

Potential cause of severe sleep disorder discovered, implications for Parkinson's disease

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Researchers at the University of Toronto are the first to indentify a potential cause for a severe sleep disorder that has been closely linked to Parkinson's disease and other neurodegenerative diseases.

"Our research is the first to establish a potential genetic link to human [REM sleep](#) behaviour disorder (RBD). That's important because between 60 and 80 per cent of people diagnosed with human RBD develop Parkinson's disease or other neurodegenerative disorders later in life," says Dr. John Peever, lead author of the study that recently appeared in *The Journal of Neuroscience*.

[Rapid-eye-movement](#) sleep behaviour disorder (RBD) is most often characterized by violent movements that occur during dreaming sleep, also called rapid-eye-movement sleep. People who suffer from RBD do not experience normal [muscle paralysis](#) that prevents them from enacting their dreams and they often hurt themselves or their bed partners with their rapid, forceful movements. In some cases, patients need to be tied to their bed to prevent serious injury to themselves or their bedpartners.

Peever's team focused on investigating a [genetic cause](#) of RBD because the underlying cause of this disorder is unknown. There is evidence indicating that reduced brain inhibition could cause RBD, so Peever's team genetically reduced brain inhibition in mice and then recorded their sleep and muscle activity.

"We found that mice with reduced brain inhibition acted just like human RBD patients and they moved violently during REM sleep," says Peever. "This link strongly suggests that patients with RBD may also have impaired brain inhibition."

They also found that RBD symptoms in mice could be alleviated by giving them clonazepam – a drug used to treat human RBD.

Peever's research underscores the importance of identifying a cause of RBD as 60 – 80 per cent of RBD sufferers subsequently develop Parkinson's.

"Treating RBD could have direct implications for understanding and perhaps treating Parkinson's disease," says Peever.

Provided by University of Toronto

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