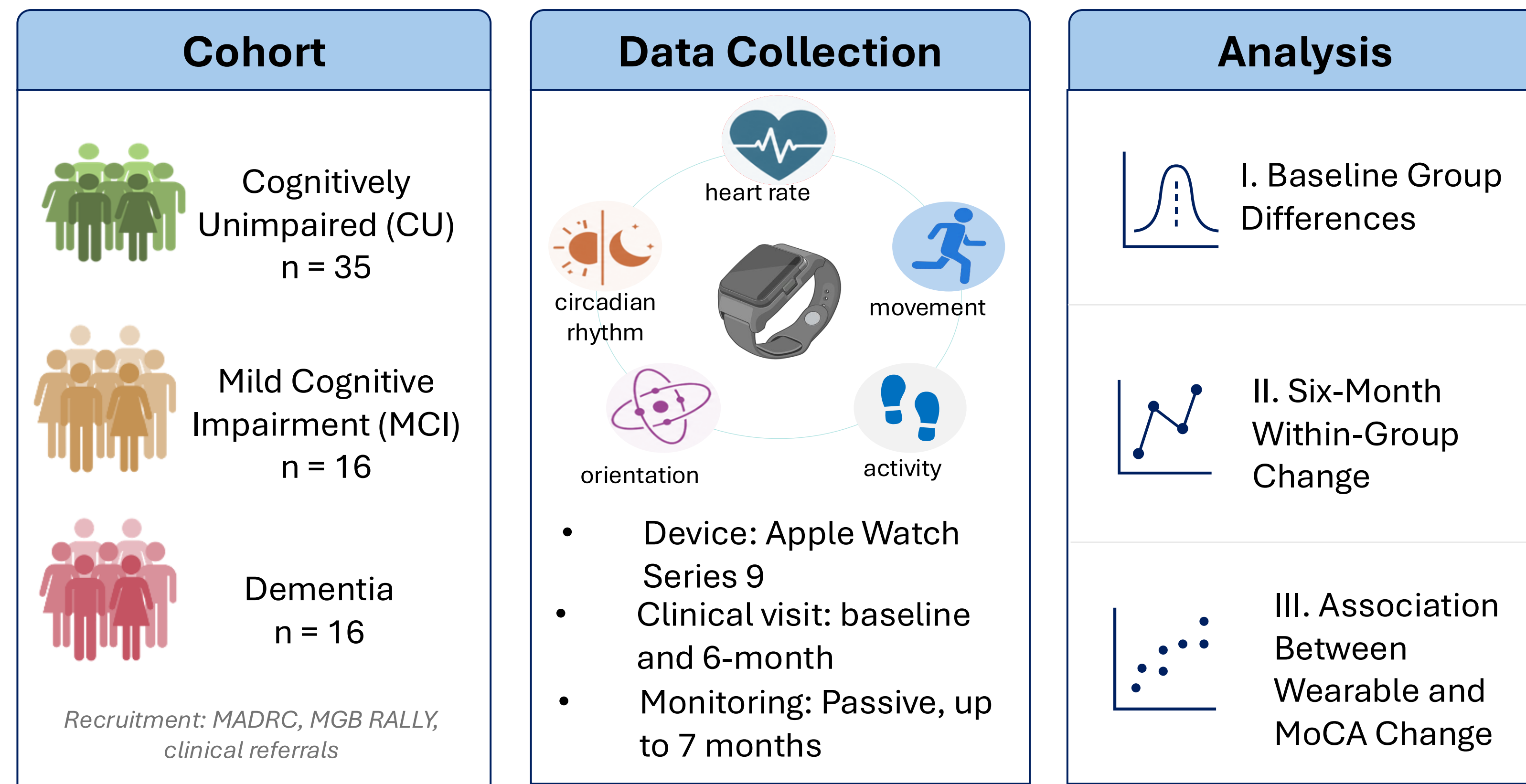


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Study Overview

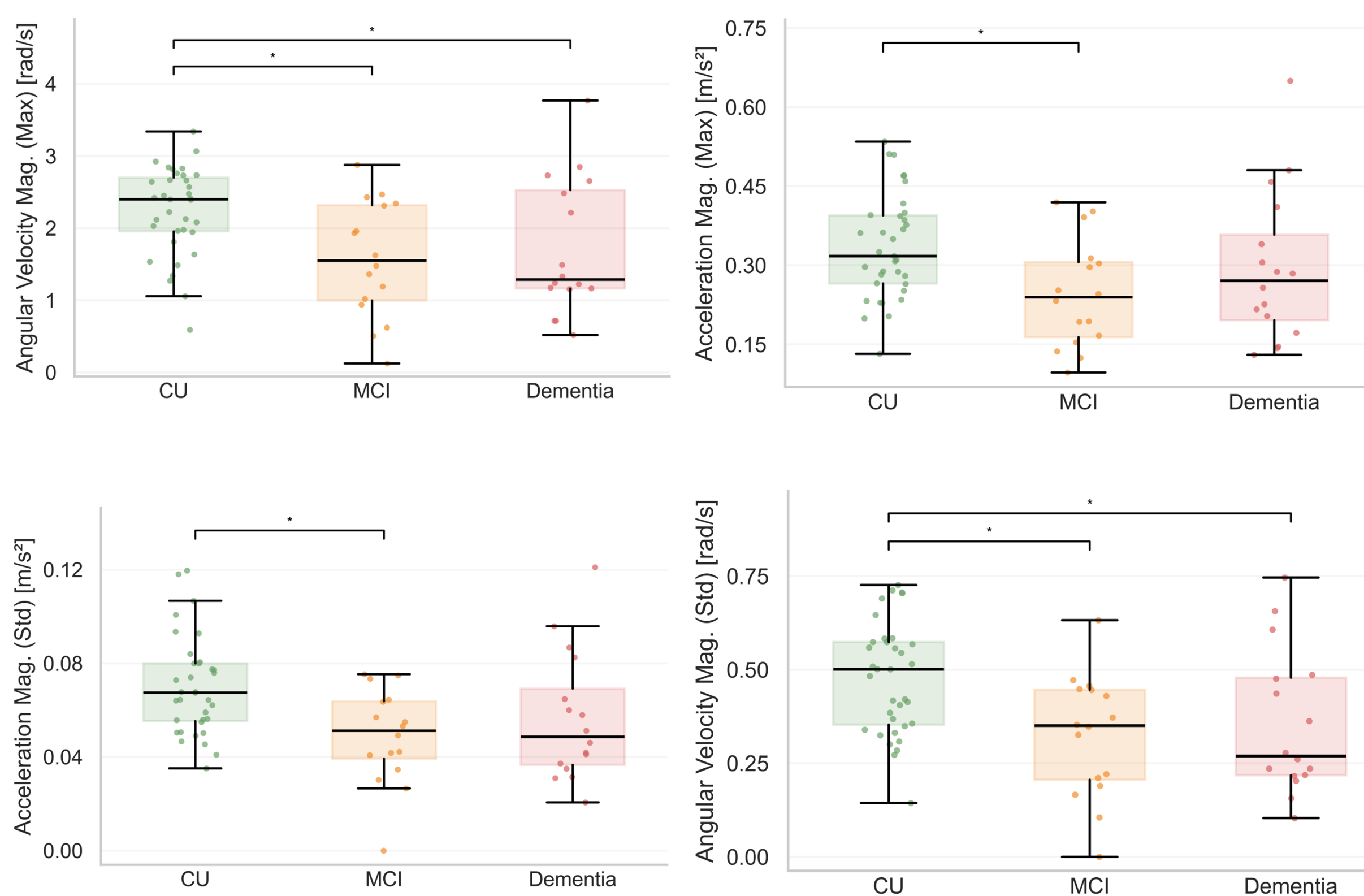


Baseline Cohort Characteristics

