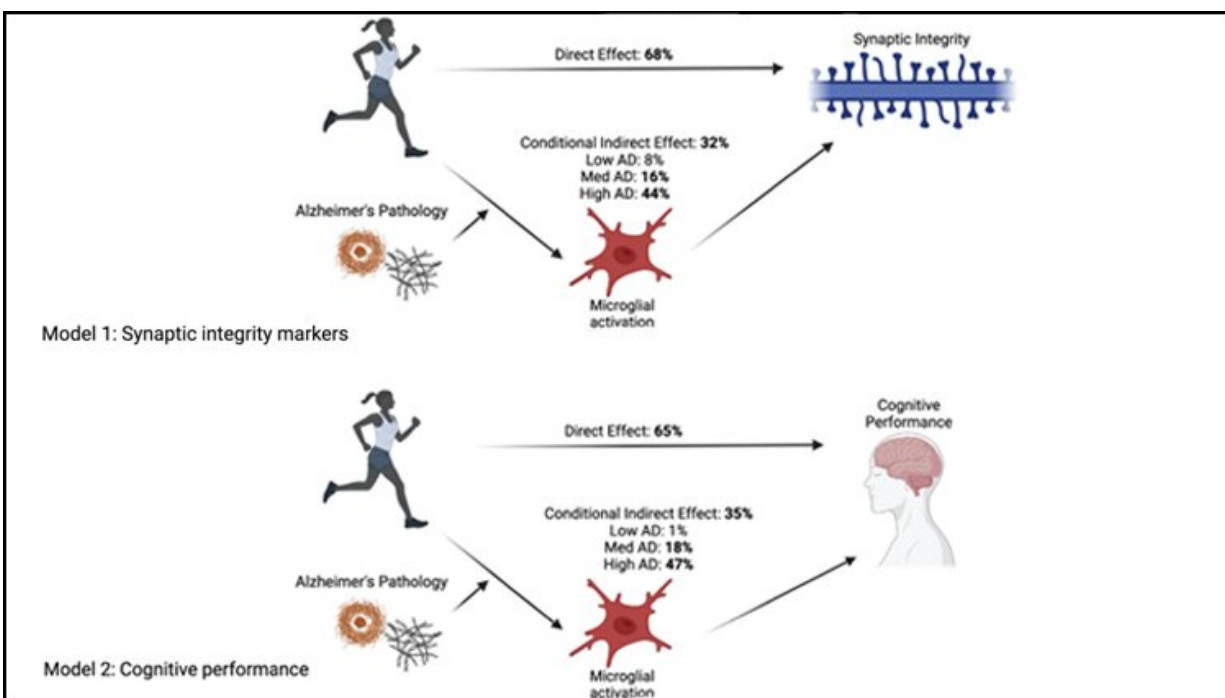


Physical activity may improve Alzheimer's disease outcomes by lowering brain inflammation

November 22 2021



Conceptual diagram of moderated mediation models. Models examine the mediating effect of inferior temporal microglial activation (PAM IT) on the relationship between physical activity and global cognitive outcomes or synaptic integrity markers in the inferior temporal gyrus. Credit: Casaletto et al., *JNeurosci* 2021

No one will disagree that an active lifestyle is good for you, but it

remains unclear how physical activity improves brain health, particularly in Alzheimer's disease. The benefits may come about through decreased immune cell activation, according to new research published in *JNeurosci*.

Microglia, the brain's resident immune cells, activate to clear debris and foreign invaders from the brain. But too much activation can trigger inflammation, damage neurons, and disrupt brain signaling. Exercise helps reduce aberrant activation in animals, but that link hadn't been established in humans.

Casaletto et al. examined the relationship between physical activity and microglia activation in 167 [older adults](#) across the spectrum of cognitive aging (majority nondemented) as part of the Rush Memory and Aging Project. The participants wore activity monitors 24 hours a day for up to ten days straight before annual cognitive exams. The researchers measured microglia activation and Alzheimer's disease (AD) pathology in postmortem brain tissue analyses. Greater physical activity was linked to lower microglial activation, particularly in the inferior temporal gyrus, a brain region hit the hardest by AD. Physical activity had a more pronounced effect on inflammation in people with more severe AD pathology.

Future research will examine if [physical activity](#) interventions can alter microglia activation in AD patients.

More information: Microglial Correlates of Late Life Physical Activity: Relationship With Synaptic and Cognitive Aging in Older Adults, *JNeurosci* (2021). [DOI: 10.1523/JNEUROSCI.1483-21.2021](https://doi.org/10.1523/JNEUROSCI.1483-21.2021)

Provided by Society for Neuroscience

Citation: Physical activity may improve Alzheimer's disease outcomes by lowering brain inflammation (2021, November 22) retrieved 5 May 2023 from <https://medicalxpress.com/news/2021-11-physical-alzheimer-disease-outcomes-lowering.html>

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