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Deep brain electrical neurofeedback allows Parkinson patients to control pathological oscillations and quicken movements.

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Full Text:

2020 JUL 3 (NewsRx) -- By a News Reporter-Staff News Editor at Health & Medicine Week -- According to news reporting based on a preprint abstract, our journalists obtained the following quote sourced from medrxiv.org:

Parkinsonian motor symptoms are linked to pathologically increased beta-oscillations in the basal ganglia.

While pharmacological treatment and deep brain stimulation (DBS) reduce these pathological oscillations concomitantly with improving motor performance, we set out to explore neurofeedback as an endogenous modulatory method.

We implemented deep brain electrical neurofeedback to provide real-time visual neurofeedback of pathological subthalamic oscillations measured through implanted DBS electrodes. All 8 patients volitionally controlled ongoing beta-oscillatory activity within minutes of training. During a single one-hour training session, the reduction of beta-oscillatory activity became gradually stronger and accelerated hand movements. Lastly, endogenous control over deep brain activity was possible even after removing visual neurofeedback, suggesting that neurofeedback-acquired strategies were retained in the short-term.

We observed a similar motor improvement when the learnt mental strategies were applied 2 days later. Further improvement of deep brain neurofeedback might benefit Parkinson patients by improving symptom control, even in the absence of real-time neurofeedback.

This preprint may not have been peer-reviewed. For more information on this research see:
medrxiv.org/content/10.1101/2020.06.10.20127829v1

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