Author's response to reviews

Title: Abnormal susceptibility to distracters hinders perception in early Parkinsons disease: a controlled study

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Version: 2 Date: 25 September 2006

Author’s response to reviews: see over
We revised the manuscript according to the recommendations of the reviewer and made some formatting changes as recommended by the editor.

Formatting changes:
- The Title page is changed conform the journal style.
- We added a statement concerning the Ethics at page 6, last lines of Patients section.
- We included a Competing interest section at page 12.
- An Acknowledgement has been included at page 13. This study was carried out as part of the regular scientific activities of the authors. Therefore, as there was no funding for this study, we did not include a list of funding sources.

Responses to the reviewer comments:

The message of the manuscript is not clear. In particular, it is not clear from the Background (or the Abstract) what the rationale for the study was. In addition, the authors should present their argument more coherently, and clearly communicate the contribution of their research to the literature. At present it is not clear what the focus of the paper is. The Background initially focuses on sensory and perceptual disturbances in Parkinson’s disease, but then moves on to discuss eye movements, which are subsequently purported to be linked to attention (p.4), yet another cognitive function.
- We revised the Background substantially to make it more fluent and clear. At page 5, second paragraph (lines 5-11), the aim of the study is explained in more detail. In addition, we limited the focus of the background to perceptual processes.

Abstract:
The abstract is too long and should not contain any statistical output.
- We revised and shortened the Abstract (reducing it from 350 to 313 words), and removed the statistical output

Background:
In addition to the general comments (see above), the link between the first and second paragraphs is rather abrupt. Also, the third paragraph is very long. It would facilitate reading if this were divided further into paragraphs.
- We totally revised the Background according to the comments of the reviewer

Method:
The age range of the participant sample is rather broad. Was there an effect of age on task performance for either or both participant groups?
- When splitting up the data into age groups < 61 and >= 61 there is a significant interaction between onset * patient group * age group (p = 0.009) with respect to the number of correct responses. Post hoc analyses indicated that only in the PD group age interacted with onset condition (p = .02), indicating that the higher age group within the PD group made more incorrect responses at baseline and
progressively more under the onset condition. If age serves as covariate in the analyses concerning correct responses the p value of the interaction effect between group and onset condition decreased from p = 0.04 to p = 0.009). However, we reported the original p value of p = 0.04 because we matched patient and control group for age. Indeed, there was no significant difference between patient and control group with respect to age (or education).

Please explain more fully the difference between the antisaccade task and the capture task (p.7).

- The difference between these tasks is explained in detail at page 7, lines 3-10.

Please specify what the blocks referred to on p.7 consisted of?

- We replaced the text
  ‘Subjects performed 32 trials in which no onset was present and 32 trials in which an abrupt onset appeared at the other side of the display as where the target was presented. Trials with and without onsets were varied randomly within blocks’ by:
  ‘In total subjects performed 64 randomly mixed trials consisting of 32 trials in which no onset was present and 32 trials in which an abrupt onset appeared at the other side of the display as where the target was presented.’

Results:

Please specify whether reaction times of all trials were included in the analysis or only those of correct responses.

- RTs of only the trials of correct responses were included in the analyses. We inserted additional comments under the Data Analysis (page 8, line 1)

Please explain the purpose of conducting correlational analyses between task performance and patient characteristics (p.8).

- We added some explanatory lines in the text (page 8, bottom lines)

Please provide standard deviations alongside the means for the correct responses in the control and onset conditions (p.8).

- We added these SDs in the text at page 8 line 10 of the Results section.

Discussion:

The first paragraph of the Discussion is very long, and would benefit from subdivision into further paragraphs.

- We subdivided the Discussion into a number of paragraphs
I do not agree with the statement that the participants were UNAWARE of the appearance of the irrelevant stimulus (p.10). The irrelevant stimulus was clearly visible and hence, participants would have been conscious of its presence.

- We replaced
  ‘As subjects performing the oculomotor task are unaware of the appearance of the irrelevant stimulus and the associated eye movements, involvement of the DLPFC in the present study seems unlikely.’

by:
‘Previous studies have shown that at least on a subset of trials subjects are not aware of the presence of the abrupt onset [21, 25]. Because the abrupt onset only briefly captures attention and the eye, it is argued that the event does not reach awareness [21]. If indeed subjects are not aware of the irrelevant onset stimulus and the associated eye movements, involvement of the DLPFC in the present study seems unlikely.

And added the reference