

# Patients with Parkinson's disease who experience freezing of gait have sleep disorders, study shows

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Parkinson's disease patients who experience freezing of gait (a sudden inability to initiate or continue movement, often resulting in a fall) wake

up several times during the night, feel sleepy during the day, and have REM sleep behavior disorder. Rapid eye movement (REM) sleep plays a role in the maintenance of many cognitive processes.

These are key findings of a study conducted by researchers at São Paulo State University (UNESP) in Brazil and Grenoble Alps University (UGA) in France. The research is [published](#) in the journal *Sleep Medicine*.

In a [systematic review](#) of 20 studies regarding sleep quality and freezing of gait, the researchers found a correlation between these two important symptoms of Parkinson's disease. They stress the importance of evaluating and monitoring the correlation in patients and believe the findings may contribute to the development of novel treatment protocols.

"There was a suspicion that the two phenomena were linked, and our analysis of the literature appeared to confirm this hypothesis. The reason is that freezing of gait has a similar physiopathology to sleep quality [i.e., the physiological processes that are altered are similar]."

"The studies show that patients with one symptom and patients with the other have a [brain injury](#) in the pedunculopontine nucleus, a group of neurons in the brainstem connected to the [basal ganglia](#)," said Fabio Barbieri, one of the authors of the article. He heads the Human Movement Research Laboratory (MOVI-LAB) and runs a project called "Ativa Parkinson," offering patients [physical activities](#) twice a week free of charge on UNESP's Bauru campus.

However, he added, scientists do not yet know whether freezing of gait or poor sleep quality comes first. "The studies point to a more than 95% probability that a patient who experiences freezing episodes will also have a sleep disorder, but it's also been found that a pronounced

deterioration in sleep quality tends to be a sign that the patient may experience freezing episodes in future. The two symptoms are interconnected, and we haven't yet been able to determine which appears first," he said.

## **No specific treatment yet available**

Parkinson's disease affects sleep generally, regardless of whether the patient has freezing of gait. In an unpublished study, Barbieri's group and collaborators at UGA compared the effect of medication on sleep quality. "We found that sleep quality deteriorated when dopaminergic medication was stopped for sleep," he said.

No specific treatment for freezing gait is available, although it is one of the main reasons for falls among Parkinson's patients. Alongside tremor and [cognitive impairment](#), freezing is one of the factors that lower the quality of life for these patients. "Freezing doesn't characterize a more advanced stage of the disease, and not all patients have the symptom, but we confirmed that it affects sleep quality," Barbieri said.

The systematic review enabled the researchers to group together studies and findings on the links between freezing of gait and sleep disorders, Barbieri explained. "We noticed, for example, that most studies used indirect criteria to assess [sleep quality](#) derived from questionnaires. We found only two studies that measured it directly using polysomnography [to monitor physiological variables during sleep]."

"The same was true for freezing of gait, which is typically diagnosed on the basis of questionnaires. For this reason, we're starting a new study, in partnership with researchers in the United States, to try to monitor the freezing of [gait](#) directly," he said.

**More information:** Tracy Milane et al, Comparison of sleep

characteristics between Parkinson's disease with and without freezing of gait: A systematic review, *Sleep Medicine* (2023). DOI: [10.1016/j.sleep.2023.11.021](https://doi.org/10.1016/j.sleep.2023.11.021)

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