Oral presentations

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(1163) - EYE-VOICE SPAN IN ADULTS WITH MILD COGNITIVE IMPAIRMENT (MCI) AND HEALTHY CONTROLS

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Objectives: This study is part of a project focused on developing new techniques for the identification of early linguistic and extra-linguistic signs of cognitive impairment, with the overall goal of identifying dementia in the preclinical stage. In a previous study, we found that eye movements during reading can be used to distinguish between participants with mild cognitive impairment (MCI) and controls with up to 86% accuracy. In this study, we investigate the process of reading aloud, by comparing the eye-voice span in participants with and without MCI. The aim of the study is to identify any differences in the reading processes and evaluate whether these differences can be used to detect the early stages of dementia.

Methods: The eye-voice span is a measurement of the temporal and spatial organization between the eye and the voice, and is affected by, for example, working memory and automaticity, but also by the familiarity and length of words. We collected audio and eye-tracking data from participants with MCI and controls. By aligning the information about where participants’ eyes are fixating with information about the words they are producing, we can calculate the eye-voice span at every time point. We can then correlate these measurements with the difficulty of the text, as well as with the participant’s cognitive and language test scores.

Results: We present a quantitative and qualitative analysis of the reading process in the participants, focusing on general measures of eye-voice span, but also on instances of hesitation and mistakes in the speech, and the correlated eye movements.

Conclusions: Early detection of dementia is important for a number of reasons, such as giving the person access to interventions and medications. By expanding the knowledge about reading processes in subjects with MCI, we help demonstrate the potential of using reading analysis to detect early signs of dementia.

Keywords: acquired language disorders, cognitive impairment, dementia, screening.