

Preliminary Trends Linking Physical Activity To Favorable ADRD Blood Biomarkers

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- Moderate physical activity is associated with favorable ADRD Biomarkers
- These findings were not modified by APOE4 genotype

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
• Physical activity represents a promising strategy to delay Alzheimer’s disease and related dementia (ADRD) onset¹ • Yet little research has examined its associations with ADRD biomarkers • Also, studies often rely on self-reported physical activity²⁻⁴ rather than objective measures. • We examined the associations between objectively measured ambulatory physical activity and ADRD biomarkers.	Participants (n=67) wore accelerometers for 7 consecutive days <u>Physical activity measures</u> • Light physical activity • Moderate physical activity • Vigorous physical activity • Sedentary time • Sleep duration <u>Blood-based ADRD biomarkers</u> • Aβ 42/Aβ 40 ratio • pTau217 • APS2 <u>Analyses</u> 1) Univariate and 2) age and sex adjusted linear regression models were used to evaluate the associations between physical activity measures (exposure) and ADRD biomarkers 2) Interactions were used to examine whether the associations were modified by APOE genotype, sex, and age.	• Mean age was 75.9 ± 6.1 years and 61.2% women • Only age modified the associations between sleep duration and Aβ40 (β: -0.04, p = 0.006) suggesting that the association was stronger in younger participants. • Greater total activity time and more time spent in moderate-intensity physical activity were associated with lower levels of p-tau217 (β: =-0.27, p = 0.073), Aβ42 (β: -0.96, p=0.065), Aβ40 (β = -8.35, 0.043), and APS2 (β =- 2.08, p =0.082) but not with Aβ42/ Aβ40. • Greater sedentary time Aβ40 (β = - 6.05, 0.025) and longer sleep (β = 2.39, 0.049) showed associations with Aβ40 • Unexpectedly higher sedentary levels were also associated with higher Aβ42/Aβ40	• In this preliminary analysis, greater total physical activity and moderate-intensity physical activity were associated with more favorable plasma ADRD biomarker profiles, including lower levels of p-tau217, Aβ42, Aβ40, and APS2, although several associations did not reach conventional levels of statistical significance. • Associations between sedentary behavior and ADRD biomarkers were less consistent. • As this is an ongoing study with a currently modest sample size, the present findings should be considered preliminary and hypothesis-generating. • Planned analyses in the full cohort of approximately 112 participants will provide substantially greater statistical power to clarify the direction, magnitude, and robustness of these associations and to determine whether physical activity, sedentary behavior, and sleep are independently associated with blood-based ADRD biomarkers.	1. Kaufman, M., Dyrek, P., Fredericson, M., Oppezso, M., Roche, M., Frehlich, L., & Noordsy, D. (2024). <i>The role of physical exercise in cognitive preservation: A systematic review.</i> <i>American Journal of Lifestyle Medicine</i>, 18(4), 574–591. 2. Kim SA, Shin D, Ham H, et al. Physical Activity, Alzheimer Plasma Biomarkers, and Cognition. <i>JAMA Netw Open</i>. 2025;8(3):e250096. 3. Law, L.L., Rol, R.N., Schultz, S.A., Dougherty, R.J., Edwards, D.F., Kosciak, R.L., Gallagher, C.L., Carlsson, C.M., Bendlin, B.B., Zetterberg, H., Blennow, K., Asthana, S., Sager, M.A., Hermann, B.P., Johnson, S.C., Cook, D.B. and Okonkwo, O.C. (2018). Moderate intensity physical activity associates with CSF biomarkers in a cohort at risk for Alzheimer's disease. <i>Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring</i>, 10: 188-195. https://doi.org/10.1016/j.dadm.2018.01.001 4. Pedrini S, Chatterjee P, Nakamura A, Tegg M, Hone E, Rainey-Smith SR, Rowe CC, Dore V, Villemagne VL, Ames D, Kaneko N, Gardener SL, Taddei K, Fernando B, Martins I, Bharadwaj P, Sohrabi HR, Masters CL, Brown B and Martins RN (2022) The Association Between Alzheimer's Disease-Related Markers and Physical Activity in Cognitively Normal Older Adults. <i>Front. Aging Neurosci.</i> 14:771214 CONTACT Jun Kim jun.kim@einsteinmed.edu ALZHEIMER'S ASSOCIATION 