

Hydrotherapy and motor autonomy: analysis of the effect on the functional status of the elderly

Natanael Camões de Souza , Anne Taynara Guedes Moreira , Alisson Vieira Costa *

Universidade Federal do Amapá - UNIFAP

*Corresponding author. E-mail: alisson@unifap.br

ABSTRACT. The objective of the study was to analyze the effects of hydrotherapy as an intervention in the functional status of the elderly. A narrative review research was carried out from the BVS database, in the LILACS database, using the descriptors: hydrotherapy; aged; and the booleans OR; AND. The search resulted in 4 articles to compose the sample following all eligibility criteria. Resulting in the beneficial effects of hydrotherapy on balance and maintenance of the elderly's motor skills. Concluding that hydrotherapy is an intervention proposal to be worked on in elderly people who have a deficit in their functional status and in healthy elderly people.

Keywords: Hydrotherapy, Elderly, Functional state.

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INTRODUCTION

Hydrotherapy, as aquatic training, has a beneficial role in the metabolic and neuromuscular systems due to its foundation of hydrodynamics, which is the buoyancy or resistance of the water, this property makes hydrotherapy have low joint and muscular impacts, provides an improvement in the quality of life, reduction of pain, functional improvements, promotes better sleep quality and reduces fatigue (Bailly, 2022). It also acts as a promoter of balance, as it uses the gravity of the water to provide an increase in strength, support and stimuli, capable of reducing the impacts generated by aging, thus avoiding the risk of falls (Soares & Amorim, 2021).

Disorders related to balance, which occur during the aging process, are among the most worrisome due to the high rate of falls, which can lead to loss of autonomy and independence to perform daily activities, given that the presence of these factors can cause different impacts on daily life (Siqueira *et al*, 2017).

Therefore, through physical activity, the elderly can recover their functional capacities, becoming less prone to the risk of injuries and falls, in addition to regaining mobility, balance, the main

factor for their motor independence and improvement of their physical capacity in general.

This research aims to carry out a narrative review of studies that deal with the theme of hydrotherapy with the elderly, seeking information about the effects of this activity on the motor autonomy and functional status of these people.

Motor autonomy is understood as the individual ability to take care of himself, perform tasks that allow psychosocial adaptation, and be responsible for his own actions (Abreu, Forlenza & Barros, 2005).

The study also provides data on what has been recommended in the scientific literature regarding the practice of hydrotherapy with the elderly.

The research question of this study is: what are the effects of hydrotherapy on motor autonomy and on the functional status of the elderly?

MATERIAL AND METHOD

This is a narrative review study, using the online database of the Virtual Health Library (VHL), and articles in the database of Latin American and Caribbean Literature on Health Sciences (LILACS), with an index significant bibliography of literature from the last 5 years of publication.

The search was carried out in May 2022 and the following descriptors were used: hydrotherapy; aged. And the Booleans: OR/AND. As for the eligibility criteria, publications involving the descriptors in the title or abstract, full text, publications made in the last 5 years in Portuguese and/or English, in the LILACS database and which

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meet the guiding question of the research, were selected.

Publications that were duplicates, that did not fit the research context and publications older than 5 years were considered ineligible. Thus, the number of publications found, after data refinement, was 66 articles. In the next step, after reading all the titles and abstracts, 62 review articles that did not fit the established criteria were excluded because they dealt with other issues and not on the topic in question, and only 4 studies were eligible to compose this research, as shown the Figure 1.

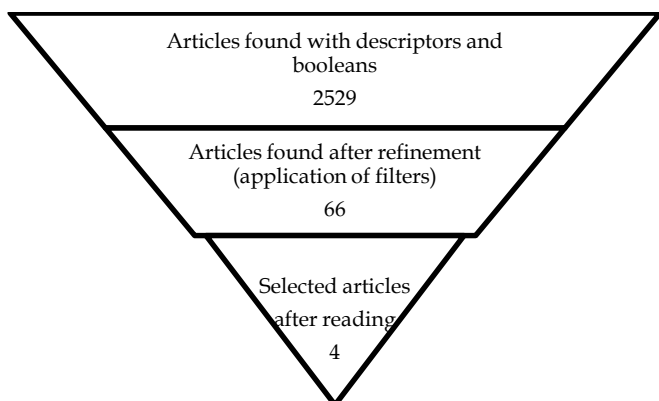


Figure 1: Flowchart of the selection of articles

It is important to highlight that the studies eligible for this research were tabulated in a next step, after which the objectives, methods and conclusions of the studies were analyzed, which are shown in table 1 of the results.

In the final step, the technique used to analyze the studies was the crossing of information between the studies as guided by Marconi & Lakatos (2017), obtaining the effects indicated in the scientific literature found on the prescription of hydrotherapy for the elderly.

RESULTS

After reading the selected articles, a summary table was created, with each article containing the objective, the methodology used and the conclusions of each article.

