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# Brain activation during sentence processing in Parkinson's disease: an event related functional magnetic resonance imaging study

| Submission date | Recruitment status | [ ] Prospectively registered |
|---|---|---|
| 28/12/2006 | No longer recruiting | [ ] Protocol |
| **Registration date** | **Overall study status** | [ ] Statistical analysis plan |
| 28/12/2006 | Completed | [ ] Results |
| **Last Edited** | **Condition category** | [ ] Individual participant data |
| 04/11/2008 | Nervous System Diseases | [ ] Record updated in last year |

**Plain English summary of protocol**
Not provided at time of registration

## Contact information

**Type(s)**
Scientific

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## Additional identifiers

**Protocol serial number**
NTR782

## Study information

**Scientific Title**

## Study objectives
We hypothesise that basal ganglia (BG) are involved in sentence processing whenever a sentence structure deviates from the predicted structure and this in order to inhibit the irrelevant structure and to switch to a revision process.

## Ethics approval required
Old ethics approval format

## Ethics approval(s)
Not provided at time of registration

## Primary study design
Observational

## Study design
Observational case-control study

## Study type(s)
Screening

## Health condition(s) or problem(s) studied
Parkinson's disease

## Interventions
No interventions. It is observational research with the use of functional magnetic resonance imaging (fMRI) (no use of invasive techniques).

## Intervention Type
Other

## Phase
Not Specified

## Primary outcome(s)
For the fMRI analysis data, a main effect of group is expected. The level of activation in the BG will be reduced in the PD patient group compared to the healthy control group. For the within subject factors we expect to find a main effect of grammaticality. In the healthy elderly subject group, we expect that the processing of the grammatically incorrect sentences will activate the BG more compared to the processing of the grammatically correct sentences. For the behavioural data, we expect to find slower reaction times (RTs) for the processing of non-canonical ungrammatical sentences (i.e. passive sentences with a violation) in both subject groups. However the RTs will be significantly more affected in the PD group compared to the healthy elderly subject group.

## Key secondary outcome(s)
No secondary outcome measures

## Completion date
01/12/2007

# Eligibility

### Key inclusion criteria
1. Idiopathic Parkinson's disease (PD)
2. Hoehn and Yahr stage 1 to stage 3
3. Normal vision and hearing
4. Able to give informed consent
5. Older than 40 years
6. Dutch as first language
7. Right-handed
8. Normal structural magnetic resonance imaging (MRI) scan

### Participant type(s)
Patient

### Healthy volunteers allowed
No

### Age group
Adult

### Sex
All

### Key exclusion criteria
1. Not optimally medicated
2. Neurostimulator
3. Implanted pump (e.g. apomorphine)
4. Dementia (Mini Mental State Examination [MMSE] score less than 25)
5. Depression (Montgomery-Asberg Depression Rating Scale [MADRS] more than 18)
6. Another neurological disease
7. Another akinetic-rigid disorder
8. Another movement disorder
9. No normal structural MRI scan

### Date of first enrolment
01/12/2006

### Date of final enrolment
01/12/2007

# Locations

### Countries of recruitment
Netherlands

### Study participating centre

**Oude Kijk int Jatstraat 26**
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# Sponsor information

**Organisation**
University of Groningen (The Netherlands)

**ROR**
https://ror.org/012p63287

# Funder(s)

**Funder type**
Industry

**Funder Name**
Stichting Internationaal Parkinson Fonds (The Netherlands)

# Results and Publications

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**
Not provided at time of registration