

Use of new technologies in physiotherapy in defining the therapeutic exercise dose

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One of the main goals of physiotherapy programs is to lead the patient back to the highest level of functional independence, helping him or her to become more active and aware of the limitations and risks of the pathology he or she has in the perspective of self-management. To achieve this goal, it is necessary to establish an appropriate therapeutic dose of exercise, which is influenced by numerous aspects such as: intensity, type, duration and frequency of training, as well as the type of setting. In addition, it is important to examine the factors that influence these aspects and explore ways to assess and monitor the therapeutic dose, including objective and subjective measurements.

To make measurements in physiotherapy as objective as possible today, we can integrate, from a translational perspective, the use of molecular and digital biomarkers that help us build a rehabilitation program tailored to each patient and also objectively validate the results obtained with physiotherapy.

All this is also well suited to the delivery of physiotherapy programs in telerehabilitation, as the most modern systems are equipped with motion sensors, tools for measuring vital parameters and clouds for recording data in order to deliver home rehabilitation programs safely for the patient, also positively affecting adherence and persistence. In addition, telerehabilitation has been shown to be effective in improving access to physiotherapy services, motivating and engaging the patient during treatment through the use of immersive technologies, enabling personalization of treatment programs, and implementing self-management strategies.

The above is the background underlying the research work we are carrying out at the AOU San Giovanni di Dio e Ruggi d'Aragona di Salerno, which involves precisely the integration of clinical and functional assessment, biomarker dosage, data obtained from wearable sensors and telerehabilitation of the patient with heart failure, in order to build an effective and safe model of taking care and teleassistance for patients with decompensation and more generally with chronic diseases.