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Neuromuscular electrical stimulation during haemodialysis

...does it improve functional capacity in people with end-stage renal disease?

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Worldwide, an increasing number of people require haemodialysis for chronic kidney disease. These people typically have much lower physical activity levels than their healthy peers, especially on dialysis days.

Although voluntary exercise can be done during haemodialysis sessions and is beneficial, some patients have already lost a lot of their capacity to exercise and find it awkward in the semi-reclined position used for haemodialysis.

Several researchers have tried to address this dilemma by intervening with neuromuscular electrical stimulation. This involves applying a mild electrical current to the skin surface overlying muscles to cause those muscles to contract involuntarily.

Neuromuscular electrical stimulation improves strength and function in long-stay hospitalised elderly individuals. A group of researchers in Spain have recently combined all the available high-quality evidence about the effects of neuromuscular electrical stimulation in haemodialysis patients.

They found eight randomised controlled trials and pooled the data to generate overall estimates of the effects of the intervention. On average, the electrical stimulation improved the distance people could walk in 6 minutes by 31 metres. Strength also improved, by an average of 3.5 kg in the quadriceps and 2.4 kg in handgrip. Electrical stimulation was also estimated to be beneficial for several aspects of quality of life, although the available data did not indicate very precisely how big those benefits were.

Overall, the authors concluded that electrical stimulation during haemodialysis is safe, practical and effective for improving functional capacity and muscle strength in people with chronic kidney disease.

Want to read deeper into this topic? Have a look at the free full text version of this article published in Journal of Physiotherapy!