

Neuromuscular training improves the rehabilitation of patients who suffer a heart attack

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Ten lecturers from the Degrees in Physical Therapy, Nursery and Medicine of the CEU Cardenal Herrera University (CEU UCH) of

Valencia have assessed in a clinical trial the efficiency of an innovative cardiac rehabilitation program for patients who have suffered an acute coronary syndrome, such as a heart attack or an angina. This program, which incorporates neuromuscular training to cardiac rehabilitation for the first time, has shown greater efficiency than traditional strength-resistance training. In this first test, directed by lecturers Francisco Ferrer and Noemí Valtueña and whose protocol has been published in *PLOS ONE*, has included the participation of 10 patients from the Cardiology Department of the IMED hospital of Valencia. Along with an improvement to their physical condition, participants have shown greater adhesion and motivation toward the neuromuscular routines when doing exercise. Thus, the research team is already working on a broader study on 30 patients.

As the authors of the study explain, until now the [cardiac rehabilitation](#) programs recommended by the WHO since the 60s combined aerobic and strength-resistance exercises. The assessment of its efficiency was based on its effects on tolerance to effort and muscular strength gained. However, the neuromuscular control of movements is key in daily activities and to prevent injuries when exercising. Training neuromuscular abilities to control movement is as important as the exercise itself for the latter to have the desired effect.

Physical therapy lecturer Francisco Ferrer, who directed the team, adds that: "Until now, no cardiac rehabilitation program had added neuromuscular training to improve the control of movements in patients with acute coronary syndrome. This new pilot study and its work protocol, now published in prestigious journal *Plos One*, to assess the effects of neuromuscular training compared to the classic strength-resistance work in cardiac rehabilitation programs, is already being conducted on a broader sample of patients in order to make the short and long-term benefits objective."

Physical and quality of life improvements

In this clinical trial performed by 10 lecturers and researchers from the CEU UCH, the patients in rehabilitation due to an acute coronary syndrome were divided into two groups. For 20 sessions of cardiac [rehabilitation](#) lasting 60 minutes each and conducted twice a week, both groups performed the same type of aerobic exercise. But half of them conducted the classic strength-resistance training, and the other half neuromuscular training, establishing differences in the variables assessed.

The results of the neuromuscular [training](#) were positive in improving cardiorespiratory capabilities and cardiac response, as well as functional capacity in daily activities. Furthermore, there was also progress in cognitive function, sexual health and psychological wellbeing, observed using several internationally-validated scales. "Add to this the fact that patients who followed the neuromuscular routines showed greater adherence and motivation towards the exercise, encouraging them to take on a more active and, therefore, healthier lifestyle," says lecturer Ferrer.

More information: Francisco José Ferrer-Sargues et al. Effects of neuromuscular training compared to classic strength-resistance training in patients with acute coronary syndrome: A study protocol for a randomized controlled trial, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0243917](#)

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