

Name of Disorder: Parkinson's disease

Essay Title: **Sleep problems in Parkinson's disease**

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Parkinson's disease (PD) is associated with daytime sleepiness and disrupted night time sleep.

Excessive daytime sleepiness (EDS) occurs in 20-50% of people with PD. There are a number of reasons for EDS and include disruption to night time sleep, reduced mobility from the PD and the effects of treatments used for PD. While most Anti-parkinsonian drugs contribute to EDS, the dopamine D2-D3 agonists are of particular concern. These include brand names such as Sifrol and Neupro. These drugs not only make some people sleepy but may also produce the "nods"- a tendency to abruptly fall asleep even in mid sentence. Paradoxically, some people are more alert with these drugs. L-DOPA may also cause sleepiness in some people (brand names for drugs containing L-DOPA include Sinemet, Madopar and Stalevo). When this occurs after the first dose in the morning low blood pressure may also be a contributing factor. Sleep caused by drugs is difficult to manage. Changing medications may help but it is often a trade-off between mobility and sleepiness. This is problematic because Sleep physicians have long known that sitting still makes people sleepy. Some people with PD are less mobile and sit for long periods. As a result they tend to sleep more.

Disrupted night time sleep is common in PD. Sleep deprivation and sleep fragmentation can be caused by factors that also affect the rest of the population and include sleep apnoea, poor sleep habits and anxiety. Sleep apnoea is common in PD. It is associated with increased snoring and is best diagnosed with a sleep study. Sleep apnoea is important to recognise because it can be treated.

Periodic leg movements including restless legs are common in PD. Nocturnal periodic leg movements occur during the dreaming stage of sleep and last for 0.5 and 5 seconds, recurring at intervals of 5 to 90 seconds. They interrupt the dreaming stage of sleep and as a result people are not refreshed in the morning and are sleepy during the day. These movements may be quite small or can be dramatic flailing of all four limbs. They can be treated by extending anti-parkinsonian medications into the night or by drugs such as clonazepam.

People with PD are also prone to REM sleep behavioural disorder (RBD). REM stands for Rapid Eye Movement, a phase of sleep when dreams occur. During this stage, the muscles become disconnected from the higher parts of the brain so that dreams don't result in movement. However in PD this "disconnection" doesn't occur and as a result, the subject appears to be unconsciously acting out their dreams. People with PD may develop this problem many years before they have other clinical features of PD. Apart from disrupting the sleep partner, the main problem is the effect on daytime sleepiness. Once again anti-parkinsonian medications such as Sifrol or drugs such as clonazepam may help.

Sleep can be disrupted in PD by pain and the need to empty the bladder. PD can cause some people to need to empty their bladder frequently – this may be caused by low day time blood pressure or by bladder floor instability due to lack of dopamine. Both causes can be addressed

and improved. Pain can be due to exacerbation of arthritic complaints as well as the pain of PD. Once again treatments are available but depend on careful analyses of possible causes.

Finally, PD can alter the normal diurnal cycle - the cycle that controls waking and sleeping. As a result the sleep intervals become shorter at night and there is also a need for a daytime nap.

Many of the sleep disorders of PD can be improved. Treatment depends on careful assessment of the cause of the symptoms.