Pedagogical resources
AQUATIC ACTIVITIES

AQUATIC EXERCISE FOR PEOPLE WITH FIBROMYALGIA

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June 2, 2025

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Aquatic exercise is an excellent ally in the treatment of the symptoms of people with fibromyalgia. For this purpose, it is key to follow the adequate and safe recommendations, taking advantage of the benefits that the water provides. Research is still due to move forward in order to refine certain important parameters.

Introduction

Fibromyalgia is a cognitive impairment characterised by chronic pain that presents a high prevalence in the population and fits inside a set of syndromes that do not have a clearly defined classification. Its definition is influenced by culture, context and social forces, as there is no objective way of checking it. People with fibromyalgia share symptoms with other functional somatic problems, such as myalgia (pain), arthralgia, fatigue and sleep disorders, and it is also associated with anxiety and depression (Borchers & Gershwin, 2015).

Physical exercise in general is a recommended intervention for its treatment, along with education, emotional support, nutrition and medicine. Among the different kinds of exercise, aquatic exercise is highly recommended for people with fibromyalgia, being considered one of the interventions with better acceptance and clinical results. In this sense, this article aims to explore the benefits of aquatic exercise as one of the exercise options to improve the condition of people with fibromyalgia, control symptoms and improve their quality of life.

International guidelines for the prescription of exercise in fibromyalgia

Scientific evidence suggests that regular exercise can be a fundamental ally when dealing with fibromyalgia. Several studies demonstrate that exercising contributes to decreasing pain, as it improves the body's response to minor muscular injuries and influences the brain's processing of pain. Furthermore, Rooks (2008) highlights the importance of exercising to prevent muscle and bone loss associated with ageing, which is especially relevant for people with fibromyalgia. **However, it is key to adjust exercise programs to the individual needs of each patient, considering factors such as tolerance to effort and personal preferences.**

Here we present the main international guidelines for the prescription of exercise in the controlling of fibromyalgia. The American College of Rheumatology (ACR) proposes physical exercise as a leading treatment and indicates the following types of exercise:

- Low-impact aerobic exercise (for example: walking, bicycle ergometer, aquagym)
    a. Strength/resistance training.
    b. Stretching and mobility.
    c. Exercise of mind and body (Tai Chi, Yoga, Pilates, Ai-chi, Watsu).

- **European League Against Rheumatism (EULAR)** recommends regular physical exercise as the main and successful intervention to handle the symptoms and provides the following observations:
    a. Physical exercise is the only type of intervention with a "strongly in favour" recommendation, based on high-quality evidence, and it must be adjusted to the functional state of the patient.
    b. The initial intensity must range between low and moderate, with a gradual progression.
    c. Supervised programs tend to have better participation and results.
    d. Progressive focus: if you suggest a plan with four stages, starting with the education of the patient and non-pharmacological therapies, such as exercise. If you still do not have a response, other therapies must be included and adjusted to individual needs.

- **The Canadian Guidelines (2012)** recommend 150 minutes of aerobic physical activity from low to moderate intensity per week, using subjective scales (such as that of Borg) to monitor effort and prevent overwork.

- The **World Health Organisation**, despite not presenting anything specific about fibromyalgia, suggests an adaptation of the general recommendations (150-300 minutes of light/moderate aerobic exercise per week + 2 weekly sessions of strength exercising), respecting individual needs.

Aquatic exercise in fibromyalgia

The main characteristics of aquagym/aquatic exercise are the use of the water's hydrostatic and hydrodynamic properties. The specific properties of water, such as hydrostatic pressure, floatability and hydrodynamic resistance, are factors that explain the reported chronic adaptations associated with the aquatic exercise programmes. These properties permit exercises with lower joint overwork and promote physical adaptations and chronic pain control. Bidonde et al. (2014) and the recent study of Ma et al. (2024) have revealed the consistent way in which aquatic exercise offers significant benefits in comparison to inactivity, even in one's mood (López-Rodríguez et al., 2013), and, in addition, other studies have proven improvements in the clinical

symptoms, the physical function and the quality of life of patients with fibromyalgia.

Benefits of aquatic exercise

There are benefits of aquatic exercise that can be highlighted in this specific situation, for example, the lower joint impact due to the action of the buoyancy strength promoted by water, which reduces the mechanical load on the articulations and muscles, which decreases pain and fatigue during exercise.

Another important element is the temperature of the water, which has to range between 31 and 34 degrees Centigrade, thus helping to relax the musculature, improve circulation and decrease morning rigidity. However, we must consider that low to moderate intensity aerobic exercise (HR zone of training between 40-65 %) should not take place in water with a temperature higher than 32-33.° C. That is to say, for an aquagym class for people with fibromyalgia to be successful and work the different components of the physical form and not only pain control, it is suggested a temperature to the maximum between 31 and 33.° C.

