Pedagogical resources
AQUATIC ACTIVITIES

OPTIMISING AQUATIC FITNESS PERFORMANCE WITH CROSS-TRAINING

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It is known that there is no such thing as an ideal training model, and there is an increasing emphasis on consistency in training over so-called "miracle" programmes. However, aquagym is a highly versatile form of exercise, and the incorporation of new, popular methods can not only boost motivation and attract new types of participants but also deliver greater benefits in terms of participants' physical fitness and performance.

Introduction

Numerous guidelines state that, to have a healthy lifestyle, regular physical exercise is important to promote health, prevent and treat chronic diseases, which in turn leads to a better quality of life. Aquatic fitness, practised through aquagym, has been gaining an increasing number of followers worldwide, mainly due to its various scientifically proven benefits in terms of general improvement in physical condition, psychological well-being and, in many cases, the management of symptoms of musculoskeletal conditions. Among the main factors that distinguish aquagym, we can highlight, as properties inherent to the aquatic environment, buoyancy (also known as lift), hydrostatic pressure and hydrodynamic resistance (or drag force), the latter being fundamental to creating the desired training overload.

When considering the core elements of an aquagym class and the pre-established objectives, incorporating other contemporary training methods, such as cross-training and concurrent training, or drawing inspiration from popular cross-training models such as Every Minute on the Minute (EMOM), As Many Rounds As Possible (AMRAP) and Rounds For Time (RFT), can further enhance participants' performance.

Important concepts

Cross-training refers to the planned use of complementary training modalities or methods, often unrelated to the primary sport, aiming to maintain or optimise performance-related adaptations; when this combination specifically involves strength training and endurance training within the same programme, the term most commonly used today is concurrent training (Tanaka, 1994; Fyfe et al., 2014; ACSM, 2025).

CrossFit® consists of a cross-training methodology that combines functional movements, constant variation and high-intensity execution, with the objective to develop physical fitness in a comprehensive and integrated manner (CrossFit, n.d.; CrossFit, 2019).

Understanding the models

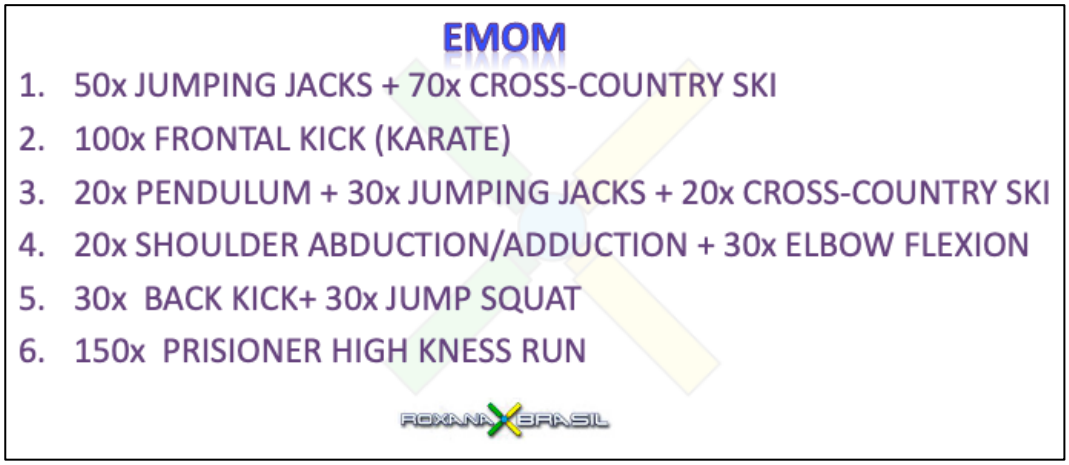
The adapted incorporation of CrossFit® training models into an aquatic setting enables professionals to design engaging and varied sessions, making the experience more dynamic and effective. It should be noted that, although there is a proposal to correlate land-based training models —already supported by scientific articles in the literature—, the validation of these models in aquagym is scarce or even non-existent. In this regard, a new opportunity arises to conduct studies that manipulate these variables both acutely and chronically in the aquatic environment.

