Speech planning and monitoring in Parkinson's disease: a speech motor control perspective

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON25067

Source
Nationaal Trial Register

Brief title
TBA

Health condition

Parkinson's disease

Sponsors and support

Primary sponsor: Rijksuniversiteit Groningen
Source(s) of monetary or material Support: NWO (Promoties in de geesteswetenschappen)

Intervention

Outcome measures

Primary outcome

To identify which speech control mechanisms in PD patients are impaired and to what extent by comparing PD patients in various stages of the disease to adult control speakers.

Secondary outcome

Acoustic and articulatory characteristics of speech production in PD.

Study description

Background summary

Despite doing it almost without effort, speaking is a highly complex task requiring precisely timed and linguistically-driven coordination of the lungs, vocal folds and speech articulators (e.g. lips, tongue). This process, speech motor control, relies on both feedforward (pre-planned movements based on stored movement representations drawn from past experiences) and feedback (monitoring sensory input relative to what is expected) control mechanisms. Research suggests that these mechanisms may be impaired in Parkinson's disease (PD) patients. However, current findings have resulted from studies with small samples and heterogeneous PD groups.

The central aim of this project is to identify which speech control mechanisms in PD patients are impaired and to what extent by comparing PD patients in various stages of the disease and healthy adults. Specifically, we will investigate how participants cope with feedback perturbations in speech, by measuring both the resulting acoustic speech signal and the underlying speech motor articulation using electromagnetic articulography and ultrasound tongue imaging. To assess whether the potential impairments of the feedback and feedforward system are speech-specific or more general (as PD is a movement disorder), we will also conduct feedback perturbation experiments in non-speech motor movement tasks.

The innovative combination of these methods will enable us to identify whether and how impairments of speech planning and monitoring are related to the progression of PD. Furthermore, the extent to which PD patients cope with feedback perturbations compared to healthy adults may potentially serve as a diagnostic marker for the disease.

Study objective

We expect that Parkinson's disease patients will show an impairment in feedback and feedforward speech control mechanisms when compared to healthy age- and gender-matched control speakers.

Study design

Session 1, session 2 (taking place within a month of session 1)

Intervention

N. A.

Contacts

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Eligibility criteria

Inclusion criteria

- 40 years or older
- Native speaker of Dutch

Only for the PD group:
- Diagnosed with idiopathic Parkinson’s disease (according to the UK Parkinson’s Disease Society Brian Bank Clinical Diagnostic Criteria)

Exclusion criteria

- A score of 2 or higher on part 1.1 (cognitive impairment) or part 1.2 (hallucinations and psychosis) of the MDS-UPDRS
- History of neurological or psychological disorders
- Self-reported signs of depression
- Self-reported severe swallowing problems
- Stuttering or other pre-existing speech and language problems (not occurring as a symptom of parkinsonian hypokinetic dysarthria)
- Non-removable metal on-, in- or close to the head (e.g., piercings, dental braces, medical devices such as deep brain stimulation electrodes)
- Having a pacemaker

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	Active

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-05-2021
Enrollment:	100
Type:	Anticipated

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date:	30-03-2021
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 55196
Bron: ToetsingOnline
Titel:

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL9381
CCMO	NL72589.042.21
OMON	NL-OMON55196

Study results