

Aerobic fitness boosts learning, memory in 9-10-year-old children

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Physical fitness can boost learning and memory in children, particularly when initial learning on a task is more challenging, according to research published September 11 in the open access journal *PLOS ONE* by Lauren Raine and colleagues from the University of Illinois at Urbana-Champaign.

Forty-eight children aged nine to ten were asked to memorize names and locations on a fictitious map, either only by studying the information or being tested on the material as they studied. Half the children were in the top 30% of their age group on a test measuring aerobic fitness, while the other half scored in the lowest 30 percent. When asked to recollect the information studied, children who were fitter performed better than those who were not as fit.

The difference between the high-fitness and low-fitness groups was also stronger when the initial learning was performed by studying alone than when testing and study were interspersed. Previous studies have suggested that combining testing and study improves later recall in children, and is less challenging than studying alone. Based on these results, the authors suggest that [fitness levels](#) may influence learning differently when the study method used is more challenging, and that higher levels of [aerobic fitness](#) can benefit [learning and memory](#) in school-age children. They conclude, "Future research should focus on the manner in which these factors impact the [neural processes](#) of children during learning."

In addition, the study suggests these findings may be important from an educational policy perspective. As the authors state, "Reducing or eliminating physical education in schools, as is often done in tight financial times, may not be the best way to ensure educational success among our young people."

More information: Raine LB, Lee HK, Saliba BJ, Chaddock-Heyman L, Hillman CH, et al. (2013) The Influence of Childhood Aerobic Fitness on Learning and Memory. *PLoS ONE* 8(9): e72666. [DOI: 10.1371/journal.pone.0072666](https://doi.org/10.1371/journal.pone.0072666)

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