

## 3-D video monitoring with intelligent software as new sleep analysis option

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The usual method of recording periodic leg movements in sleep for people with sleep disorders is to use electromyography (EMG), an electrophysiological method used in neurological diagnosis that measures muscle activity. However, the cables that this method requires can interfere with the patient's sleep and electrodes can become detached, thereby compromising the quality of the data. In a study led by MedUni Vienna's Department of Neurology, Austrian scientists have now demonstrated that superior data can be obtained using supplementary 3-D scene analysis of movements, which is now being used for the first time.

Under the direction of [sleep](#) researcher, Stefan Seidel, in collaboration with the Austrian Institute of Technology (AIT/project leader Heinrich Garn) MedUni Vienna experts have developed intelligent software that can record and analyse even more [leg movements](#) than conventional EMG, as well as being completely contactless. In this method, the 3-D camera is installed directly above the bed. Other partners involved in the study were the Barmherzige Brüder Hospital in Vienna and Linz General Hospital.

"This opens up new possibilities for us in the future, and not only for diagnosing and analysing [sleep disorders](#)," says Seidel. In future, 3-D scene analysis could also be used to supplement the usual methods (EEG, ECG, EMG, nasal cannula) for monitoring epilepsy, [sleep apnoea](#) and sleep-walking, thereby enabling the causes to be analysed much more quickly than before. This opens up completely new options for home

screening of patients, especially older people or young children. "On top of that, this form of analysis saves sleep researchers a great deal of time," explains Seidel.

Periodic leg movements in sleep disrupt the night-time sleep of those affected, so that it is no longer restorative and they feel increasingly tired during the day. This is frequently due to Restless Legs Syndrome. Symptoms are treated by drugs such as dopamine antagonists, antiepileptic drugs or—increasingly—opiates.

**More information:** 3D detection of periodic limb movements in sleep.  
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