

Combined arm stretch positioning and neuromuscular electrical stimulation during rehabilitation does not improve range of motion, shoulder pain or function in patients after stroke: a randomised trial

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Setting the scene

Does **static stretch positioning combined with simultaneous neuromuscular electrical stimulation (NMES)** in the subacute phase after stroke have beneficial effects on **basic arm body functions and activities**?

What did they do?

46 people in the subacute phase after stroke with severe arm motor deficit participated. In addition to conventional stroke rehabilitation, participants in the experimental group received arm stretch positioning combined with motor amplitude NMES for two 45-minute sessions a day, five days a week, for eight weeks. Control participants received sham arm positioning (no stretch) and sham NMES (transcutaneous electrical nerve stimulation with no motor effect) to the forearm only, at a similar frequency and duration. The primary outcome measures were **passive range of arm motion and the presence of pain in the hemiplegic shoulder**. Secondary outcome measures were severity of shoulder pain, restrictions in performance of activities of daily living, hypertonia, spasticity, motor control and shoulder subluxation.

Takeaway home message

In people with poor arm motor control in the subacute phase after stroke, static stretch positioning combined with simultaneous NMES **has no statistically significant effects** on range of motion, shoulder pain, basic arm function, or activities of daily living. This suggests that it is not possible to control or overcome (the emergence of) contractures and hypertonia using the current static arm muscle stretching procedures. Similarly, NMES of the antagonists of the muscles prone to shortening does not seem to provide additional benefits either. Therefore, these techniques should be discontinued in the treatment of patients with a poor prognosis for functional recovery