

Blood Biomarkers Are Associated With Anthropometric Measures In Individuals With Mild Cognitive Impairment



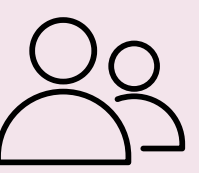
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INTRODUCTION

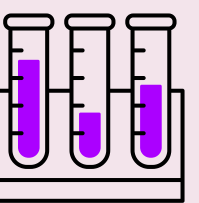
Mild Cognitive Impairment (MCI) is classified as an intermediate stage of Alzheimer’s disease, characterized by the presence of perceptible cognitive decline without significant interference in the autonomy of daily living activities. Biomarkers have been highlighted as a novel, accessible tool that allows the detection of pathophysiology changes in blood plasma. The relationship between obesity and AD risk remains controversial in the literature, with evidence suggesting that associations vary according to age, disease stage, and anthropometric indicator used; however, analyses examining the relationship between biomarkers and anthropometric measures are still scarce.

METHODS:



Participants

- 21 older adults with MCI



Biomarkers

- Aβ42
- Aβ40
- Tau total
- p-Tau181
- p-Tau217
- NfL

Measured using the Simoa.



Physical Performance Tests

- (TUG) (steps and time)
- Sit-to-Stand Test
- Handgrip Strength (HGS)



Anthropometric Measurements

- Waist Circumference (WC)
- Hip Circumference (HC)
- Waist-to-Hip Ratio (WHR)



Statistical Analysis

- Jamovi
- Shapiro–Wilk normality test
- Pearson or Spearman correlations
- Significance: $p < 0.05$



