Study Protocol Summary

Title: Effect of Action Observation Training on Gait Variables and Global Cognitive Functions

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Brief Summary:
This randomized controlled trial investigates the effect of Action Observation Training (AOT) combined with gait training on gait variables and global cognitive functions in older adults diagnosed with mild cognitive impairment (MCI). The study compares outcomes among three groups: AOT with gait training, gait training alone, and a control group.

Objectives:

1. To compare gait variables and global cognitive functions across the three groups before training, after training, and at follow-up.

2. To assess changes in gait and cognitive functions over time within each group.

Study Design:
Single-blind randomized controlled trial with participants blinded to group allocation.

Participants:
Thirty-nine older adults (aged 60–80) with MCI were recruited from Mahidol University Physical Therapy Center, Siriraj Hospital, and surrounding communities. Diagnosis based on criteria from the National Institute on Aging and the Alzheimer's Association. Inclusion and exclusion criteria apply. Informed consent was obtained prior to participation.

Methods:

- Participants were randomly assigned (stratified by age and education) into three groups:
    - Action Observation with Gait Training (AOGT)

    - Gait Training (GT)
    - Control group (no intervention)
- Gait variables were measured using a Force Distribution Measurement platform during single-task and dual-task walking conditions.
- Global cognitive function assessed by Montreal Cognitive Assessment (MoCA).
- Assessments conducted at baseline (T1), after 4-week of training (T2), and at 1-month follow-up (T3).

Intervention:

AOGT and GT groups receive 12 sessions over 4 weeks, including video observation, warm-up, gait training, cool-down, and stretching. The control group receives dementia education only and continues usual activities.

Statistical Analysis Plan

Data will be analyzed using IBM SPSS Statistics version 24, with statistical significance set at $p < 0.05$. Normality of data distribution will be assessed using the Kolmogorov-Smirnov test. Given normally distributed data, parametric tests will be applied.

A two-way mixed ANOVA will evaluate the effects of group (intervention) and time on outcome variables, including their interaction (group × time). Repeated measures ANOVA was used to assess within-group changes across the three time points. Additionally, one-way ANOVA was used to compare mean changes between groups