Despite the advances, there are still doubts about the most adequate kind of exercise, the optimal intensity and the ideal duration of the sessions to obtain the maximum number of benefits for people with fibromyalgia. The actual scientific evidence points to the benefits of aquatic physical activity when dealing with fibromyalgia. Nevertheless, we still need more studies to determine clear and personalised guidelines, clarify these aspects and establish whether there are significant differences between the different types of aquatic activities.

Practical recommendations for an aquagym and hydrotherapy class

It is important that the exercises adjust to the needs of each person, considering the severity of their symptoms and other associated health conditions. Supervision by professionals specialised in aquatic exercise and fibromyalgia is recommended to guarantee safety and the success of the program.

The specific recommendations include:

- **Frequency and duration**: doing aquatic exercises at least twice a week, with sessions ranging from 30 to 60 minutes.
- Intensity: it must be low or moderate, adjusted according to individual tolerance, using scales such as the Borg scale to monitor perceived effort.
- Temperature of the water: water must be between 30 and 33.° C in order to enhance muscle relaxation and pain relief.
- Types of exercises: include aquatic walking, stretching, joint mobilisation exercises

and muscle strengthening, always respecting individual limits and avoiding movements that cause pain.

- Patient's education: it is fundamental for higher adherence and effective self-management. Using pain scales before, during and after the session for a better adaptation of the proposal and control of its effects.

Practical proposal

Aquatic exercise classes are traditionally attended by groups of people with diverse characteristics of physical conditioning. Increasingly, it is intended to differentiate the types of aquatic programmes to better adjust to the conditions and characteristics of the population to offer an improved service, especially to promote the commitment to the practice through time with elevated physical, emotional, cognitive and social benefits. These objectives are ambitious and need adequate professionals (knowledge that goes beyond the prescription of exercises) who are committed and spend time on their mission beyond the time of the session. Consequently, the importance of planning the aquagym sessions has to be highlighted.

To promote this kind of practice, we share three tables, an example proposal and exercise modes to consider (Table 1). On the other hand, in Table 2 we offer warming-up proposals and, in Table 3, relaxation proposals.

Table 1. Components and objectives to consider.

Component	Objective	Exercise example	Frequency	Intensity scale
Pain	**Reducing sensitivity to pain and modulating the central nervous system**	**Low-intensity aerobic exercise (walking, skiing, etc.)**	**3 to 5 times per week**	**Borg CR10: 1-2 (very slight)**
Aerobic	**Improving cardiovascular ability and reducing fatigue**	**Aquatic marching, light aquatic race, aquatic cycling, basic aquagym patterns**	**2 to 4 times per week**	**Borg CR10: 3-5 (moderate to severe)**
Strength	**Improving muscular resistance and functionality**	**Using hydrodynamic resistance to work agonist and antagonist muscular groups of the most important movements of the 3 spheres**	**2 to 3 times per week**	**OMNI: 4-6 (moderate)**
Mobility/ Flexibility	**Improving movement width and reducing rigidity**	**Trunk and joint rotation, mobilisation of big and small articulations, active stretching**	**3 to 5 times per week**	
Relaxation / Mind and body	**Reducing stress, improving sleep quality and self-regulation**	**Diaphragmatic breathing, flotation with guided relaxation, aquatic Tai Chi movements**	**Daily, after the sessions**	

To structure 40–45-minute classes, we suggest using alternating joint mobility exercises and aerobic exercises, such as walking to warm up (5-8 minutes).

The central part must last 25 to 30 minutes and can include intervals of strength and aerobic exercises, according to the indicated intensities established in Table 1. To finish the class, you can choose stretching and/or relaxing exercises. Sometimes, ending the class with something fun, such as dancing, can offer an extra motivation.

Table 2. Proposal of warming-up and articular mobilisation in static position alternated with aerobic exercise movement (walking) (combined warming-up).

Type of exercise and description	Considerations
Walking through the water: move throughout the pool, each to their own pace, changing the way of walking: to the front, to the side and backwards. **Variant: varying the step width. Coordinating different actions of the legs with the arms.**	Attention to postural control, to a correct positioning of the feet on the floor and the width of the step.
Joint shoulder mobilisation: submerging the arms and with a good posture, doing circles with the shoulders simultaneously and alternating, changing directions. **Joint leg mobilisation: elevating and flexing the knee, doing circles in both directions and once finished, changing legs.** Main joint mobilisation. Duration of the activity: strength and mobilisation exercises are carried out by number of repetitions, not by time.	For joint mobilisation, it must be guaranteed that the student is in level 2, which, according to the aquagym principles, corresponds to a neutral position with the shoulders inside the water. This entails that the knees have to be flexed to ensure the immersion of the shoulders. All the joint mobilisation work has to be done with water surrounding the articulation that is being exercised. Joint mobilisation work has to be soft, with few repetitions, between 4 and 8 in each direction, without aiming for the resistance of the water, but taking advantage of the action of the flotation force instead to release the intra-articular pressure and unblock the joints.

