

Parkinson's disease tremor

Tremor is one of the most common **movement disorders** but the correct diagnosis of tremor disorders, especially the differentiation between **Parkinson's disease tremor** (PT) and **essential tremor** (ET) remains a challenge for clinicians.

Mahendran et al. examined a novel hand position to distinguish PT from ET. They prospectively collected accelerometric tremor data in 14 ET patients and 14 PT patients with arms and hands fully stretched against arms stretched and hands relaxed, i. e. hanging down. The total acceleration from the three pairwise-perpendicular accelerometric axes during the 1-minute blocks of the two hand positions were computed and high-passed filtered at 2 Hz. The power spectral density during each hand position was calculated and summed up over the frequency domain.

The results showed a significantly higher occurrence of tremors in the hands hanging down position in PT patients compared to ET patients ($p = 0.0262$). Moreover, in PT patients the tremor intensity significantly increased when transitioning from the stretched hand position to the hanging-down position (83 % of cohort) and vice versa in ET patients (75 % of cohort).

In conclusion, the new hand posture can differentiate between PT and ET with high accuracy (sensitivity 83 %, specificity 75 % for PT) and maybe a helpful tool in the clinical assessment of tremor ¹⁾.

Battista et al., report a new device and method for the continuous and long-term monitoring of tremor due to PD and other movement disorders to reduce the probability of mistaking the discrimination between extrapyramidal symptoms and normal daily activity. The method is based on the evaluation of frequential data content from multi-axial sensors and on the identification of specific movement patterns that Parkinsonian and extrapyramidal symptoms are typically associated with. In this study, 16 patients with movement disorders were recruited. While results need to be extended with further studies and clinical trials, the proposed device appears promising and suitable for the use as part of clinical trials and routine clinical practice for supporting the evaluation of motor symptoms, disease progression, and the quantification of therapeutic effects ²⁾.

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Mahendran S, Bichsel O, Gassert R, Baumann CR, Imbach LL, Waldvogel D. Differentiation of **Parkinson's disease tremor** and **essential tremor** based on a novel hand posture. Clin Park Relat Disord. 2022 May 21;7:100146. doi: 10.1016/j.prdoa.2022.100146. PMID: 35647517; PMCID: PMC9136132.

²⁾
Battista L, Romaniello A. A novel device for continuous monitoring of tremor and other motor symptoms. Neurol Sci. 2018 May 7. doi: 10.1007/s10072-018-3414-2. [Epub ahead of print] PubMed PMID: 29736737.

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