

Genetically Predicted Tofu Intake Is Associated with a Reduced Risk of Alzheimer’s Disease in the Asian Population

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Using Mendelian randomization in an Asian population, we found that higher genetically predicted tofu intake was associated with a substantially lower risk of Alzheimer’s disease. These findings support a potential protective role of tofu consumption in AD prevention.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Dietary factors have been implicated in Alzheimer’s disease (AD) risk, but observational evidence is limited by confounding and reverse causation. Tofu, a staple soy-based food in East Asian diets, has been suggested to be neuroprotective, yet its causal relationship with AD risk remains unclear, particularly in Asian populations.	Design: two-sample Mendelian randomization (MR). Exposure: genetically predicted tofu intake from BioBank Japan (BBJ). Outcome: AD summary statistics from the Taiwan Precision Medicine Initiative (TPMI). Instrument selection: independent SNPs at $P < 5e-8$, LD $r^2 < 0.01$ within 10,000 kb. Primary estimator: inverse-variance weighted (IVW). Sensitivity analyses: weighted median, MR-Egger, and mode-based methods, with heterogeneity and horizontal pleiotropy tests.	Using four independent genetic instruments, genetically predicted tofu intake was associated with a lower risk of AD in the IVW analysis (OR = 0.55, 95% CI: 0.36-0.83, $P = 0.004$). Consistent results were observed using the weighted median method ($P = 0.013$). No substantial heterogeneity or evidence of horizontal pleiotropy was detected across sensitivity analyses.	This study suggests that higher tofu intake was associated with a lower risk of AD in the Asian population, supporting a potential protective role of tofu consumption in AD that warrants validation in larger independent cohorts.	1. Matoba, N., et al., GWAS of 165,084 Japanese individuals identified nine loci associated with dietary habits. Nat Hum Behav, 2020. 4(3): p. 308-316. 2. Yang, H.C., et al., The Taiwan Precision Medicine Initiative provides a cohort for large-scale studies. Nature, 2025. 648(8092): p. 117-127.  Xingzhi Guo, MD, PhD Department of Geriatric Neurology Shaanxi Provincial People's Hospital No. 256, Youyi West Road Xi'an 710068, China Tel. +86 2985251331 guo.heinz@spph-sx.ac.cn ALZHEIMER'S[®] ASSOCIATION 