Table 1: Summary of articles

Authors	Objective, methodology and conclusion
Cubas and Ribas, 2017	The article aimed to evaluate the effects of isotretching in the aquatic environment on the muscle flexibility of the elderly, with a warm-up methodology, stretching and relaxation exercises, lasting 12 weeks, twice a week for 50 minutes. At the end of the study, it was concluded that the method provides a positive

	result in relation to the muscular flexibility of the posterior chain of the elderly.
Siqueira <i>et al.</i> 2017	The article aimed to evaluate the effects of a water aerobics program for balance and functional capacity of the elderly. The intervention methodology was: warm-up, strengthening exercises, balance, aerobics and stretching, lasting 2 months, 3 times a week for 40 minutes. At the end of the study, it was concluded that a hydrotherapy program can improve balance in the elderly.
Mira <i>et al.</i> 2021	The objective was to determine the immediate and final effects of a routine aquatic protocol on the postural stability of the elderly. The intervention methodology was: stretching, balance, strength and coordination exercises, lasting 4 weeks, 3 times a week of 60 minutes. At the end of the study, it was concluded that the exercises performed have positive effects on postural stability.
Crivellaro <i>et al.</i> 2022	The article aimed to verify the effects of the Pilates method in water, and its methodology was abdominal strengthening exercises lasting 9 months, twice a week of 50 minutes. At the end of the study, it was concluded that the method was an effective intervention for balance, body perception and self-esteem.

DISCUSSION

The study by Cubas & Ribas (2017) has beneficial effects on the flexibility of the postural chain and postural improvement, having a positive effect on daily activities. In the data found in the studies by Siqueira *et al* (2017) Mira *et al* (2021) Crivellaro *et al* (2022) highlight hydrotherapy as an activity with beneficial effects for balance, postural stability, body perception and self-esteem. This allows for healthy aging, far from the risk of falling and being subject to caregivers and pharmacological drugs for the rest of their lives.

The prescription of hydrotherapy exercises with elderly people brings benefits to their health in general, since the aging process causes progressive and irreversible wear in several functional systems of the body, one of them being the motor system (Fiedler & Peres, 2008), which will directly interfere with postural balance.

Thoume (1999) highlights that with advancing age all elements of posture and balance maintenance will be affected (apud, Sanglard *et al*, 2004).

For Martins; Dascal; Marques (2013) among the various changes that occur in the aging process, disorders related to balance are among the most alarming (apud, Siqueira *et al*, 2017).

Therefore, with advancing age, physiological and biological changes occur, from the loss of physical capacity to the loss of muscle strength, which makes it difficult to perform the daily activities of a normal lifestyle, since these physical capacities are essential for, walking, sitting down and getting up from a chair, climbing steps and so on.

Disorders related to balance are the most alarming because the natural loss of balance is one of the factors responsible for falls (Oliveira, *et al*, 2001, apud Sanglard *et al*, 2004). Cunha & Guimarães (1989), cited by Fabricio *et al* (2004) characterize the fall as a result of the total loss of postural balance.

According to Ramos *et al* (2001) cited by Sanglard *et al* (2004) "falls contribute to the elderly having difficulty in performing daily physical tasks, impairing both balance and muscle strength".

In a study carried out by Fabrício *et al* (2004) composed of 50 elderly people, the causes and consequences of falls in the elderly were analyzed through questionnaires answered during home visits, the results of falls had consequences such as: fractures, fear of falling again, increased difficulty and dependence to perform activities of daily living and death.

Demonstrating the real need for practices and intervention models that can mitigate this aging process, which is continuous and worsens over time, impairing the functional capacity of the elderly, as shown in the study by Fiedler & Peres (2008), who presents in his research, that "elderly aged 70 years or older were more likely to have inadequate functional capacity, when compared to those aged between 60 and 69 years".

With the growth of the population, and especially of the elderly, it is important to plan strategies and interventions that can help maintain the motor autonomy of these people, in order to contribute to a more active and healthy life.

In this context, hydrotherapy is an exercise that enables the elderly to practice safely, as stated by Sarmiento *et al* (2011) "Aquatic physiotherapy programs have often been indicated as a modality of physical activity for the elderly population because the environment is safe, less prone to falls and has good acceptance and adherence to treatment" (apud Siqueira *et al*, 2017). Siqueira (2017) mentions a study by Alcalde *et al* (2016), Siqueira *et al* (2014) and Gimenes *et al* (2015), stating that "exercise in aquatic environments is able to help elderly people with reduced capacity functional". In addition to hydrotherapy being one of the recommended activities, socialization among practicing individuals

already improves their quality of life, since integration also improves mental quality.

Siqueira *et al* (2017) on hydrotherapy. "We suggest the implementation of initiatives that encourage the practice of aquatic physical therapy for elderly individuals, being included in health promotion and disease prevention programs with the purpose of maintaining and improving the health of this population, minimizing the impact of the aging process."

This type of intervention can have a significant result in the functional capacities of the elderly, since hydrotherapy is one of the activities recommended for the elderly, through which, consequently, the search for a caregiver would be a distant or almost null reality, since this type of elderly, practitioner of a daily physical activity, presents an improvement in their physical capacities.

CONCLUSION

The effects presented by the sample articles are beneficial, they can compose the prescription of physical exercises for the elderly in a safe way. They enable a broader view of the possibility of maintaining balance both for healthy elderly individuals and for those with deficits in their functional status.

This study presented as a limitation the low number of studies related specifically to the topic, as well as, it did not present the specification of levels of motor autonomy of each elderly participant in the studies, which could collaborate with more accurate results on the prescription of specific physical exercises for different levels of motor skills.

DECLARATION OF CONFLICT OF INTEREST

The author(s) have not declared any potential conflict of interest regarding the research, authorship and/or publication of this article.

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