

Neurodynamic treatment improves leg pain, back pain, function and global perceived effect at 4 weeks in patients with chronic nerve-related leg pain

We are concerned about the reporting of the trial 'Neurodynamic treatment did not improve pain and disability at two weeks in patients with chronic nerve-related leg pain'.¹ There is a tendency to simplify the findings of clinical trials into binary conclusions (either positive or negative) based on the analysis of the primary outcomes.² Often, a more nuanced interpretation is required by thoroughly examining the totality of the evidence, not just the primary outcomes.² In our opinion, this nuance is lacking in the study by Ferreira et al.¹ If we follow their conclusions, we risk discarding valuable interventions, as is evident from their own¹ and other studies.³

In line with their protocol paper, the authors prioritised immediate treatment effects (ie, immediately after a 2-week intervention) over intermediate follow-up (4 weeks after baseline, or 2 weeks after the last treatment session). This is unconventional. Intermediate and long-term effects should have priority over immediate effects.⁴ The choice of primary outcomes was, in our view, suboptimal and unfortunate, and greatly impacted the study's conclusions. A different and probably more logical selection of primary outcomes (eg, leg or back pain, function or global perceived effect at 4 weeks) would have led to the opposite conclusion. This favourable conclusion would have been consistent with the findings from a clinical trial on neurodynamics for nerve-related neck-arm pain,³ on which the design of this study was modelled. Although our somewhat provocative title might suggest otherwise, we obviously do not advocate selective reporting of planned secondary outcomes. More nuance is and was required.

The study aimed to compare, at two timepoints, the effect of neurodynamic treatment versus wait-and-see on leg pain, disability, back pain, function, global perceived effect, and the proportion of participants whose leg pain centralised. The title, conclusions and choice of primary outcomes should better reflect all aims of the study. Leg pain and disability were primary outcomes immediately after treatment, but were not considered important enough to be primary outcomes at 4 weeks. We fail to see the rationale behind this. In a trial where rapid change would be unexpected, 4-week outcomes seem more important because: only four treatment sessions were prescribed in patients with a chronic condition, and neuropathic pain and nerve root

compromise, which are likely indicators of a less favourable prognosis for neurodynamic^{5,6} and other interventions, were prevalent (26/60 and 33/60 patients, respectively). There was indeed a significantly larger improvement for leg pain, back pain, function and global perceived effect in favour of neurodynamic treatment at 4 weeks (as well as function and global perceived effect immediately after treatment). We believe that these are valuable outcomes.

Another concern is the choice of Oswestry Disability Index as a primary outcome over the Patient Specific Functional Scale, which was secondary. Maughan and Lewis⁷ revealed that the Patient-Specific Functional Scale was more responsive than the Oswestry Disability Index and Roland-Morris Disability Index in people with back pain. In the study by Ferreira et al,¹ the Patient-Specific Functional Scale results favoured neurodynamic treatment at both timepoints.

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References

1. Ferreira G, et al. *J Physiother.* 2016;62:197–202.
2. Pocock SJ, Stone GW. *N Engl J Med.* 2016;375:971–979.
3. Nee RJ, et al. *J Physiother.* 2012;58:23–31.
4. Cook C. *J Man Manip Ther.* 2011;19:3–4.
5. Nee RJ, et al. *J Orthop Sports Phys Ther.* 2013;43:379–391.
6. Schäfer A, et al. *Eur Spine J.* 2011;20:482–490.
7. Maughan EF, Lewis JS. *Eur Spine J.* 2010;19:1484–1494.

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Trial of neurodynamic treatment was reported accurately and appropriately

We would like to thank the editor-in-chief of *Journal of Physiotherapy* for the opportunity to address Hall and colleagues' concerns about our randomised trial of neurodynamic treatment for chronic nerve-related leg pain.¹ Hall and colleagues stated that: the reporting of our results, emphasising the findings of the primary outcomes, has led to a binary and oversimplified conclusion that neurodynamic treatment 'does not work' despite

the findings of some secondary outcomes; the choice of leg pain and disability as primary outcomes only at 2 weeks, but not at 4 weeks also, was illogical; the selection of the intermediate follow-up (4 weeks) as the primary outcome would have been more adequate than the short-term follow-up that we chose; and we should have considered using the Patient-Specific Functional Scale (PSFS) rather than the Oswestry Disability Index (ODI) as one