Land-based "Cross" disciplines (cross-training and CrossFit®) are characterised by the performance of constantly varied functional movements that can be carried out at high intensity. They include Olympic and basic weightlifting exercises, gymnastics, calisthenics and cardiometabolic exercises. Generally, a CrossFit® training session can be divided into three parts: warm-up, skill and Work of the Day (WOD, main part). The warm-up aims to prepare the participant physically and psychologically for more intense activities and can be subdivided into a general and specific warm-up. The skill segment is designed to prepare the participant for the movements to be performed in the WOD. The WOD is the main part of the training session and can be time-based or task-based. In the first case, when the WOD is time-based, the training ends when the set time is up. In the second case, when the WOD is task-based, the training concludes upon completion of that task (Tibana et al., 2018). This training session format can be applied to an aquatic environment, suggesting better organisation.

Every minute on the minute (EMOM)

This model involves performing a set number of movements within each 1-minute interval. After completing the set within 60 seconds, you may rest for the remainder of the minute until it ends, as shown in Figure 1, which illustrates six 1-minute sets, each with its own predefined movements.

Figure 1. Example of how to adapt EMOM to aquagym.



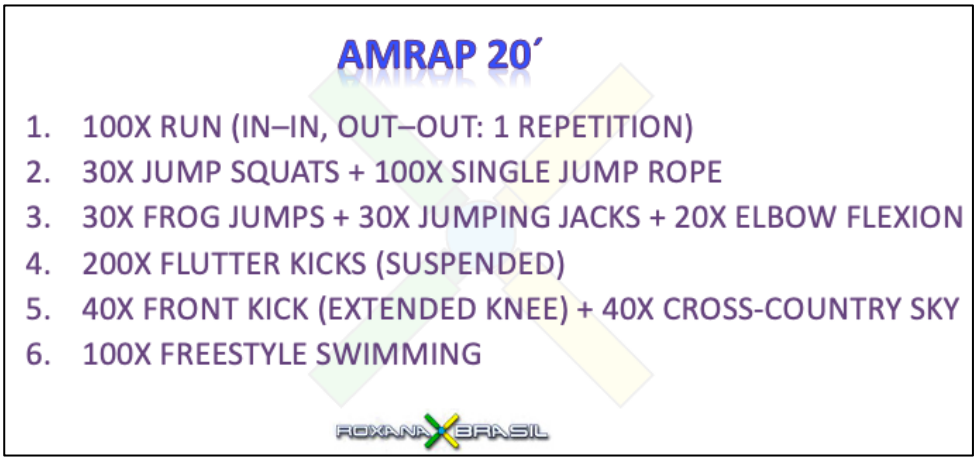
Other possible abbreviations for this format are E2MOM or E3MOM, which stand for “every 2 minutes” or “every 3 minutes”. Typically, this type of WOD is based on both time and the task, as both are fixed.

What varies between individuals is the rest period taken each minute. However, an exception occurs when part of the minute is taken up with a fixed task, and the remaining time is spent performing as many repetitions as possible of another task.

As many rounds/repetitions as possible (AMRAP)

This is a type of WOD in which the aim is to complete as many repetitions or rounds as possible within a set time limit. This format is time-based, as the duration of the workout is fixed. Consequently, the intensity of the workout (volume and intensity for each exercise) may vary. The amount of work done is determined by the participant themselves. The example in Figure 2 below lasts 20 minutes.