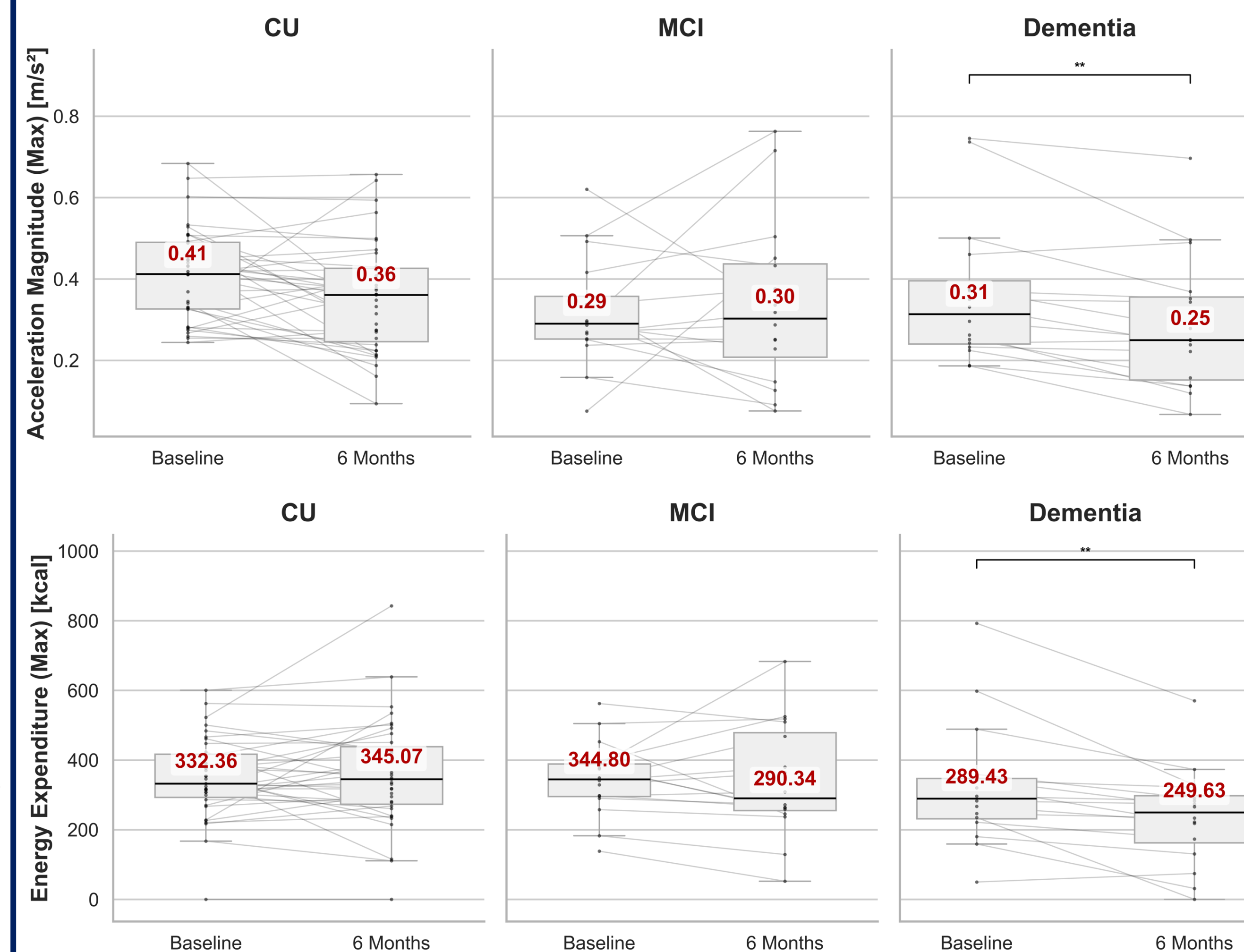
Category	Variable	CU (n = 35)	MCI (n = 16)	Dementia (n = 16)
Demographics	Age (years)	74.5 ± 8.7	74.2 ± 7.4	71.9 ± 9.6
	Education (years)	17.4 ± 1.9	17.6 ± 1.7	17.4 ± 2.0
	Sex: Male	9 (25.7%)	10 (62.5%)	9 (56.3%)
Clinical assessment	MoCA score	26.8 ± 2.6	23.9 ± 4.2	20.4 ± 6.0
	CDR-SoB	0.2 ± 0.3	1.7 ± 1.2	3.6 ± 2.3

