

## Abstract

## Results

Mild cognitive impairment (MCI) is a transition stage between normal healthy ageing and dementia<sup>1</sup>. Symptoms of MCI typically involve impairment of both memory and non-memory cognitive domains, and difficulties in communication and executive functioning<sup>2</sup>.

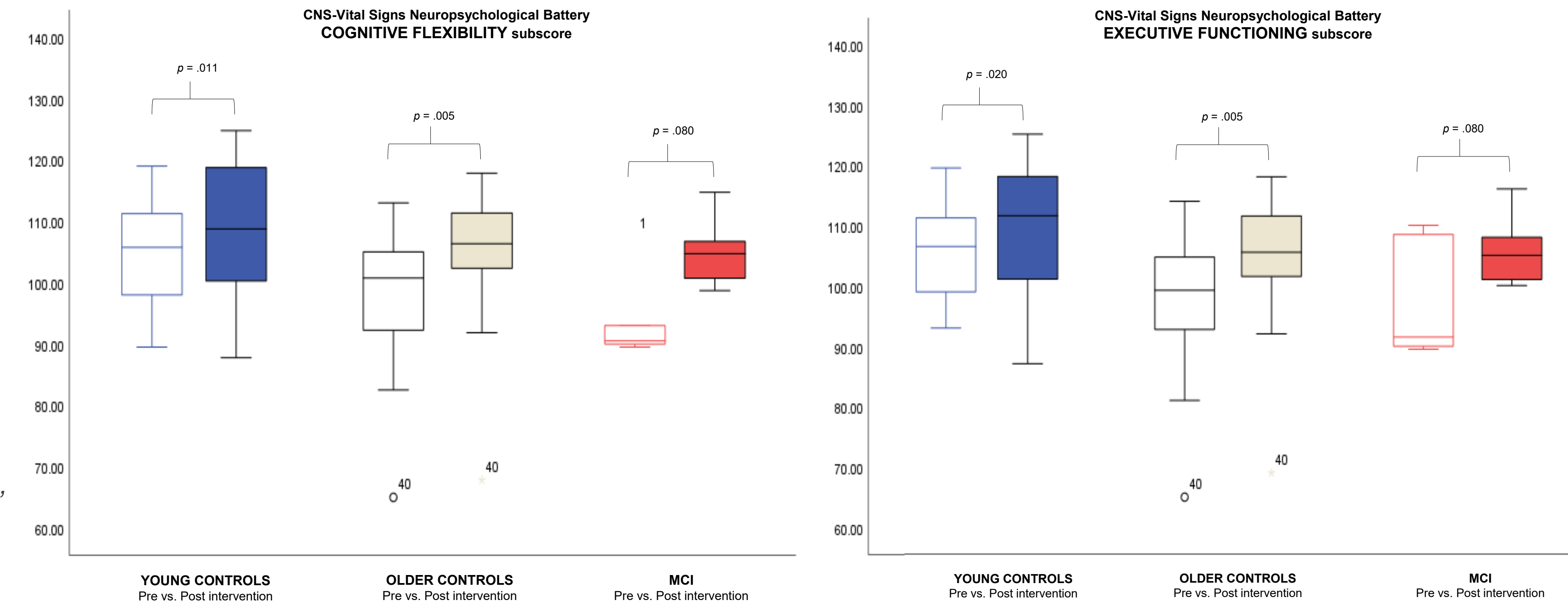
Results of the study indicated that training focused on auditory skills may benefit cognitive skills. Older control and MCI groups demonstrated improvements specifically in areas of cognitive flexibility and executive function.

Content analyses revealed technical difficulties, apprehension towards technology, and the benefit of having a “tech-savvy” support person, as barriers and facilitators to feasibility. Participants were able to acknowledge the relationship between hearing and their cognitive abilities.

An MCI-person-centred approach is essential and can be facilitated through an adaptive methodology<sup>3</sup>.

### Participants’ quotes:

- “I thought the concept of what was going on was very good – what you were trying to do was force someone to listen.”
- “I understand that I won’t see a difference over a short time, but I can see the benefit long term.”
- “No – I don’t like playing computer games... maybe if there was some music alternative.”



## Objectives

- This study, involving young adults, and older adults with and without mild cognitive impairment (MCI), aimed to:
- 1) evaluate the efficacy of an auditory-based training game in improving cognitive skills
  - 2) examine the feasibility and acceptability of online auditory and cognitive assessments

Participant group	n	Mean age (SD)	MoCA <sup>a</sup>	Speech-in-quiet <sup>b</sup>	Speech-in-noise <sup>c</sup>
Young controls	17	24.50 (3.49)	28.4	110.91	94.88
Older controls	19	69.92 (7.96)	27.6	112.08	76.75
Mild Cognitive Impairment	5	77.20 (5.45)	24.4	84.70	66.20

<sup>a</sup> Montreal Cognitive Assessment score, 26 and below indicates MCI <sup>b</sup> Sound Scouts Speech-in-quiet standardised score <sup>c</sup> Sound Scouts Speech-in-noise standardised score

## Conclusion

Older adults experience age-related physiological changes affecting the auditory system, with exacerbated consequences if they have MCI<sup>4</sup>. There is a growing interest in active auditory training and rehabilitation as a branch of cognitive training, due to the risk that hearing deficits pose for cognitive dysfunction<sup>5, 6</sup>.

The results from our feasibility study show promise for auditory training in older adults with and without MCI. Factors that facilitate and pose a barrier to accessing assessment and training online are reported.

There remains gaps in our understanding of the relationship between auditory and cognitive function.

## Methods and Materials

- Repeated measures analyses to explore quantitative changes in auditory and cognitive processing scores before and after the implementation of a two-week auditory training intervention.
- Auditory training - two animated games targeting auditory discrimination & memory, and sound localization.
- Content analysis to explore qualitative data to determining feasibility of remote testing and training and factors that facilitated working with individuals with MCI.

## References

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