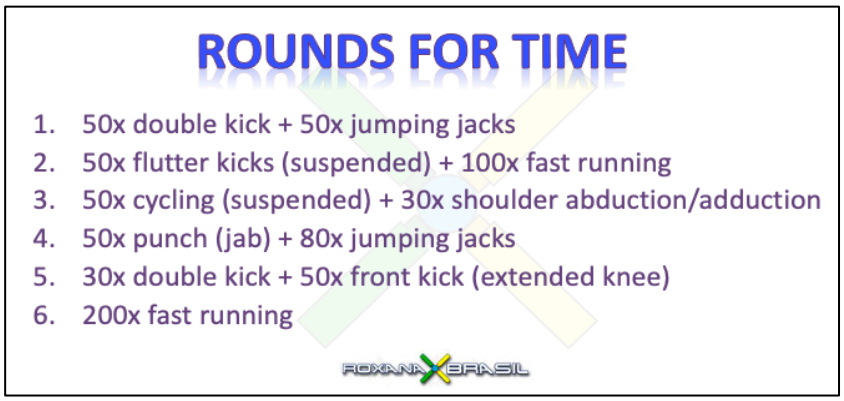
Figure 2. Example of how to adapt AMRAP to aquagym.



Rounds for time (RFT)

This is a model in which a specific number of movements are performed in the shortest possible time. This model places the emphasis on the task: the task is fixed, and the aim is to complete it as quickly as possible. In this model, the absolute load remains constant. The time taken to complete the task varies and depends on the individual, as can be seen in Figure 3.

Figure 3. Example of how to adapt RFT to aquagym.



How to plan a class

A lesson plan can help you better anticipate the session, develop a balanced training programme, and ensure greater alignment with the participants' goals, whilst taking individual biological differences into account. Lesson plans can also help you organise the verbal, non-verbal and tactile instructions associated with each movement or combination and help you stay on schedule during the session. The complexity and level of detail will depend on your experience, teaching style and, of course, the condition and motivation of the participant. Below are the components for designing a lesson plan:

- Total class duration (45 minutes, but can range from 30 to 45 minutes).
- Class theme.
- Session objectives.
- Materials.
- Warm-up: 10–20% of the total class time.
- Main part (WOD): 60–80% of the total class time.
- Cool-down: 10% of the total class time.

Control and management of the training load

In most "Cross" training programmes, participants are required to perform a set number of repetitions in the shortest possible time, or to exert maximum effort (the highest number of repetitions) for a set duration (Da Silva-Grigoletto ME, 2020). In both cases, controlling the relative load is practically impossible; therefore, heart rate (HR) and rate of perceived exertion (RPE) appear to be the most commonly used parameters for monitoring intensity during training sessions. These are low-cost and easy-to-apply methods. Among the scales used to monitor RPE during training sessions, the most widely used is the Borg scale (1982), although there are others based on simplified models of perceived exertion, aimed at specific populations and activities (Colado & Brasil, 2019).

Practical recommendations

- Identify the individual's level of fitness, interests, abilities and limitations; in other words, conduct a health assessment gathering as much high-quality information as possible.
- Structure the exercise routines according to the participants' abilities. This approach can be applied to older adults, but to do so, both the type of exercise and the duration of the most intense phase, the recovery periods and the number of repetitions must be adapted to the participants' actual profiles.
- Tailor the programme to the abilities of each participant within the same group.
- Assess the pool's layout: depth, water temperature, size, whether music will be used, as well as the equipment and quantities available; ensure a stopwatch is on hand.

Based on these characteristics and the participants' profiles, you should adapt the training models proposed here as effectively as possible.

Tips for participants

- **EMOM:** try to maintain a steady pace; start more conservatively and increase the intensity in the final third of the time.
- **AMRAP:** be careful not to start at a sprint; maintain good technique during the final repetitions. Transitions can be quick, but safe. Use the round count as a guide.
- **RFT:** identify a target effort level and try to maintain it; in other words, if you need to increase the pace, remember to preserve the quality of your movement and technique.

In this (video) you will find examples of the proposals outlined here.

Conclusion

The great advantage of aquagym over other forms of exercise is its versatility, both in terms of the range of participants and the training methods and strategies, which can be easily adapted to the different objectives of each programme. This proposal to adapt some existing Cross Training models can bring benefits to your classes, but it is recommended that professionals do not neglect the specific fundamentals of this discipline, relating to knowing how to use the water, and that they always consider the individual abilities and needs of their participants.

There are no right or wrong models. As long as you know how to adapt the ideas to your own situation, you will be very successful!

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