

Immobility may be key to predicting Parkinson's decline

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The study revealed not all of the participants with postural symptoms would develop cognitive difficulties. Credit: iStock

West Australian researchers have found physical symptoms such as having difficulty moving or maintaining one's balance could be the key to predicting cognitive changes in people who suffer from a Parkinson's disease subtype.

Parkinson's disease (PD) is a progressive neurodegenerative disorder affecting approximately 2000 West Australians; currently there is no cure.

Curtin University researchers investigated two motor subtypes of PD to understand if they could be used to determine future [working memory](#) performance in Idiopathic Parkinson's disease.

The study involved 114 West Australian participants with confirmed PD (84 males and 30 females) aged between 39 and 85 years.

Participants were assessed at a two-year follow-up to explore the relationship between the two subtypes and working memory.

PhD candidate Andrew Johnson says people who

suffer from Parkinson's disease often present with different combinations of motor symptoms.

Individuals with prominent tremors and rigidity are Tremor Dominant (TD), or if they mainly have difficulty moving it's classed as Postural Instability & Gait Difficulty (PIGD).

"Some individuals will present with very severe tremor symptoms but not very severe postural symptoms."

"Whereas others will have severe postural symptoms [difficulties maintaining balance] but little tremor symptoms," Mr Johnson says.

The researchers wanted to see if there was a link between future working memory of PD patients and motor symptom changes now.

"People with postural dominant Parkinson's tend to be at a higher risk of cognitive difficulties; developing dementia, and overall poorer performance on tasks of thinking and memory," Mr Johnson says.

The scientist explored the relationships with cognition in the two motor subtypes, finding a strong correlation with [physical symptoms](#) especially for the participants who have PIGD.

"We found that within each subtype the relationship between motor symptoms and cognition was different," he says.

The study revealed not all of the participants with postural symptoms would develop cognitive difficulties.

"In the tremor dominant (TD) group their postural symptoms weren't at all related to cognition but in the postural dominant (PIGD) group the postural symptoms were related to cognition," Mr Johnson says.

Mr Johnson says at the moment there isn't any clear guidelines people can follow to predict changes to future working memory based on warning signs.

"Everyone with Parkinson's presents so differently, you can't really tell people how it's going to be in five or ten years," he says.

Mr Johns says research is ongoing and further subtyping studies are needed to help people with Parkinson's disease.

More information: Andrew R. Johnson et al. Motor Subtype as a Predictor of Future Working Memory Performance in Idiopathic Parkinson's Disease, *PLOS ONE* (2016). DOI: [10.1371/journal.pone.0152534](https://doi.org/10.1371/journal.pone.0152534)

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