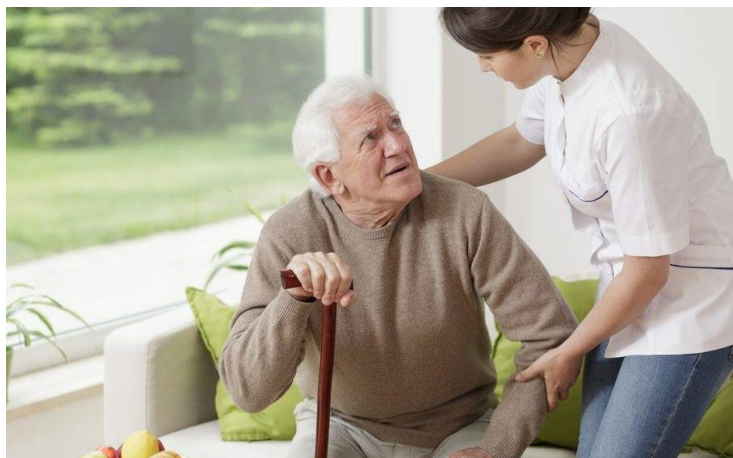


## Japan suggests language analysis to detect early onset of Parkinson's disease

15 May 2023 | News

### AI study finds that patients with Parkinson's disease speak differently to healthy patients



Using artificial intelligence (AI) to process natural language, a research group in Japan evaluated the characteristics of speech among patients with Parkinson's disease (PD). AI analysis of their data determined that these patients spoke using more verbs and fewer nouns and fillers.

The study was led by Professor Masahisa Katsuno and Dr Katsunori Yokoi, Nagoya University Graduate School of Medicine, in collaboration with Aichi Prefectural University and Toyohashi University of Technology.

Natural language processing (NLP) technology is a branch of AI that focuses on enabling computers to understand and interpret large amounts of human language data using statistical models to identify patterns. Given that patients with PD experience a variety of speech-related problems, including impaired speech production and language use, the group used NLP to analyze differences in patient speech patterns based on 37 characteristics using texts made from free conversations.

The analysis revealed that patients with PD used fewer common nouns, proper nouns, and fillers per sentence. On the other hand, they spoke using a higher percentage of verbs and variance for case particles (an important feature of the Japanese language) per sentence.

The most promising aspect of this research is that the team performed the experiment on patients who did not yet show the characteristic cognitive decline seen in PD. Therefore, their findings offer a potential means of early detection to distinguish PD patients.