

# Sleep in Parkinson's disease

Sleep disturbances are common in [Parkinson's disease](#) and comprise the entire spectrum of [sleep disorders](#). On the one hand regulation of sleep and wakefulness is affected in Parkinson's disease, leading to the development of disorders, such as [insomnia](#) and daytime sleepiness. While on the other hand control of motor activity during sleep is impaired, with subsequent manifestation of parasomnias (mainly REM sleep behavior disorders, but also, albeit more rarely, sleepwalking, and overlap parasomnia). Restless legs syndrome has been reported to be frequent in patients with Parkinson's disease, although there is no consensus on whether it is more frequent in Parkinson's disease than in the general population. The same is true for sleep-related breathing disorders. Regarding the diagnosis of sleep disorders in patients with Parkinson's disease, one of the main challenges is correctly identifying excessive daytime sleepiness as there are many potential confounding factors, for example it is necessary to distinguish sleep-related breathing disorders from medication effects, and to distinguish restless legs syndrome from the concomitant presence of potential mimics specific to Parkinson's disease, such as akathisia, nocturnal leg cramps, nocturnal hypokinesia, early morning dystonia, etc. The correct diagnosis of REM sleep behavior disorder is also not always easy, and video-polysomnography should be performed in order to exclude mimic-like movements at the end of sleep apneas or violent periodic leg movements of sleep. These aspects and specific considerations about diagnosis and treatment of sleep disorders in patients with Parkinson's disease will be reviewed <sup>1)</sup>.

Most [Parkinson's disease](#) patients suffered from [sleep disorders](#). There is increasing [evidence](#) that [Subthalamic Nucleus Deep Brain Stimulation \(STN-DBS\)](#) has a positive effect on several sleep parameters, improving overall sleep quality in patients with PD. However, the results are controversial.

Liu et al. performed a [retrospective](#) study and [meta-analysis](#) to assess the Parkinson's disease sleep scale (PDSS) in Parkinson's patients.

They reviewed data of patients who underwent STN-DBS, and then extracted five other trials to perform a meta-analysis. The pooled results showed an advantage on post-operative PDSS in both our medical center and pooled results (MD = 20.41, 95% CI = [13.03, 27.79], I<sup>2</sup> = 61%, P < 0.001). There was a significant difference in Unified Parkinson's Disease Rating Scale (UPDRS)-III score between pre and post-operation (MD = -12.59, 95% CI = [-14.70, -10.49], I<sup>2</sup> = 90%, P < 0.001). What's more, Parkinsonian medication was significantly lower in the post-operative groups after DBS (MD = -314.71, 95% CI = [-468.13, -161.28], I<sup>2</sup> = 53%, P < 0.001).

In the retrospective study and meta-analysis of 6 trials, they found that DBS can significantly increase sleep quality. Furthermore, motor function improved and Parkinsonian medication was significantly decreased postoperatively. The sample size was enough and no further investigations would change the conclusion <sup>2)</sup>.

1)

Stefani A, Högl B. Sleep in Parkinson's disease. *Neuropsychopharmacology*. 2020;45(1):121-128. doi:10.1038/s41386-019-0448-y

2)

Liu Y, Zhang L, Chen W, et al. Subthalamic nucleus deep brain stimulation improves sleep in Parkinson's disease patients: a retrospective study and a meta-analysis [published online ahead of print, 2020 Aug 10]. *Sleep Med*. 2020;74:301-306. doi:10.1016/j.sleep.2020.07.042

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