

quality. Future studies should examine the underlying mechanisms of this association and explore the usefulness of sleep timing as a preclinical marker for dementia.

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WAIST CIRCUMFERENCE AND DOMAIN-SPECIFIC COGNITIVE FUNCTION AMONG THE NON-DEMENTED JAPANESE ELDERLY: RESULTS FROM THE TAKASHIMA STUDY



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Background: While being obesity in mid-life is associated with an increased risk of dementia and cognitive decline in late-life, being obesity in late-life is conversely associated with a lower risk of these outcomes. This phenomenon is known as the “obesity paradox”, usually observed using BMI. However, the underlying reasons and possible sex difference in the association are yet to be examined in late-life. We investigated the associations between domain-specific cognitive function and waist circumference (WC), an alternative measure of abdominal fatness which can be measured easier than BMI among older adults in each generation of late-life. **Methods:** Participants were randomly sampled from residents aged 65-74, 75-84 and 85+ years in Takashima County, Shiga Prefecture, Japan during 2005-2006. Associations between WC and domain-specific cognitive functions measured by 12 neuropsychological tests were examined using multivariable linear regression models with covariates being age, sex, education, marital status, drinking status, smoking status, frequency of physical activity, total number of prescription medications, Japanese geriatric depression scale score, and medical histories (hypertension, cardiovascular diseases, diabetes mellitus, stroke and cancer). **Results:** 122, 142 and 61 participants were in the age group of 65-74, 75-84 and 85+ years old, respectively and approximately half of them were female. The mean age (SD) [range] was 77.5 years (7.2) [66.0–98.0] and the mean WC (SD) [range] was 83.4 cm (9.9) [56.0–115.0] cm. WC was positively associated with the Wechsler Adult Intelligence Scale-Revised Digit Span Forward score (Attention/Working memory) among participants aged 65-74 years ($p=0.002$), but not in other age groups. Stratified by sex, WC was positively associated with the Digit Span Forward scores among 65-74-year-old women ($p=0.005$) while WC was negatively associated with the score among 75-84-year-old men ($p=0.002$). **Conclusions:** Some benefits of larger WC to Attention/Working memory were observed among non-demented young-old Japanese people, especially among younger older women, but not among men. This gender difference could be due to biological mechanisms including a critical role of the adipocyte-derived hormone on cognition among younger-older women. The results could aid in developing strategies to maintain cognitive health tailored for specific sex and age groups.

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INTERACTIVE EFFECTS OF APOLIPOPROTEIN E $\epsilon 4$ AND TRIIODOTHYRONINE (T3) ON MEMORY IN COGNITIVELY NORMAL INDIVIDUALS



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Background: The objective of the study was to analyze associations between cognitive functions, apolipoprotein E (APOE) and thyroid hormones as well as thyroid stimulating hormone (TSH) in cognitively normal (CN) individuals. **Methods:** A total of 197 CN individuals who had no objective cognitive dysfunction on detailed neuropsychological testing and underwent thyroid function tests and APOE genotyping were included in this study. All participants were clinically euthyroid status. Participants with at least one APOE $\epsilon 4$ allele were identified as APOE $\epsilon 4$ carriers and participants with $\epsilon 2/\epsilon 2$, $\epsilon 2/\epsilon 3$, and $\epsilon 3/\epsilon 3$ were identified as APOE $\epsilon 4$ non-carriers. Pearson's correlation and multiple linear regression analyses were performed to investigate the associations between neuropsychological performances and thyroid hormones as well as TSH in CN individuals based on APOE $\epsilon 4$ status. **Results:** There were no significant differences in neuropsychological performances between APOE $\epsilon 4$ carriers and non-carriers. The level of T3 correlated positively with memory performances in APOE $\epsilon 4$ carriers, whereas negative correlation was found in APOE $\epsilon 4$ non-carriers. There were significant interactive effects of APOE $\epsilon 4$ status and T3 level on the Seoul Verbal Learning Test immediate ($p = 0.032$) and delayed recall ($p = 0.004$) tasks. **Conclusions:** Higher level of T3 was associated with better memory performance in CN APOE $\epsilon 4$ carriers. Our finding provide a clue to understanding the positive effect of APOE $\epsilon 4$ on memory performance in CN individuals considering thyroid hormones upregulate APOE gene expression.

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COGNITIVE TRAJECTORIES OF HEALTHY OLDER ADULTS OVER THREE YEARS: A LARGE-SCALE LONGITUDINAL ANALYSIS



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Background: Age is the most powerful predictor for cognitive decline and dementia. In the context of ageing populations worldwide it is imperative to fully characterise pre-clinical cognitive impairment to enable targeted investigation of modifiable risk factors and preventative interventions. This study utilises longitudinal data from a large cohort of cognitively healthy adults over 50 to examine cognitive trajectories over three years. **Methods:** PROTECT is a 25-year innovative longitudinal online study in the UK (www.protect.org.uk) for cognitively healthy adults aged 50 and over. On study entry participants were invited to perform a range of cognitive tests, up to three times over seven days. This study analysed data for participants completing three years of cognitive assessments. **Results:** Data from 10,175 volunteers were analysed (mean age 62 (SD 7.1), 74% female), split into five-year age bands