

# Effectiveness of a dance-based intervention on motor outcomes in young adults with multiple sclerosis: results of the ESPRIMO study

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## INTRODUCTION

- Multiple sclerosis is a chronic disease that affects both motor function and patients' psychological well-being.
- Despite the progress of pharmacological therapies, non-pharmacological approaches remain **underexplored**.
- In particular, the literature on integrated interventions combining motor training and psychological support is **limited**, despite their potential synergy in promoting autonomy, resilience, and treatment adherence.
- This study evaluates a multidimensional approach aimed at improving the overall **quality of life** in people with multiple sclerosis.

## OBJECTIVE

To assess whether a combined motor and psychological intervention **can improve physical performance** in people with multiple sclerosis.

## METHODS

**Study design:** open label, non-randomized uncontrolled trial.

**Inclusion criteria:** age 18 - 45 years, diagnosed with MS, and EDSS score  $\leq 3.5$ .

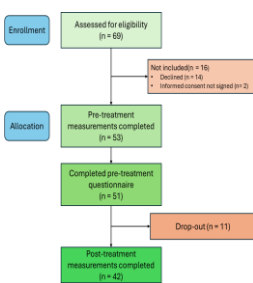
**Participants** were divided into six groups, they completed an eight-week swing dance program combined with psychological sessions.

**Motor outcomes** were assessed before and after the eight week intervention using four functional tests:

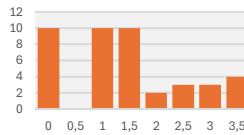
- 6-Minute Walking Test (6MWT):** distance walked in six minutes.
- Timed Up and Go (TUG):** time to stand up, walk around an obstacle, and return to a seated position.
- Balance Test (SPPB):** Three positions (feet together, semi-tandem, tandem) held for 10s. One point for position; tandem = 1 point if held 3-9,9 s, 2 points if held 10s.
- Four Square Step Test (FSST):** time to complete a step sequence within a marked square

## RESULTS

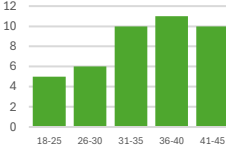
### Study flow-chart



### EDSS score

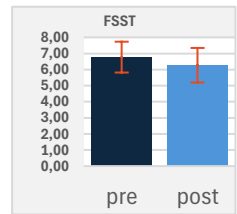
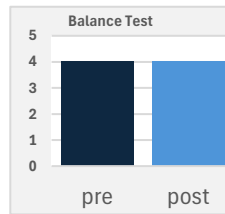
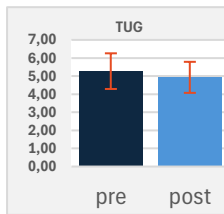
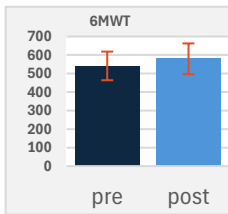


### AGE



### Sociodemographic and clinical features

	Treatment completed N=42	Drop-out N=11	Statistical tests
<b>Gender</b>			
Female	34	6	$\chi^2 = 3.28$ $p = 0.07$
Male	8	5	
<b>Education level</b>	N=41	N=9	
Secondary/professional diploma	8	3	$\chi^2 = 3.29$ $p = 0.18$
High school diploma	10	4	
Master's degree	23	2	
<b>Employment</b>		N=9	
Yes	31	4	$\chi^2 = 2.97$ $p = 0.085$
No	11	5	
<b>Living situation</b>		N=9	
Living with partner/children	29	4	$\chi^2 = 3.56$ $p = 0.31$
Living with parents	7	4	
Living with non-family	1	1	
Living alone	5	1	
<b>Age</b> (mean $\pm$ DS (years))	33,71 $\pm$ 6,31	33 $\pm$ 6,54	$t = 0,35$ $p = 0,74$
<b>Time since diagnosis</b> (mean $\pm$ DS (years))	6,52 $\pm$ 5,56	4,5 $\pm$ 7,46	$t = 0,73$ $p = 0,48$
<b>EDSS</b> (median (IQR))	1,5 (1-2)	1,5 (1-2)	$U = 149$ $p = 0,32$



## CONCLUSIONS

- Significant improvement in overall physical performance in young adults with MS (YAWMS).
- No substantial changes detected in the SPPB Balance Test due to a ceiling effect, limiting its sensitivity in individuals with mild disability.
- Swing dance combined with psychological group sessions appears to be a promising intervention to enhance motor function.
- This combined approach could be integrated into a multidisciplinary therapeutic program for YAWMS.

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