



# Abdominal Functional Electrical Stimulation (FES) for the treatment of chronic constipation in Multiple Sclerosis

## A case series

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### Introduction

Chronic constipation is a problem reported by up to 70% of People with Multiple Sclerosis (PwMS)<sup>1</sup>. First line treatments such as laxatives are frequently ineffective so there is a need for research into new treatments. Abdominal functional electrical stimulation (FES) has been used successfully to treat patients in a pilot study completed in 2015 (n=5)<sup>2</sup>. The current study sought to further explore the use of FES for the treatment of constipation in a larger case series

### Method

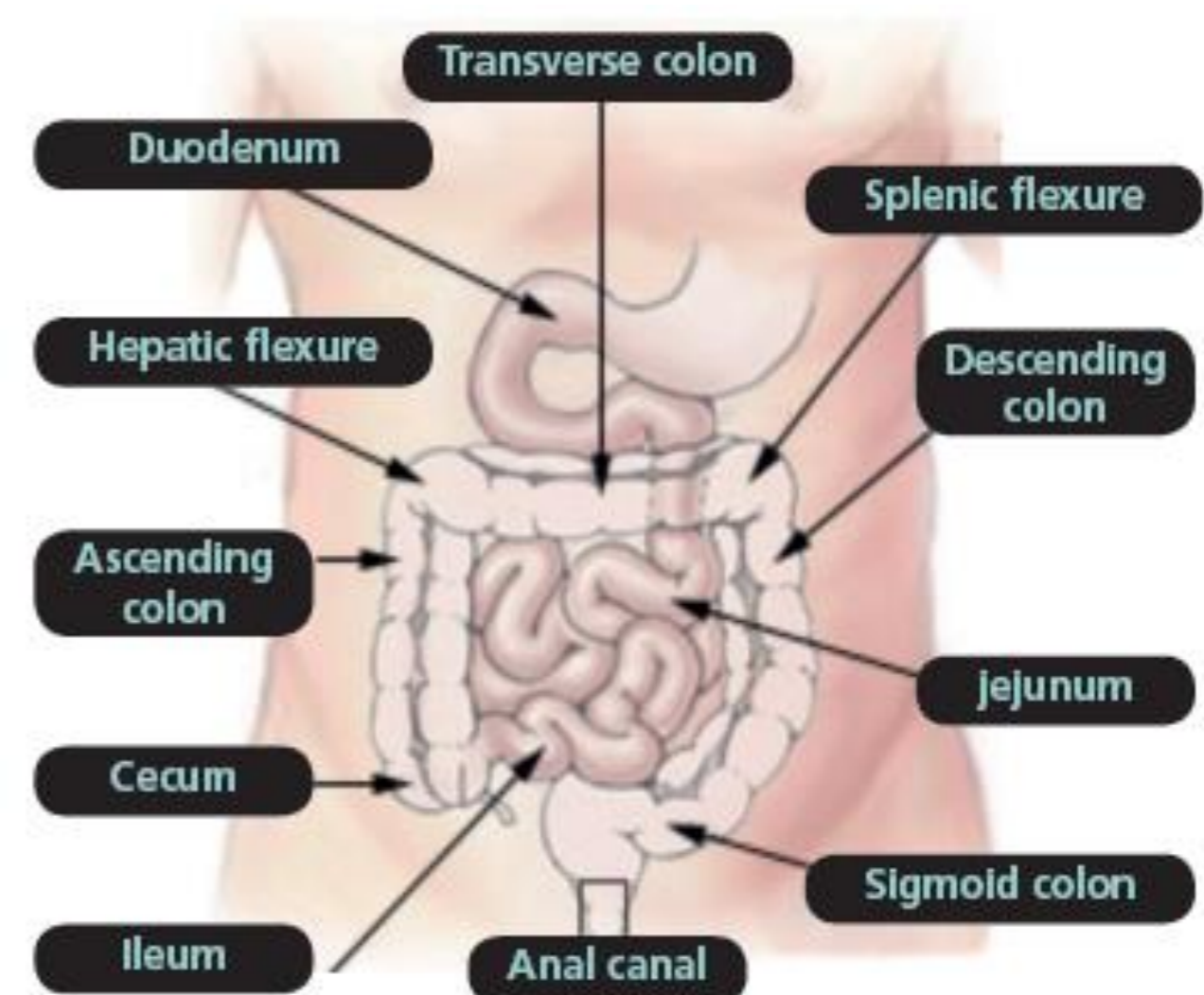
Twenty participants with Multiple Sclerosis (MS) and constipation (ROME IV Criteria) were included in the case series. Electrical stimulation was applied independently by the participants to the internal oblique's and transverse abdominal muscles for 30 minutes twice daily over a period of 6 weeks. Stimulation was applied using a Microstim 2 (MS2) exercise stimulator on simultaneous mode at 40Hz.

The Patient Assessment of Constipation related Quality of Life (PACQoL) was used as the main outcome measure (0-4 likert scale). It was completed at baseline and following 6 weeks of FES treatment. The PACQOL has 28 questions and includes 4 subscales: *physical discomfort, worries and concerns, psychosocial discomfort and satisfaction.*

Qualitative analysis was also conducted using semi-structured interviews including a usability questionnaire (n=5).

**Table 1: Results for PACQoL Sub-Scales \*significant (p<0.05)**  
**Minimum clinical important difference (MCID) = 0.5**

Sub-Scales	Median	Z	p	IQR range
<i>Satisfaction</i>	2.00	120	0.001*	0.25 - 3
<i>Psychosocial Discomfort</i>	1.00	93	0.012*	0 - 2.38
<i>Physical Discomfort</i>	1.25	190	0.001*	1 - 2
<i>Worries and Concerns</i>	1.50	136	0.001*	1 - 2



### Results

- A 0.5 point change in the PACQoL is recommended as the MCID
- All the subscales were consistent with an MCID change along with the overall difference score of 1.27.
- All sub scales of the PACQoL showed significant improvement over the 6 week treatment period.
- Additional reported benefits for some participants included a long term therapeutic effect, reduction in the use of laxatives and improved sexual functioning.
- No risks were noted other than developing skin irritation for one participant which was managed with hypoallergenic electrodes.

### Discussion / Conclusions

The results from the case series suggest abdominal FES to treat constipation related to neurogenic bowel in PwMS is worthwhile exploring further with a feasibility study followed by a fully powered randomised controlled trial. It is encouraging that all constipation related quality of life sub-scales showed a significant improvement with FES treatment. Of particular interest is the long term therapeutic benefit reported by some participants in the study.

#### **References**

- [1] Hinds, JP., Eidelman, BH., Wald, A., Prevalence of bowel dysfunction in multiple sclerosis: a population survey. *Gastroenterology*. Vol. 30;98(6), pp. 1538-42. June 1990  
 [2] Singleton, C., Bakheit, AM., Peace, C., The Efficacy of Functional Electrical Stimulation of the Abdominal Muscles in the Treatment of Chronic Constipation in Patients with Multiple Sclerosis: A Pilot Study. *Multiple Sclerosis International*. Vol. 20, April 2016

#### **Acknowledgements**

We thank all the participants of the case series for their involvement.