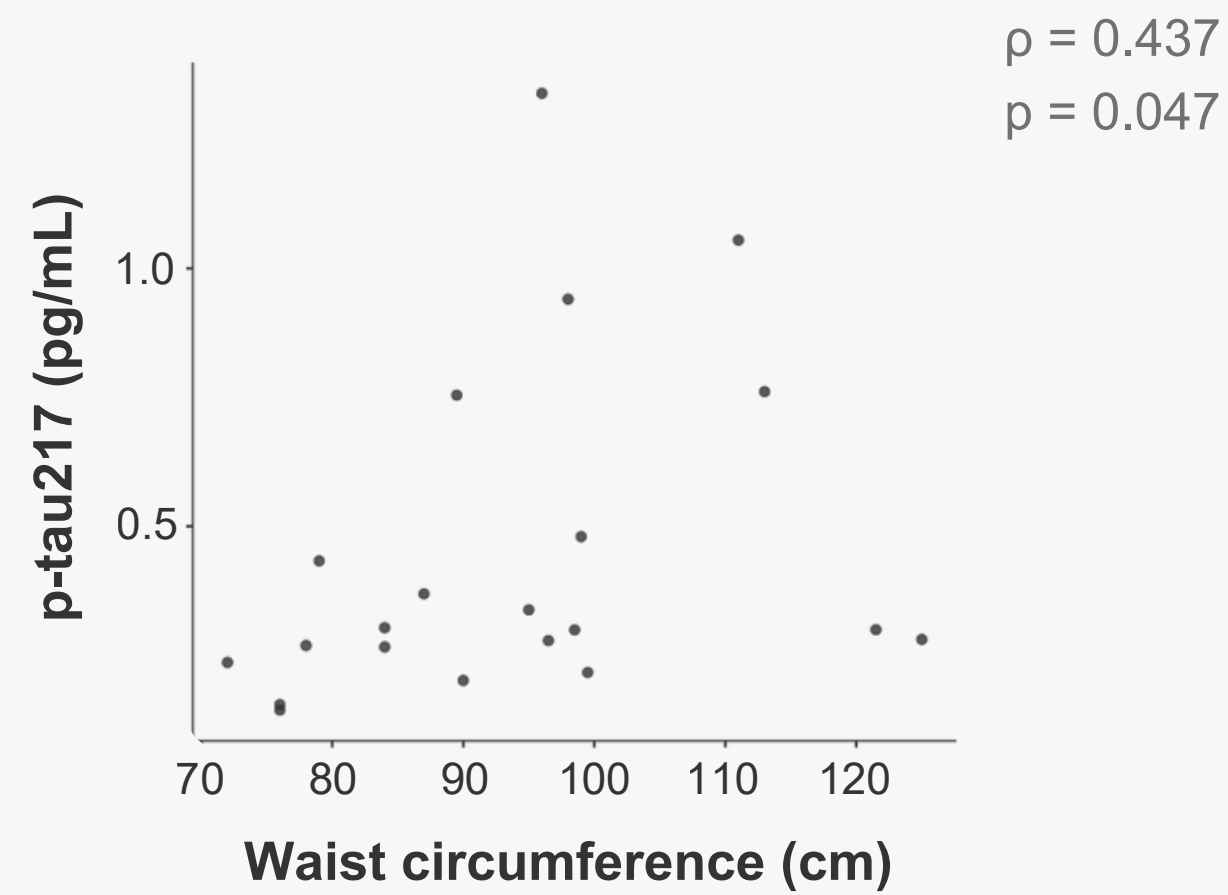
Ethics Committee

Approved by the local Ethics Committee (Protocol No. 4.337.553; CAAE: 33.377.220.9.0000.5404)

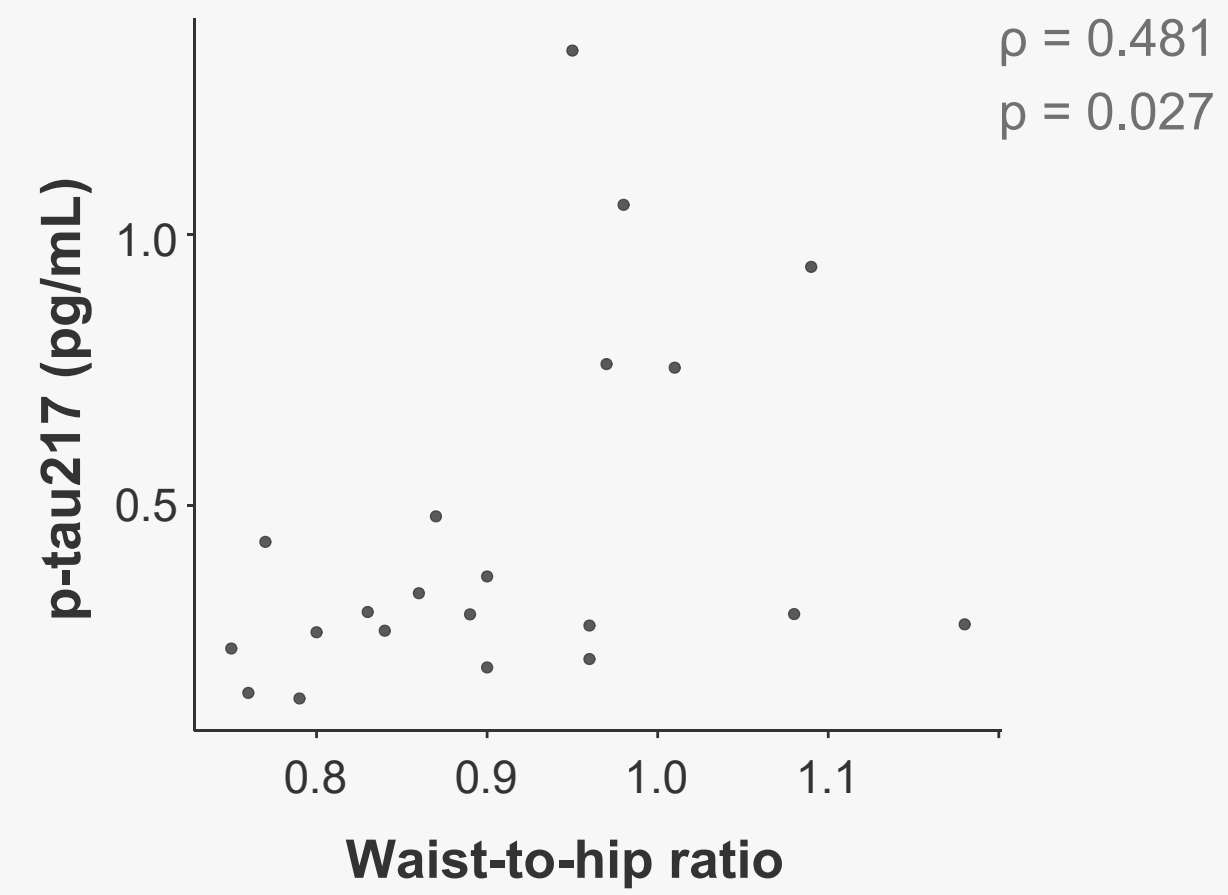
RESULTS:

