Balance function: A potential early indicator of mild cognitive impairment

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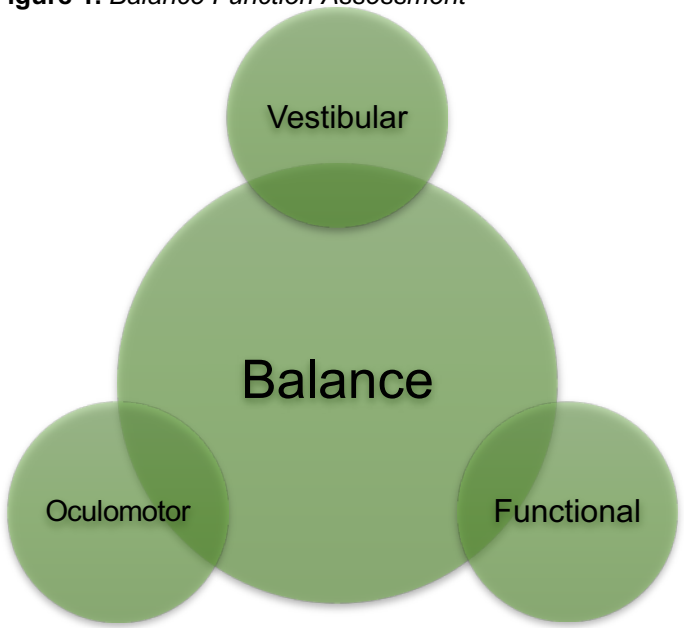
INTRODUCTION

Mild cognitive impairment (MCI) is conceptualized as a transitional state between normal cognitive function and dementia.

Deficits in sensory and motor processes, such as balance function, can occur in the early stages of cognitive impairment. This study examined the potential for balance function assessment to differentiate older adults with and without MCI. A secondary purpose was to explore associations between balance function and spatial ability.

METHOD

Figure 1. *Balance Function Assessment*



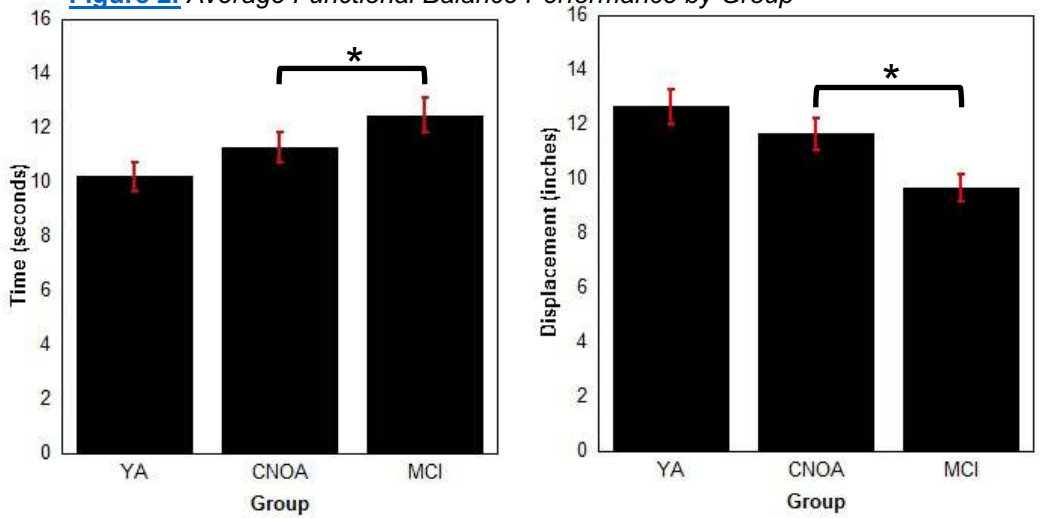
RESULTS

Table 1. *Participant Demographics*

Group	Age M(SD)	% Female	% White	Education M(SD)	PTA Left M(SD)	PTA Right M(SD)
YA (n = 15)	26.6* (5.4)	86.7	53.3	16.5 (1.5)	8.2* (6.6)	9.2* (5.7)
CNOA (n = 13)	72.9 (7.3)	53.8	76.9	16.6 (2.7)	27.8 (30.5)	23.6 (18.9)
MCI (n = 14)	73.7 (6.9)	35.7	78.6	16.6 (2.2)	29.05 (17.7)	24.4 (11.8)

Note. Young adult data were collected to establish a normative reference.
MoCA = Montreal Cognitive Assessment; PTA = Pure Tone Average; YA = Young Adult; MCI = Mild Cognitive Impairment; CNOA = Cognitively Normal Older Adult
*$p \leq .05$

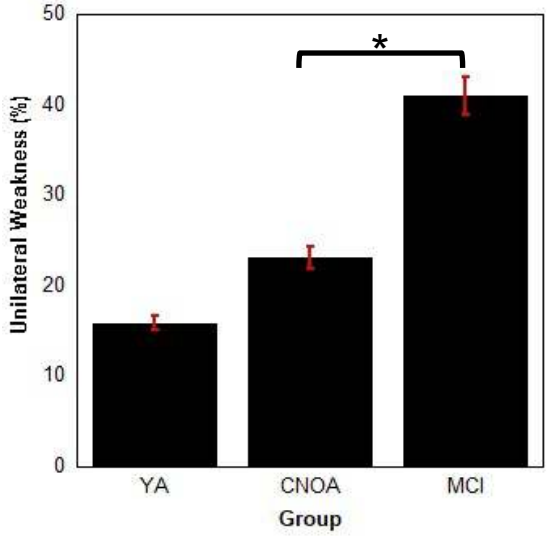
Figure 2. *Average Functional Balance Performance by Group*



Note. Average functional balance performance measured by the Timed Up and Go test (left panel) and Functional Reach test (right panel).
*$p \leq .05$

RESULTS

Figure 3. *Average Vestibular Asymmetry by Group*



Note. Vestibular asymmetry measured by bilateral caloric irrigations.
*$p \leq .05$

SUMMARY OF RESULTS

Table 2. *Balance Findings in Older Adults with and without Mild Cognitive Impairment*

Functional	Vestibular	Oculomotor
• The MCI group showed poorer functional balance compared to CNOA, *ps*< .034	• The MCI group showed greater vestibular asymmetry compared to CNOA, *p*= 0.19	• No differences between MCI and CNOA groups

Vestibular processes were associated with functional balance and spatial ability, *ps*<.037

Vestibular and **functional balance** testing may help *differentiate older adults with and without MCI.*