily medication, and show a fear of falling; therefore, they move less safely [11-13]. Deeper knowledge of the functional perception profile of these patients will help clinicians arrive at a stronger prognosis for better physiotherapy results [14,15].

Although several studies have shown the efficacy of AP for improved balance and pain reduction in older adults, there is little information on the relationship between function in water and on dry land, particularly in the case of degenerative osteoarthritis diseases [16-18]. Nevertheless, a social community program in public pools appears to be less expensive and is often prescribed by doctors to help with aging. The preference for AP is based on the elderly expectations and satisfaction with the program. Usually, expectations were centered on decreased pain and falls and increased well-being, strength, relaxation, and activities of daily life [17]. Like other studies with OA patients, the patient goals are

focused on pain, fall prevention, quality of life, and well-being [19]; and these outcome measures are most often used separately or together.

PTs have studied the efficacy and self-efficacy of AP in the daily life of older adults with OA. Researchers have concluded that an aquatic exercise program decreased pain, stiffness, and improves physical function while increasing self-efficacy in individuals with knee or hip OA [20]. This reinforces the regular prescription of AP by doctors to manage OA problems. A Patient's recommendations have also been studied and show that older adults usually favor the aquatic exercises because of their own satisfaction [21,22]. Older adults usually consent to their prescribed therapy and activities for the better management of their health care with few misunderstands and provide feedback without hesitation [21]. Several studies confirmed the importance of AP programs for the improvement of self-efficacy in daily life and in functional outcomes in older adults with osteoarthritis [14,20,23]. But how do PTs measure a patient's therapy process?

## Methods

The Function Perception Scale (FPS) based on ICF is an instrument composed of the domains of function taken from the geriatric core set related to the perception of essential functions for dynamic balance, upper limb function, and fall prevention. It consists of 19 items, to be answered from 0 to 4 (0 – no difficulty, 1 – slight difficulty, 2 – moderate difficulty, 3 – big difficulty, 4 – cannot execute). This tool can access the potential ability to perform aquatic exercises and predict the individual adaptation to water, leading to a better development in the aquatic physiotherapy program. Furthermore, researchers have also studied and developed tools to predict important factors to help clinicians deal with risks that occur in healthy aging [17,24,25].

## Results

Despite the lack of evidence in the literature on a functional measure correlated with health problems and conditions for successful adaptation to the AT program, Graça et al. (2019) studied the FPS and found predictive proprieties for success in aquatic therapy in participants with Hyper Blood Pressure (HBP). Diabetes Mellitus, type 2 (DM2), when taking more than four medications and with a fear of falls. The researchers suggested that this information can be used to avoid constraining incidents during the first aquatic physiotherapy sessions [26]. The outcome of FPS can be used for exercise planning based on patient motor control and for evaluation on follow-up from a recovery based on ICF activities.

Finally, the Spearman correlation showed a strong association between Disability of Arm, Shoulder, and Hand Scale (DASH) and FPS (0.708; significant at the 0.01 level). This reinforces the fact that

upper limb disability was related to motor control performance. Our sample scores were lower on both scales, showing functional impairment. Health problems like Body Mass Index (BMI), HBP, and the use of more than four medications showed a strong association with FPS and between DASH and FPS. This means that using FPS can predict who will have problems in water adaptation and safety.

## Conclusion

The functional benefits can be accessed by FPS in an easy way via self-reporting by patients. Through FPS, patients can look for the predictive factors according to the different kinds of motor control, which influences the planning of the aquatic physiotherapy intervention. Hyper Blood Pressure, DM2, more than 4 medications, and fear of falls showed a strong correlation with FPS and DASH, which can compromise the success of aquatic therapy intervention. Therefore, this tool can alert the physiotherapist to the patient's fragility for water adaptation; and moreover, adjust the session planning within specific goals.

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