

# 2 3 Do non-pharmacological interventions 4 improve chronic pain in multiple 5 sclerosis? - A Cochrane Review 6 summary with commentary

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11 **Abstract.** The aim of this commentary is to discuss the rehabilitation perspective in the recently published Cochrane Review  
12 “Non-pharmacological interventions for chronic pain in multiple sclerosis” by Amatya, Young & Khan.<sup>1</sup>, under the direct  
13 supervision of Multiple Sclerosis and Rare Diseases of the CNS group. This Cochrane Corner is produced in agreement with  
14 “*NeuroRehabilitation*” by Cochrane Rehabilitation.

## 15 1. Background

16 Chronic pain is common in people with multi-  
17 ple sclerosis (pwMS) with approximately 42% to  
18 90% experiencing pain at some stage of the dis-  
19 ease course. The underlying mechanism of pain in  
20 MS is unclear and thought to be associated with  
21 active inflammation from the MS process itself  
22 and/or from MS-related complications (Khan, Pal-  
23 lant, Amatya, Young, & Gibson, 2011). Pain can

24 have a significant impact on people’s general health,  
25 activity and participation. It can be classified into  
26 various types: neuropathic, nociceptive, psychogenic,  
27 idiopathic and mixed categories (Truini, Barbanti,  
28 Pozzilli, & Cruccu, 2013). Currently, many pharma-  
29 cological and non-pharmacological interventions or  
30 a combination of both are used to treat chronic pain in  
31 pwMS. Non-pharmacological interventions include:  
32 exercise, psychology, electrical stimulation therapy,  
33 reflexology and others.

34 *Non-pharmacological interventions for chronic*  
35 *pain in multiple sclerosis (Amatya, Young &*  
36 *Khan, 2018)*

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<sup>1</sup>The abstract/plain language summary of this Cochrane Review is taken from a Cochrane Review previously published in the Cochrane Database of Systematic Reviews 2018, Issue 12, DOI: 10.1002/14651858.CD012622.pub2 (see www.cochranelibrary.com for information). Cochrane Reviews are regularly updated as new evidence emerges and in response to feedback, and Cochrane Database of Systematic Reviews should be consulted for the most recent version of the review.

## 37 2. Objective

38 This review investigated the effectiveness and  
39 safety of non-pharmacological therapies for the man-  
agement of chronic pain in pwMS.

### 3. What was studied and methods

A comprehensive literature search was performed using the specialized register of the Cochrane MS and Rare Diseases of the Central Nervous System Group (10 December 2017) which contains major health-science databases. The population addressed was adults with MS suffering from pain longer than three months. All published randomized controlled trials (RCTs), clinical controlled trials (CCTs) and cross-over studies that comparing non-pharmacological therapies with a control intervention for managing chronic pain in pwMS were included. The primary outcome measure was reduction in pain intensity, whilst secondary outcome measures were improvements in symptoms and quality of life. The reviewers independently selected studies, extracted data and assessed methodological quality of selected studies using the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) tool for best-evidence synthesis. Meta-analysis was not possible due to methodological, clinical and statistical heterogeneity of included studies.

### 4. Results

Ten RCTs with 565 participants were included. The study 'quality' varied and most were rated as 'very low' due to a high risk of bias, underpowered studies (small sample size) and lack of data on changes in pain outcomes. The qualitative synthesis of 'best evidence' shows that for intervention programs ranging between 3 days to 20 weeks, there is 'very low level evidence' for:

- Transrandom Noise Stimulation (tRNS) (3 days) reducing pain intensity, depression, anxiety and fatigue.
- Transcranial direct stimulation (tDCS) (3–5 days) reducing pain intensity and quality of life
- Transcutaneous nerve stimulation (TENS) (6 weeks) reducing back pain.
- Telephone self-management (8 weeks) reducing pain intensity, catastrophization, self-efficacy, fatigue and quality of life.
- Ai Chi water exercises (20 weeks) reducing pain intensity, spasticity, quality of life and fatigue.
- Electroencephalogram (EEG) feedback (5 sessions) reducing pain intensity, fatigue and pain interference.

- Reflexology (10 weeks) reducing pain intensity, disability, fatigue, psychology, physical impact and depression.

### 5. Conclusions

Despite use of a range of non-pharmacological interventions for chronic pain in MS, there is 'very low level' evidence for the evaluated interventions. Further, one type of intervention was not superior to another. Studies with robust methodology are needed to justify the use of these interventions for chronic pain in MS.

### 6. Implications for practice in neurorehabilitation

Pain in MS is treated with combination of both non-pharmacological and pharmacological modalities. Evaluation of various types of non-pharmacological therapies currently used in the management of chronic pain in pwMS show 'very low level' of evidence and uncertainty for recommending these interventions. However, the overall results suggest non-pharmacological interventions have some beneficial effect on chronic pain and are not harmful. There was a trend toward reduction in pain intensity in majority of studies with some improvements in secondary outcomes such as: fatigue, spasticity and quality of life. This suggests use of non-pharmacological intervention in combination with other pharmacological agents is reasonable but robust trials in this field are needed to support these modalities since certainty of the evidence was evaluated as very low or uncertain.

### Acknowledgments

The author are grateful to the Cochrane Multiple Sclerosis and Rare Diseases Group for their support and assistance and would like to thank Cochrane Rehabilitation and NeuroRehabilitation for reviewing the contents of the Cochrane Corner.

### Conflict of interest

The authors declare no conflicts of interest.

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