

DDSIG New and Noteworthy

APTA Neurology Section

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New

High Intensity Exercise in Multiple Sclerosis: Effects on Muscle Contractile Characteristics and Exercise Capacity, a Randomized Controlled Trial. [Article Link](#)

Wens I, Dalgas U, Vandenberghe F, et al. *PLoS ONE*. 2015;10(9): e0133697.

INTRODUCTION:

Low-to-moderate intensity exercise improves muscle contractile properties and endurance capacity in multiple sclerosis (MS). The impact of high intensity exercise remains unknown.

METHODS: 34 MS patients were randomized into a sedentary control group (continuing their regular activities) and 2 exercise groups that performed 12 weeks of a high intensity interval or high intensity continuous cardiovascular training, both in combination with resistance training. M. vastus lateralis cross sectional area (CSA), maximal endurance capacity and self-reported activity levels assessed before and after 12 weeks.

RESULTS: Compared to SED, 12 weeks of high intensity exercise increased mean fiber CSA (H_{IR}: +21±7%, H_{CR}: +23±5%). Fiber type I CSA increased in H_{CR} (+29±6%), whereas type II (+23±7%) and IIa (+23±6%) CSA increased in H_{IR}. Muscle strength improved in H_{IR} and H_{CR} (between +13±7% and +45±20%) and body fat percentage tended to decrease (H_{IR}: -3.9±2.0% and H_{CR}: -2.5±1.2%).

Endurance capacity (W_{max} +21±4%, time to exhaustion +24±5%, VO_{2max} +17±5%) and lean tissue mass (+1.4±0.5%) only increased in H_{IR}. Finally self-reported physical activity levels increased 73±19% and 86±27% in H_{CR} and H_{IR}, respectively.

CONCLUSION: High intensity cardiovascular exercise combined with resistance training was safe, well tolerated and improved muscle contractile characteristics and endurance capacity in MS.

CONCLUSIONS and CLINICAL IMPLICATIONS: Many therapists avoid moderate-to-high intensity exercise in individuals with MS. However, this study described no adverse events and short term improvements via high intensity cardiovascular and resistance exercise.

Noteworthy



- 4 days of programming with MANY activities and topics.
- A few notable points of new "Hot Topics":
- New in Deep Brain Stimulation is work on developing Adaptive DBS - the electrode "reads" what the cells in STN are doing and only stimulates "if needed"
- Dance for PD group in New York ran a small study with people in their classes using wearable Google Glasses that are programmed with 4 modules to cue people with PD (Warm Me Up, Balance Me, Walk With Me, Unfreeze Me).

Link to article:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4587912/>