

The Use of Digital Games in Physiotherapy: Recommendations for a Promising Trend

Yasmim F. Moniz

For the first edition of *Advances in Biomedical Engineering and Rehabilitation*, we want to introduce topics from multidisciplinary backgrounds that contribute practical insights to the health field. With this in mind, I would like to present a topic that I have been exploring throughout my academic career: the use of digital games in physiotherapy.

We are increasingly seeing studies that investigate the effectiveness and acceptability of digital games in motor rehabilitation. This trend is not only reflected in the scientific literature but also in the growing use of these strategies in physiotherapy centers.

Introducing ludic strategies aimed at therapeutic goals is not new to the rehabilitation process, but using digital resources is relatively recent. I believe that, in line with the advancement of these technologies, such strategies will become even more prevalent in our daily lives.

Several studies have examined the use of commercial consoles (Xbox, Nintendo Wii, VR headsets) (1–4) in treating various pathologies. The potential of games that promote active movement is interesting, and there are significant results regarding these trends for patients with conditions such as Stroke, Down Syndrome, Cerebral Palsy, Multiple Sclerosis, etc (5–8).

In addition to commercially available platforms, many studies aim to develop

devices and specific games for motor rehabilitation. Researchers and developers have been creating games and systems adapted for people with disabilities (9–11). Although many of these prototypes are not yet commercially available, their specificity offers a clear advantage.

While there are promising results regarding the use of these resources, it is crucial to exercise the same level of care and seek evidence of efficacy, as with any other therapeutic technique. Just because we are dealing with games doesn't mean it's merely "play." The purpose of this editorial is to provide recommendations for the implementation of digital games in clinical practice.

1. Therapeutic Goals

Before introducing game therapy into your sessions, it is essential to ask: What is the therapeutic objective that the use of the game will support? Ensure that the game is just one of many tools at your disposal.

2. Adaptation to the Resource

For the implementation of game therapy, it is necessary to assess and test if: Is the patient able to use it? What level of assistance is needed for them to use it? Is this platform/game/version the most appropriate for the patient?

3.Exposure Time

The therapist must consider a balance of three elements when deciding the duration of game therapy: the therapeutic goal, the time recommended in the literature, and the patient's motivation. The objective relates to the reason for prescribing the game, which may sometimes come with a predetermined metric. The literature can provide valuable insights into how much strain the activity places on a specific patient. Regarding motivation, it is one of the main reasons to recommend game therapy. If the patient becomes fatigued or disengaged from the game, it might be time to switch the resource. On average, depending on the game style, the ideal interaction lasts between 15-30 minutes.

4.Safety

Even when using digital game interfaces, it is important to remain vigilant for any signs of discomfort or instability. Extra caution is necessary when using virtual reality headsets due to the high level of sensory input. The physiotherapist must ensure the space is free of obstacles and properly arranged for this practice. Additionally, the professional should remain attentive and close to the patient in case any occurrences arise.

5.Performance Improvement Measurements

If you frequently use the same game in your therapeutic strategy, it is preferable to keep a record of scores, time, and any additional data provided by the platform, as motor improvement can also be measured by performance in a game.

6.Monitoring Fatigue During Therapy

The physiotherapist should be attentive to signs of patient fatigue and regularly ask the patient about their condition. This is essential because, the more motivated and focused a person is on a task, the less aware they may be of their fatigue during the activity. The therapist must be mindful of this, especially in conditions where fatigue is part of the pathophysiology.

7.Diversification

Although patients may have personal preferences for certain games and platforms, the therapist should consider that using the same game too frequently can become monotonous for the patient. Therefore, observing signs of disinterest and demotivation is crucial in guiding the use of these resources.

8.Effective and Accessible Use

Choose platforms and games that you have tested in advance and that do not take too long to calibrate or start up. A long delay before using the resource can cause discomfort and mistrust for the patient. Ideally, keep the platform charged or already turned on to facilitate practical implementation.

Although incorporating digital games into physiotherapy is a potentially positive and growing trend in recent years, it must be done in a targeted and purposeful manner. It may seem obvious, but using games in rehabilitation does not exempt the physiotherapist from the responsibility of overseeing the entire process and guiding the patient on what is expected from the therapy.

If the use of digital games is recommended, or if the patient asks about using them at home, the physiotherapist should also



inform them according to basic recommendations, especially regarding safety and therapeutic goals.

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