

World first use of cognitive training reduces gait freezing in Parkinson's patients

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The researchers report significant reduction in the severity and duration of freezing of gait, improved cognitive processing speed and reduced daytime sleepiness.

Freezing of gait (FoG) is a disabling symptom of Parkinson's Disease, characterized by [patients](#) becoming stuck while walking and unable to progress forward, often describing the feeling as being glued to the ground. It is well-known to lead to falls and lower quality of life, making it an important target for treatment.

Research has linked FoG to aspects of attention and [cognitive control](#), a link supported by neuroimaging evidence revealing impairments in the fronto-parietal and fronto-striatal areas of the brain.

The intervention

Patients with Parkinson's Disease who self-reported FoG and who were free from dementia were randomly allocated to receive either a cognitive [training](#) intervention or an active control.

Sixty-five patients were randomized into the study. The sample of interest included 20 patients randomly assigned to the cognitive training intervention and 18 randomized to the active control group.

Both groups were clinician-led and conducted twice-weekly for seven

weeks. The primary outcome was the percentage of time spent frozen during a 'Timed Up and Go' task, assessed while patients were both on and off dopaminergic medications.

Secondary outcomes included multiple neuropsychological and psychosocial measures, including assessments of mood, well-being and length and quality of sleep.

Results

The researchers report that patients in the cognitive training group showed a large and statistically significant reduction in FoG severity while on dopaminergic medication compared to participants in the active control group on dopaminergic medication.

Patients who received cognitive training also showed improved cognitive processing speed and reduced daytime sleepiness compared to those in the active control while accounting for the effect of dopaminergic medication.

There was no difference between groups when they were tested without their regular dopaminergic medication.

"We believe there is reason to be hopeful for the use of these trials in the future," said study leader, Dr. Simon Lewis, a professor of cognitive neuroscience at the University of Sydney's Brain and Mind Centre and Royal Prince Alfred Hospital in Australia.

"The feedback we've had from participants and family members involved in this study was overwhelmingly positive. The results of this pilot study highlight positive trends, and the importance of nonpharmacological trials involving cognitive training has become increasingly clear."

The research team, comprising scholars from the University of Sydney, Western Sydney University and Cambridge University say the finding that freezing of gait improved only while patients were on dopaminergic [medication](#) is noteworthy.

"Taking dopaminergic medications as prescribed is the normal day-day state for patients with Parkinson's Disease," said study lead-author, Dr. Courtney Walton, formerly at the University of Sydney and now at the University of Queensland.

"While more research is needed to better understand and establish these findings, it's likely that participants in the off- dopaminergic state were too impaired to benefit from any of the potential changes initiated through cognitive training."

The researchers say more studies using larger samples are needed to investigate this initial finding that [cognitive training](#) can reduce the severity of freezing of gait in Parkinson's diseases patients.

Provided by University of Sydney

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