Characteristic	Mean (SD)
Age (years)	65.4 ± 6.18
Sex, n (%)	Male: 10 (47.6%) Female: 11 (52.4%)
Education (years)	15.3 ± 3.89
p-Tau181 (pg/mL)	23.4 ± 10.8
p-Tau217 (pg/mL)	0.449 ± 0.327
Total Tau (pg/mL)	2.78 ± 0.797
NfL (pg/mL)	15.8 ± 6.95
p-Tau181/Aβ42	2.85 ± 1.43
p-Tau217/Aβ42	0.0543 ± 0.0409
Aβ42/Aβ40	0.0328 ± 0.00541
IPAQ classification	3.11 ± 2.55
TUG (steps)	11.66 ± 2.33
TUG (time, s)	7.8 ± 2.60
Sit-to-Stand Test (repetitions)	13.9 ± 3.048
Right handgrip strength (kgf)	34.4 ± 13.31
Left handgrip strength (kgf)	34.09 ± 12.17
Waist circumference (cm)	93.73 ± 14.77
Hip circumference (cm)	102.66 ± 8.02
Waist-to-hip ratio	0.911 ± 0.11
Right calf circumference (cm)	36.44 ± 4.34

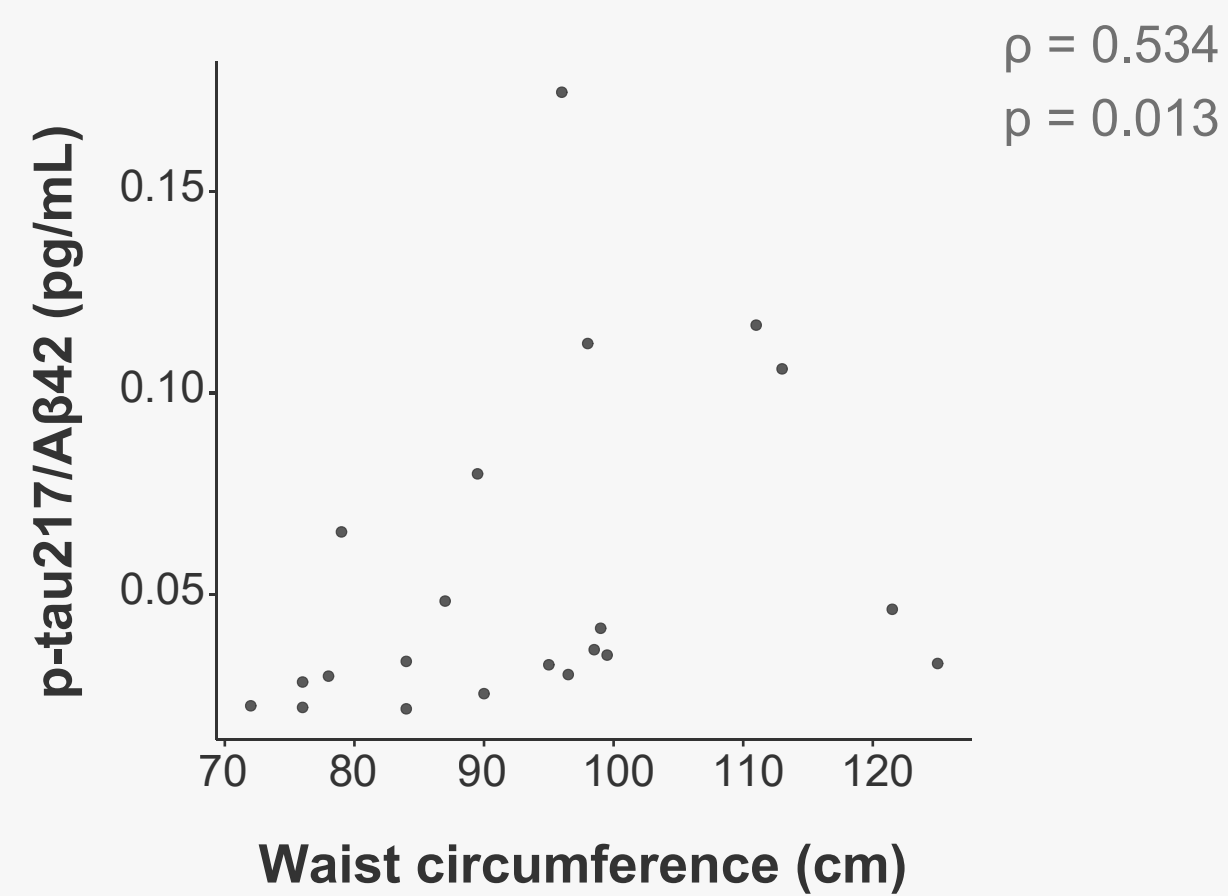
GRAPH A



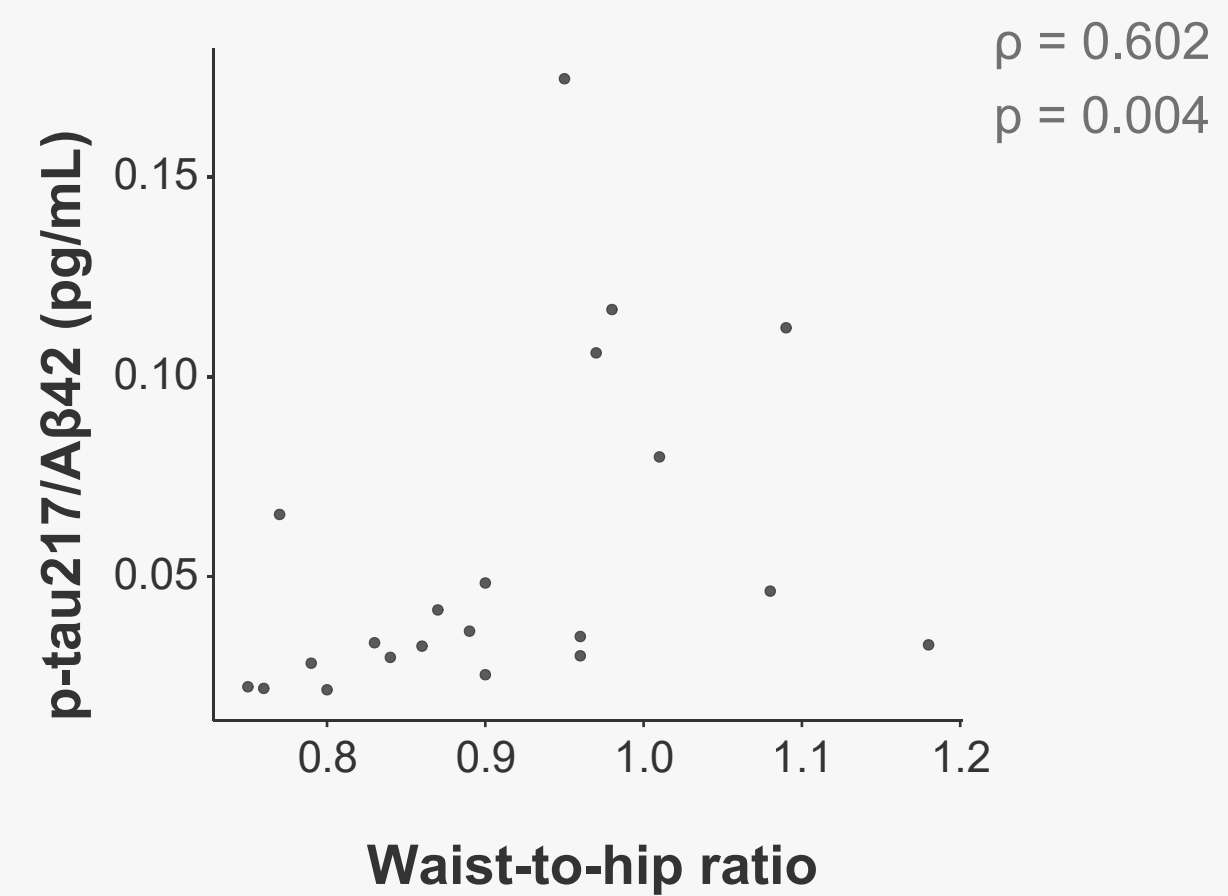
