Modulation Effects of a Computer-based Multimodal Mind and Body Approach for Mild Cognitive Decline

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Mild cognitive impairment (MCI) is believed to be the first cognitive expression of Alzheimer's disease (AD). Nevertheless, pharmacologic treatment for MCI is far from satisfactory, highlighting the urgent need for a cost-effective and easily implementable solution for MCI. Recently, mind and body approaches have demonstrated their potential for the prevention of cognitive decline and memory loss. Nevertheless, most of the studies / programs have focused on a single approach, and responses to each of these approaches are heterogeneous. The aim of this study is to perform a pilot feasibility study on computer-based multimodal mind and body approach (cbMMBA) for MCI, which integrate several promising mind and body approaches.

Specific Aim: Perform a feasibility study on the cbMMBA. individuals with MCI will be recruited and randomized to the cbMMBA group or a standard cognitive training group (Control condition – computer based cognitive fitness program (cbCFP). Primary outcomes will be feasibility-related assessments (recruitment, retention, fidelity, satisfaction and safety).

Detailed experimental procedure

Subject recruitment. Patients with MCI will be recruited.

Randomization. Patients who pass the screening will be randomized to the cbMMBA or cbCFP control group using a centrally generated, variable-sized block design.

Endpoints. Primary outcomes will be feasibility-related outcomes such as recruitment, retention, fidelity, satisfaction, and safety. Secondary outcomes will include cognitive assessments.

Blinding. Due to the nature of the intervention, patients cannot be blinded as to whether they receive cbMMBA or cbCFP control. All outcome assessors will be blinded to the treatment each patient receives.

Session 1 will be a baseline session that will include clinical outcome measures and other related assessments

Interventions All participants will receive cbMMBA or cbCFP three times per week for the first six weeks and two times per week for the remaining six weeks. All training will be remote over Zoom. Staff will also be available by phone to provide help if needed. Each session will last about one hour, with 1-2 breaks during the session. During the intervention, the pre-developed programs will be presented, and the instructor will be available to answer questions at the end of the session. Absent participants will receive a reminder phone call to attend subsequent sessions. Research staff will monitor home practice adherence through monthly phone calls and practice diaries during the follow-up.

Session 2-4 is Mid-term, final and follow-up assessments The mid-term and final assessments will be identical to the baseline assessment. A mid-term (6 week) assessment will allow us to better understand the projection of the intervention. Upon completion of the training programs at week 12, participants will be encouraged to continue with interventions at home and fill out weekly diary entries for an additional three months. At the end of this period, we will perform a follow-up assessment identical to the baseline assessment.