EDITORIAL

The benefits of artificial intelligence in the practice of physical therapy

Os benefícios da inteligência artificial na prática da fisioterapia

Los beneficios de la inteligencia artificial en la práctica de la fisioterapia

Artificial intelligence (AI) is one of the branches of Computer Science with a mathematical process that holds the potential to improve Healthcare via new delivery strategies, informed decision-making, and facilitating patient engagement with interventions[1].

Physical therapy is a field that aims to promote rehabilitation and well-being to patients through therapeutic techniques and physical exercises. With the introduction of AI, new possibilities open up to improve the diagnosis, treatment, and follow-up of patients.

One of the main advantages of AI in this field is the ability to process large amounts of data quickly and accurately. This enables professionals to identify patterns and trends that may go unnoticed by the naked eye. AI algorithms can analyze clinical data, medical images, and even information collected by wearable devices, providing valuable insights for treatment planning[2,3].

Additionally, AI can assist physical therapists in personalizing rehabilitation programs. Each patient is unique, and AI can help tailor exercises and therapies according to individual needs. Based on data collected over time, AI algorithms can adjust treatment on an ongoing basis, optimizing outcomes and speeding up recovery[4].

Another promising application of AI in physical therapy is telerehabilitation. With the right technology, patients can perform exercises at home, while being remotely monitored by physical therapists. AI can play a key role in this process by providing real-time feedback and adapting exercises according to the patient's performance. This not only increases accessibility to healthcare but also enables greater continuity of treatment[4].

However, it is important to note that AI does not replace the expertise and human and in-person care of physical therapists. Technology is a powerful tool, but the healthcare professional is the one who holds the clinical knowledge and ability to interpret the results generated by AI. Human–machine collaboration is essential to ensure the efficacy and safety of treatments[2].

REFERENCES

1. Ravali RS, Vijaykumar TM, Lakshimi KS, Mavaluru D, Reddy LV, Retnadhas M, et al. A systematic review of artificial intelligence for pediatric physiotherapy practice: Past, present, and future. Neurosci Inform. 2022;2(4):100045. doi: 10.1016/j.neuri.2022.100045

2. Sumner J, Lim HW, Chong LS, Bundele A, Mukhopadhyau A, Kayambu G. Artificial intelligence in physical rehabilitation: A systematic review. Artif Intell Med. 2023:146:102693. doi: 10.1016/j.artmed.2023.102693.

3. Bleakley A. Blunting Occam's razor: aligning medical education with studies of complexity. J Eval Clin Pract. 2010;16(4):849-55. doi: 10.1111/j.1365-2753.2010.01498.x

4. Reis FJJ, Carvalho MBL, Neves GA, Nogueira LC, Meziat-Filho N. Machine learning methods in physical therapy: A scoping review of applications in clinical context. Musculoskelet Sci Pract. 2024:74:103184. doi: 10.1016/j.msksp.2024.103184.

Sonia LPP Toledo
Editorial board of the Faculdade de Medicina da Universidade de São Paulo (FMUSP) – São Paulo (SP), Brazil. Email: revfisio@usp.br ORCID-0000-0003-3700-7700