In this newsletter...

- New Article REVIEW. JAMA, Optimal Intensity and Duration of Walking
- Student Corner has great content. 2 new videos posted!
- Virtual Town Hall event for educators - If you missed it, recording available

Title: Optimal Intensity and Duration of Walking Rehabilitation in Patients with Chronic Stroke: A Randomized Clinical Trial


Link to full article: https://jamanetwork.com/journals/jamaneurology/fullarticle/2801947

Definitions: Moderate-intensity Aerobic Training (MAT): A type of locomotor exercise typically involving treadmill/overground walking at mean training heart rates between 40% -60% of the heart rate reserve (HRR). Studies have found that MAT is associated with significantly greater improvements in walking capacity (6-minute walk distance) and other outcomes when compared lower intensity walking practice or non-walking exercise.

High intensity interval training (HIIT): A type of locomotor exercise involving bursts of fast walking alternated with recovery periods. It is designed to enable sustained vigorous intensities (>60% HRR) Studies suggest that more vigorous training intensity could further improve outcomes, but a vigorous intensity can be difficult to achieve and sustain for many persons with stroke using continuous activity.
Purpose of article: This multicenter randomized clinical trial was used to assess the optimal training intensity (moderate vs vigorous) and the minimum training duration (4, 8, or 12 weeks) needed to maximize immediate improvement in walking capacity among stroke survivors with chronic walking limitations.

Methods of interest: Participants included were adult survivors of a single stroke who had persistent walking limitations > 6 months after the stroke. Subjects were randomized to either MAT or HIIT intervention groups. Target training volume for both groups was 45 minutes, 3 times per week, for 12 weeks. Each session involved task specific walking training on a treadmill and overground. The HIIT group used a protocol involving 30-second bursts of walking at maximum safe speed, alternated with 30- to 60- second passive recovery periods (standing or seated rest as tolerated), targeting a mean aerobic intensity > 60% HRR. The MAT group performed continuous walking practice with speed adjusted to maintain an initial target HR of 40% HRR, progressing by 5% HRR every 2 weeks up to 60% HRR as tolerated.

Outcomes were assessed at baseline and after 4, 8, and 12 weeks of training. The primary outcome measure was walking capacity, measured by distance walked during the 6-minute walk test. Secondary measures included self-selected and fastest speeds, (measured by the 10-m walk test); self-reported fatigue measured by the Patient Reported Outcomes Measurement Information System (PROMIS) Fatigue Scale; and aerobic capacity, measured by oxygen consumption rate (VO2) at the ventilatory threshold during a treadmill-graded exercise test. Adverse events were recorded as well.

Results of interest: Fifty-five participants were randomized to either an MAT or HIIT intervention group. Baseline characteristics were similar between groups. After 4 weeks of training, there was no significant difference in the primary outcome of 6mWT change between groups. However, the HIIT group improved significantly more than the MAT group after 8 weeks and 12 weeks. Both groups exhibited significant increases in self-selected gait speed, fastest gait speed, and ventilatory threshold VO2 at various time points relative to baseline, with the HIIT group showing significantly greater increases than the MAT group in self-selected and fastest gait speeds. Only the HIIT group had significantly decreased PROMIS Fatigue Scale scores compared with the MAT group and only at the 8-week time point.

Discussion, take home message: Results of this trial give proof of concept that vigorous training intensity is a crucial dosing parameter for locomotor exercise in patients with chronic stroke. Findings also indicated that locomotor HIIT can produce significant and meaningful gains in walking capacity in 4 weeks, but that a training duration of at least 12 weeks is needed to maximize immediate gains in walking capacity with this intervention. Clinically, 12-week outpatient therapy duration for a HIIT program may be an optimal standard to target. Adverse event monitoring in this study suggests HIIT is a safe intervention.

Additional references:
- ANPT: Locomotor Training CPG Resource Page: This page has an abundance of information/resources for clinicians interested in implementing HIT in their clinic. https://neuropt.org/practice-resources/anpt-clinical-practice-guidelines/locomotion
- ANPT National Campaign: Intensity Matters: Includes clinical resources and a
NEW STUDENT CORNER VIDEOS!
2 part series

Student Corner Question:
“Is there evidence for or against the use of hemi-walkers for gait training acutely post stroke?”

Hemi Walkers Acutely Post-Stroke-Part 1:
https://www.youtube.com/watch?v=BFeEiQ2QkvY
Hemi Walkers Post-Stroke Case Conclusion:
https://www.youtube.com/watch?v=ZO1Yr-siYHg

Anyone can ask a question (anonymously). The stroke SIG will answer.
https://www.neuropt.org/special-interest-groups/stroke/student-corner

Virtual town hall event for Educators

In case you missed this great conversation, you can still listen here.

VISIT THE STROKE SIG ONLINE!