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Editorial comment

Home training in sensorimotor discrimination reduces pain in complex regional pain syndrome (CRPS)

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1. Introduction

In this issue of the *Scandinavian Journal of Pain*, Schmid and coworkers [1] report on a simple and easy way to use home training in sensory discrimination, which showed significant reductions in pain intensity in patients with complex regional pain syndrome. The 2-week training was performed at the patients' home and consisted of a braille-like haptic task, which included bi-manual, speed and memory training. Bimanual training was implemented based on previous data suggesting impaired bimanual coupling and potentially deficient interhemispheric transfer in this condition [2]. The results are interesting because this is an approach that takes sensorimotor training out of the laboratory. Although this is a pilot study in only 10 patients without a control group, the authors showed that the amount of training was positively correlated with the magnitude of pain reduction suggesting that there is a dose-response-related effect.

2. Review of the topic

The results of this pilot study are in line with similar work on phantom limb pain [3,4] that showed a relationship between improvements in tactile acuity related to active training, changes in phantom pain and a reversal of altered cortical maps. A previous study by David et al. [5] in CRPS patients that used passive stimulation rather than active discrimination and was applied in the laboratory and at home. It indicated significant improvements in tactile acuity but not in pain. A major difference between these studies is that active versus passive stimulation was used and it would be interesting to see if this could account for the differences in pain reduction. A study in patients with chronic back pain, however, found more improvement with passive stimulation, which was considered as a placebo in this study than with active discrimination [6]. The David et al. study [5] was also shorter (5 days), which might have been another factor for different outcomes.

3. Conclusion and implications

Although the results of this pilot study are encouraging, they require testing in larger samples that are placebo-controlled since expectancy may be a major factor that not only motivates pain reduction but also more active participation in the training that could then mediate the dose-response effect observed in this study. Moreover, a recent brain imaging study in CRPS suggested that the major change may not be in the representation of the affected but of the unaffected hand [7] and thus brain imaging data related to the treatment effects would be of great value. In phantom limb pain, for example, effective mirror training or motor imagery has been shown to also alter the cortical map [8,9]. Further questions also arise to the type of training. In addition to tests of active versus passive types of training, purely sensory and sensorimotor tasks need to be compared and the question of unisensory versus multisensory tasks has also not been resolved. Finally, the extent of embodiment and agency related to the affected limb, which were not addressed in this study, may also be important. Despite the fact that this study raises many questions, it is important, because we need to develop easy to use home-based interventions if we want to overcome the problem of insufficient access to efficient treatments for patients with neuropathic pain. A combination of discrimination training with pharmacological interventions that foster training effects and brain plasticity [4,10] might also be of interest. Similarly, brain stimulation methods could be combined with sensory training [11].

Conflict of interest

None declared.

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