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Aerobic exercise boosts brain power

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The physical benefits of regular exercise and remaining physically active, especially as we age, are well documented. However, it appears that it is not only the body which benefits from exercise, but the mind too. The evidence for this is published in a new review by Hayley Guiney and Liana Machado from the University of Otago, New Zealand, which focuses on the importance of physical activity in keeping and potentially improving cognitive function throughout life.

Their review is published online in the Springer publication, *Psychonomic Bulletin and Review*.

A certain amount of mental deterioration is expected with advancing age. However, this may not necessarily have to be the case as particular aspects of cognitive function such as task switching, selective attention and working memory among others, all appear to benefit from aerobic exercise. Studies in older adults reviewed by the authors consistently found that fitter individuals scored better in mental tests than their unfit peers. In addition, intervention studies found scores in mental tests improved in participants who were assigned to an aerobic exercise regimen compared to those assigned to stretch and tone classes.

Interestingly, these results were not replicated in children or young adults. The one area where physical fitness or regular exercise was found to have an effect on cognitive function in these age groups was for memory tasks. Both the updating of working memory and the volume of information which could be held was better in fitter individuals or those put on an aerobic exercise regime. The authors comment that despite

physical fitness not affecting all areas of cognitive function in younger people, evidence is mounting that just because they are in their prime developmentally does not mean that they cannot benefit from regular exercise.

In older generations, the evidence for improvement in cognitive function is insurmountable. The types of tests of cognitive function reviewed here are important in showing that exercise may attenuate age-related decline for specific tasks. For example, it has been found to positively affect mental tasks relating to activities such as driving, an activity where age is often seen as a limiting factor.

The authors conclude that engagement in exercise can provide a simple means for people to optimize their cognitive function. They add that more research into the effects of exercise on young adults and children is required. However, they say that "the indications reported thus far - that regular exercise can benefit brains even when they are in their prime developmentally - warrant more rigorous investigation, particularly in the context of society becoming increasingly sedentary."

More information: Guiney H and Machado L. (2012) Benefits of regular aerobic exercise for executive functioning in healthy populations. *Psychonomic Bulletin & Review*. DOI 10.3758/s13423-012-0345-4 . link.springer.com/article/10.3 … 58/s13423-012-0345-4

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