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

Gepubliceerd: 30-03-2021 Laatst bijgewerkt: 15-05-2024

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.

Ethische beoordeling	Positief advies
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON25067

Bron
NTR

Verkorte titel
TBA

Aandoening

Parkinson's disease

Ondersteuning

Primaire sponsor: Rijksuniversiteit Groningen
Overige ondersteuning: NWO (Promoties in de geesteswetenschappen)

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

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.

Toelichting onderzoek

Achtergrond van het onderzoek

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.

Doel van het onderzoek

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.

Onderzoeksopzet

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

Onderzoeksproduct en/of interventie

N. A.

Contactpersonen

Publiek

Rijksuniversiteit Groningen
Teja Rebernik

+31 50 36 35974

Wetenschappelijk

Rijksuniversiteit Groningen
Teja Rebernik

+31 50 36 35974

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- 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)

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- 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

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Anders
Toewijzing:	N.v.t. / één studie arm
Blindering:	Open / niet geblindeerd
Controle:	Geneesmiddel

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-05-2021
Aantal proefpersonen:	100
Type:	Verwachte startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Positief advies

Datum:	30-03-2021
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 55196
Bron: ToetsingOnline

Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

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

Resultaten