

Links explored between physical activity, learning

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The association between physical activity and learning has been evidenced in many studies. The results have suggested that being physically active produces positive effects on many cognitive functions, such as memory, attention, information processing and problem solving. Unfortunately, these previous studies have used fairly small datasets and have yielded fairly little information on the actual underlying mechanisms.

Now, a research project included in the Academy of Finland's research program The Future of Learning, Knowledge and Skills is set to investigate the association between physical activity and academic achievement further. More specifically, the project, entitled Active, Fit and Smart (AFIS), will look into the links between physical activity, fitness and the cognitive prerequisites of learning and into the mechanisms influencing these links.

The project is headed by Research Director Tuija Tammelin from LIKES -- Research Center for Sport and Health Sciences. Tammelin explains the project's premise: "We know that the infantile and adolescent brain is still developing and taking shape. Our aim is to explore how physical activity and fitness are linked to academic achievement, cognitive functions, brain properties and executive functions at different ages, both in children and adults."

The multidisciplinary research consortium consists of three subprojects, each with a specific approach. The first subproject looks at how changes in physical activity and fitness affect cognitive function, academic achievement and educational attainment at different stages of a person's life. Here, the researchers will make use of material from extensive population-based cohort studies.

The second subproject will investigate the associations of lifelong physical activity or inactivity with the structural and functional properties of the brain. The third and final subproject uses animal models to study how both intrinsic and acquired fitness affect learning ability and what the underlying mechanisms are.

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