Key Findings

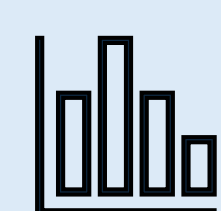
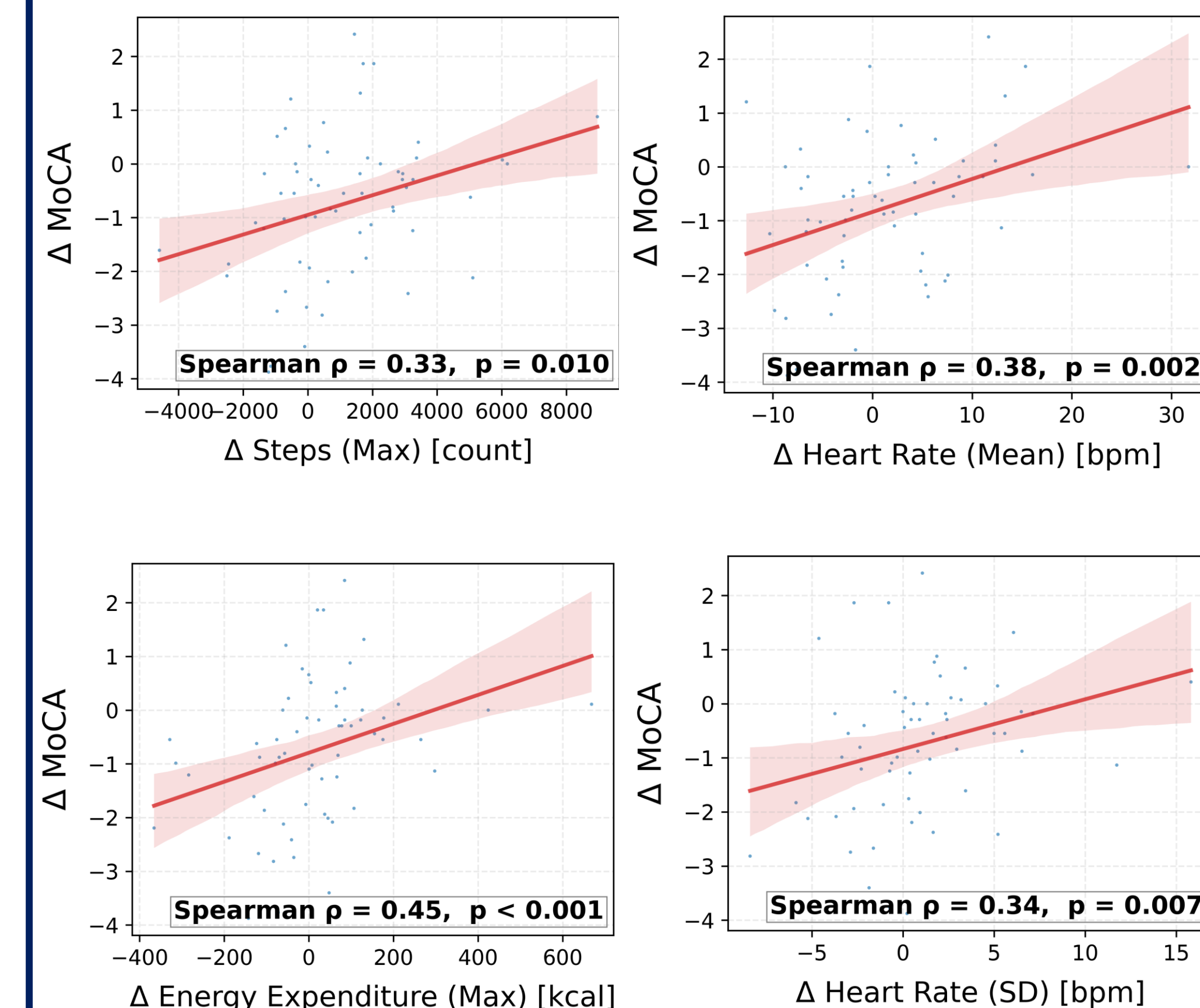
I. BASELINE GROUP DIFFERENCES



II. SIX-MONTH WITHIN-GROUP CHANGE



III. ASSOCIATION BETWEEN WEARABLE AND MOCA CHANGE OVER SIX MONTHS



Statistics: Baseline group comparisons used Kruskal-Wallis tests followed by Dunn post hoc tests. Six-month within-group changes used paired Wilcoxon signed-rank tests. Wearable-MoCA associations used Spearman correlations. $\Delta MoCA$ and $\Delta wearable$ were calculated as 6-month follow-up minus baseline. P -values were FDR-corrected for multiple comparisons.

Conclusions



Apple Watch-derived metrics captured baseline differences between CU, MCI, and dementia groups.



Movement and energy-expenditure metrics showed 6-month within-group change in the dementia group.



Changes in activity and heart-rate metrics were associated with 6-month MoCA change, supporting passive wearable monitoring of cognitive decline.