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Exercise for Brain Gains

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Research has shown that aerobic exercise, the kind that enhances cardiovascular fitness, can help older people stay sharp and improve problem-solving skills and other mental abilities. A few years ago scientists at the University of Illinois at Urbana-Champaign showed, for the first time, that people over 60 who started an aerobic exercise program actually increased their brain volume, as seen on MRI scans. Lower brain volume is linked to increased cognitive impairment and dementia.

The best evidence yet of physical brain gains from aerobic exercise came this year from a study funded by the National Institute on Aging, in the *Proceedings of the National Academy of Sciences*. In it, 120 sedentary older people without dementia either walked briskly for 40 minutes three days a week, or else did stretching and toning exercises. After a year, MRIs revealed that the aerobic group had increased volume of the hippocampus, the part of the brain involved in memory formation, while the stretching group had normal age-related decreases in brain volume. In a spatial memory test, only the aerobic group showed improvements.

It used to be thought that brain shrinkage is almost inevitable in later life, and that the aging brain does not grow new cells. But this research has shown that even moderate exercise can not only keep the brain from shrinking, but even increase its size. It suggests that exercisers can develop new brain cells and, presumably, connections between them. Such changes would result in a brain that is more efficient and adaptive and less impaired by age-related changes.

Don't forget strength training

Strength training helps build muscle mass, of course, but it can also benefit your brain, even when done just once a week, according to researchers from the University of British Columbia in Vancouver.

One of their studies, in the *Archives of Internal Medicine* in 2010, involved 155 women age 65 to 75 who did strength training—40 minutes once or twice a week, for upper and lower body—for a year. This resulted in improvements in tests of certain “executive cognitive functions,” which tend to decline with age. A follow-up study, in the same journal in December, found that some of the cognitive benefits were sustained a year after the formal exercise program ended, at least among the women who remained physically active.

This confirms earlier research, including a 2007 Brazilian study of men age 65 to 75, which found that six months of strength training provided cognitive benefits as seen in a variety of neuropsychological tests. Those investigators noted that, like aerobic exercise, strength training may improve blood flow to the brain, as well as other factors linked to cognitive improvements.

Keeping blood pressure, cholesterol and other cardiovascular risk factors under control may slow memory loss.

A Chinese study in *Neurology* followed more than 800 people with mild cognitive impairment—often a precursor to dementia and different from normal age-related memory problems. Those with such risk factors were twice as likely to progress to Alzheimer’s disease over five years as those without. Treating high cholesterol, hypertension and diabetes with medication and/or diet was associated with a 40 percent reduced risk of Alzheimer’s. These risk factors have direct cerebrovascular effects and may also play a role in Alzheimer’s-related plaque formation in the brain, the researchers said.

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If you are very overweight and have a foot or ankle problem, getting it treated can improve your odds of losing weight. Otherwise you can get caught in the vicious cycle: being very overweight causes or worsens heel or ankle pain, which makes it harder to exercise, and avoiding physical activity can lead to further weight gain. Consult your doctor, who may refer you to a podiatrist, orthopedist, or physical therapist.

University of California, Berkeley, Wellness Letter, June 2011

Being more active may help protect against “silent strokes” - small brain lesions associated with memory problems and increased risk of a major stroke. In a new study in *Neurology*, older people who reported engaging in physical activity of moderate to heavy intensity were 40% less likely to have these strokes, as shown on MRI brain scans taken several years later, compared to non-exercisers, after controlling for factors such as smoking and high blood pressure.

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