GRAPH B



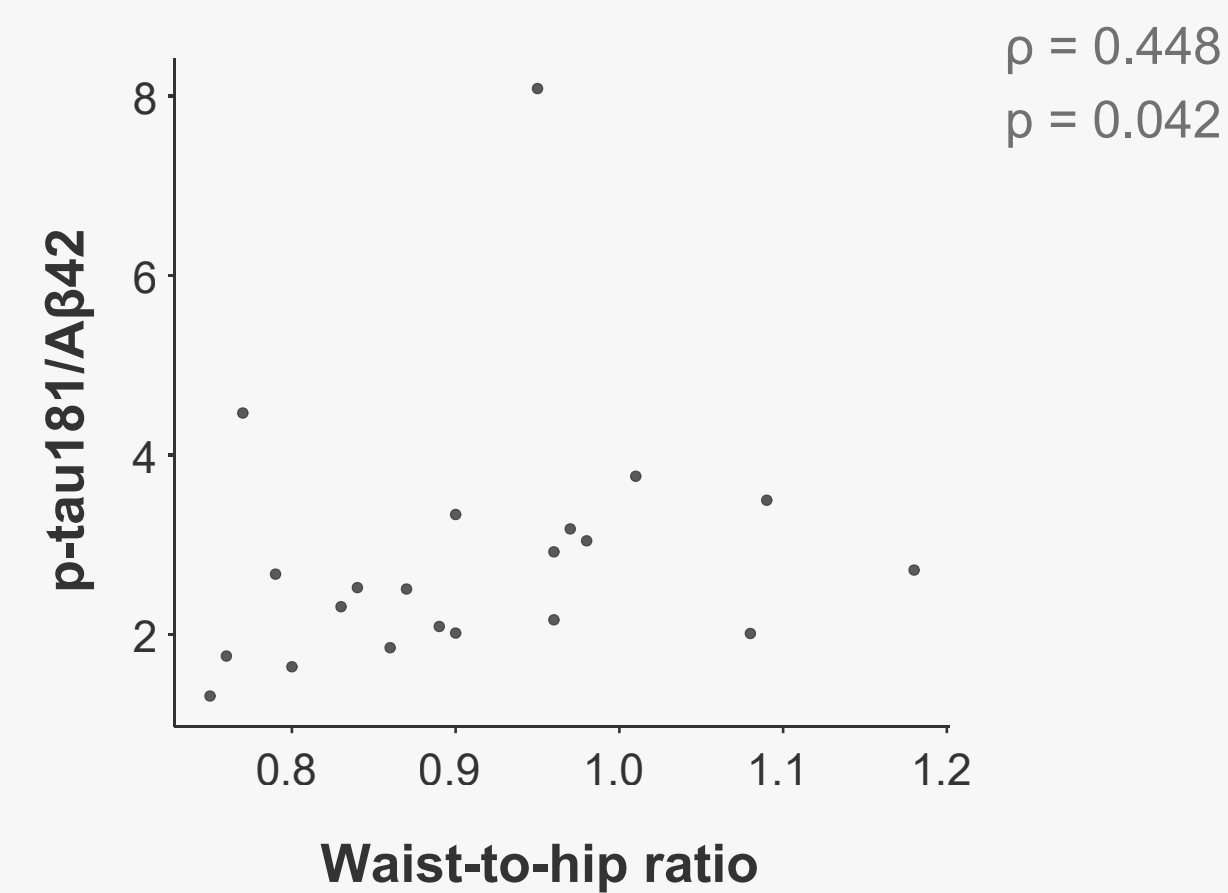
GRAPH C



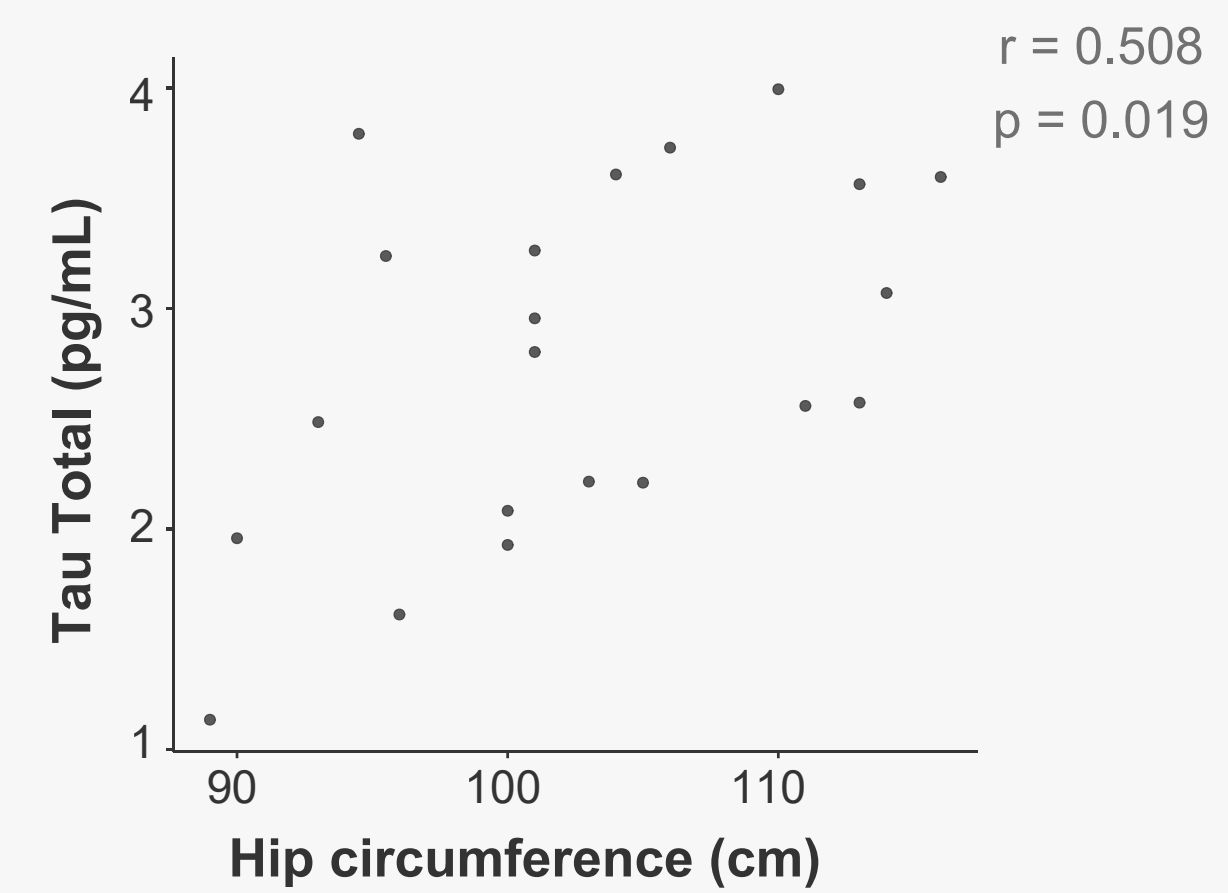
GRAPH D



GRAPH E



GRAPH F



CONCLUSION

Evidence in the literature highlights the relationship between inflammatory processes, anthropometric changes, and the predisposition to Alzheimer's disease. In this context, the findings of the present study indicate an association between anthropometric measures related to body fat distribution and AD biomarkers. Changes in anthropometric measures, particularly WC and the WHR, may be associated with variations in plasma AD biomarker concentrations. Future studies, with larger samples, are needed to investigate the impact of waist and hip measures in association with AD biomarkers.

REFERENCES