Relaxation (Table 3) is an important stage of the lessons, where one must consider the loss of body temperature. It is important that the participant feels good. You must take into account the muscular groups that were stimulated the most during the session, remembering the usual tension points.

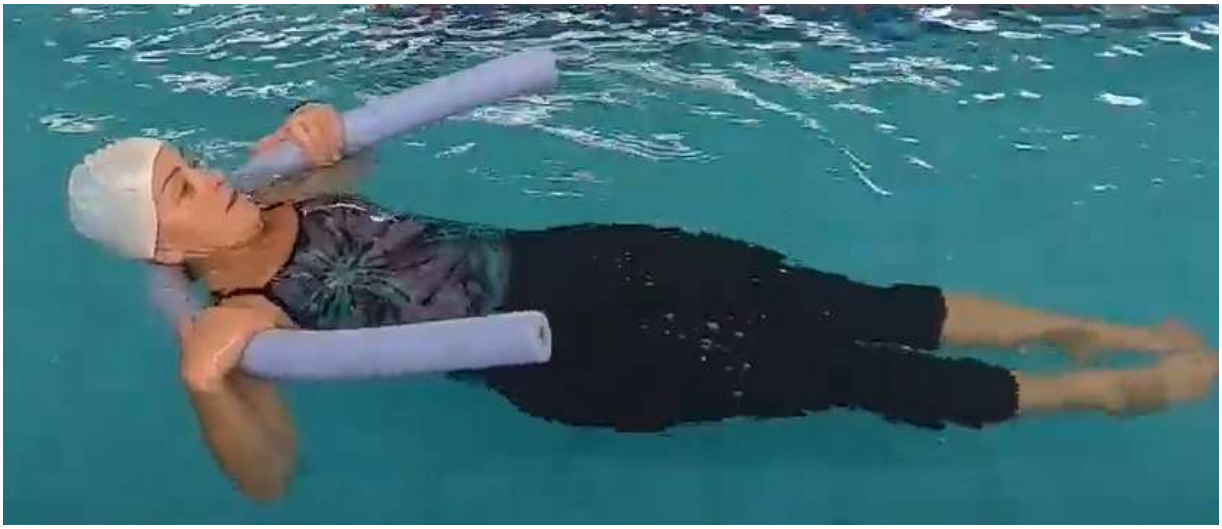

Table 3. Relaxation proposals.

Type of exercise and description	Considerations
Deep inspirations and exhalations associated with the relaxation of shoulders and neck.	Slow, soft and wide actions. Moving from a contraction feeling to a sense of relaxation.
Back stretching: stretch your arms forward, intertwine your fingers, arch your back and try to move your arms away.	As if you were hugging a giant ball. Moving you shoulder blades away, imagining them separating.
Quadricep stretching: grab the edge of the pool, flex your knee and, with the free hand, grab your ankle and bring your heel to the gluteus.	Support on one leg with some mobility of the knee. Trying to bring your knees closer and playing with the tilting movement of the iliac crest. If too much tension is generated, aim for this stretch with the supporting leg moving a little bit backwards.
Posterior leg muscles stretching: with one leg stretched and leaning on the bottom, with dorsal flexing of the foot, whereas the other one stays slightly flexed and with the whole foot set on the bottom.	Associate stretching to exhalation. Maintain a fluid breathing. You must not suffer, but identify and breathe to relax in your own way.
Stretching and decompression: elevate both arms outside of the water, stretch them as you inhale and let them fall as you exhale.	Mission-accomplished feeling. Total relaxation and treating yourself kindly.

Considering the planning of the session, we can say that there are no significant differences between a normal class and a class for people with fibromyalgia. What will be different is the instruction, feedback, exercise rhythm, the kind of exercises and the use of the material. Due to this, it is important to have a proper awareness of the body and the motor actions inside of the water. Valuing width at the detriment of speed. The approach must be progressive and always consider the students' feedback about how

they feel during the session and their daily lives. Our mission goes beyond entertaining, but enjoyment is essential for motivation.

We must diversify the proposals, always considering the principles of aquatic training and the students' characteristics, and that the person responsible is much more than an entertainer: they are an educator.

Conclusion

Aquatic physical exercise is an effective and promising tool to control the symptoms of fibromyalgia, as it improves the physical condition, reduces pain and improves the quality of life of the participants. The properties of water allow exercises to be carried out without pain, enhancing adherence and easing the work of abilities such as strength, balance, flexibility and resistance.

The presented proposal combines warming-up, exercises and a class structure, with a holistic and safe focus. This design allows us to assist both the physical and emotional needs of patients, promoting their complete welfare.

Even though the results are positive, we need more research to determine the optimal parameters of intensity, duration and frequency, adapting them to individual needs. Summing up, aquatic exercise is an effective and alternative and should be considered as a key element in the treatment of fibromyalgia.

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