

# Randomized Controlled Trial of Neurologic Music Therapy in Parkinson's Disease: Research Rehabilitation Protocols for Mechanistic and Clinical Investigations

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**Study protocol**

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# Abstract

## Background

Presently available medications and surgical treatments for Parkinson's disease have limited effects on fine motor problems and often leave patients with significant fine motor disability. Standard of care occupational therapy (OT) yields low efficacy, potentially due to a lack of standard protocols. Neurologic Music Therapy (NMT) techniques, especially Rhythmic Auditory Stimulation which relies on interaction between rhythm and movement, have shown to be effective in PD gait rehabilitation possibly through their reliance on neural pathways that are not affected by PD. Therapeutic Instrumental Music Performance (TIMP) is one other NMT technique that holds promise but which mode of action and efficacy has not been investigated in PD yet.

## Methods

One hundred PD participants will be randomly assigned to receive 15 sessions of either TIMP with rhythm or TIMP without rhythm, standard of care OT, or to be waitlisted (control) over 5 consecutive weeks. Brain oscillatory responses will be collected using magnetoencephalography during an auditory-motor task to understand the underlying mechanisms. The Grooved Pegboard, the UPDRS III finger tap and the finger-thumb opposition will be assessed to investigate clinical changes related to fine motor function. This project will also serve to confirm or refute our pilot data findings suggesting NMT relies on compensatory brain networks utilized by the PD brain to bypass the dysfunctional basal ganglia.

## Discussion

This study aims to use standardized TIMP and OT research protocols for investigating the neuronal pathways utilized by each intervention and possibly study their efficacy with respect to fine motor rehabilitation via a randomized control trial in the PD population.

## Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

## Figures

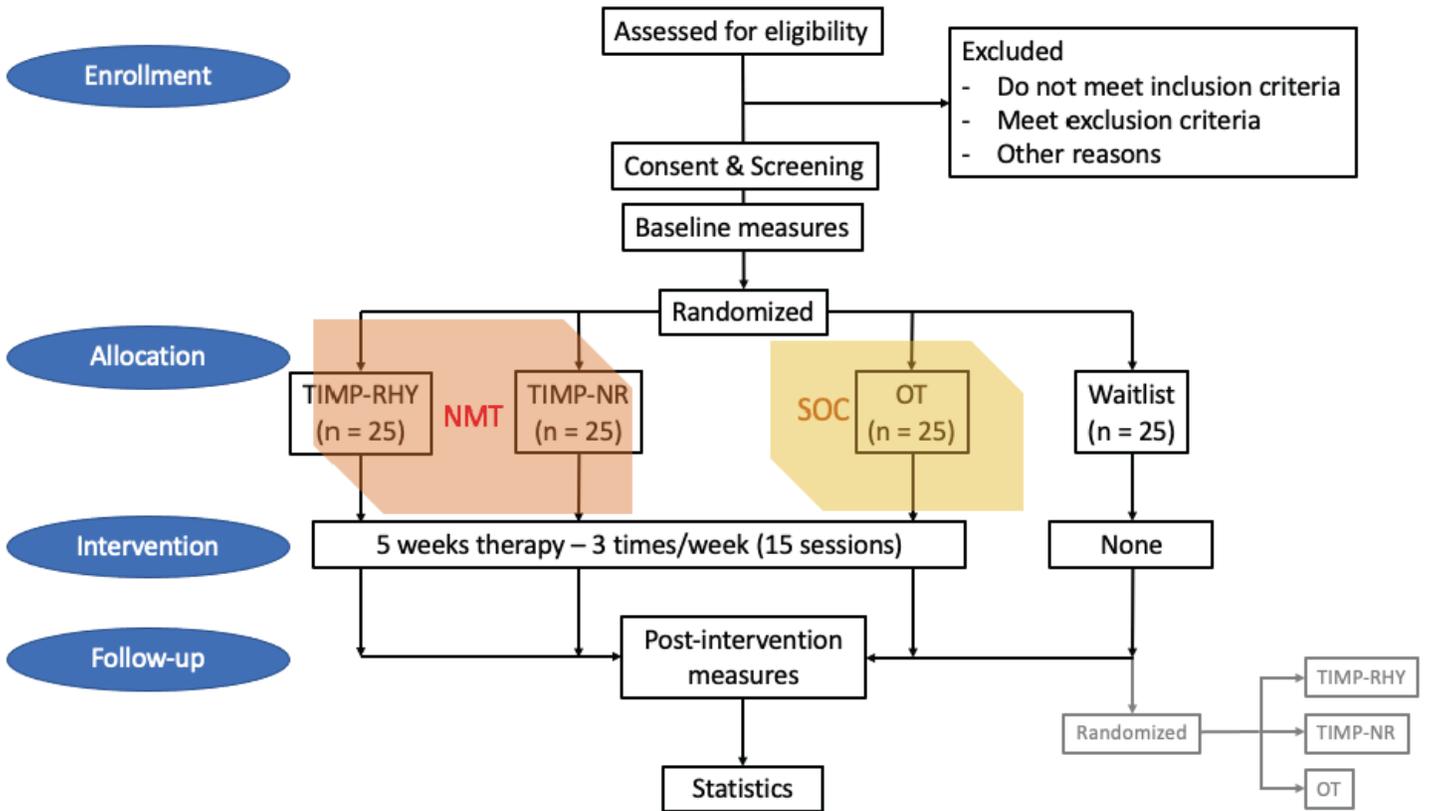


Figure 1

Study Flow