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STUDIES: EXERCISE MIND, MUSCLE

Two new studies add muscle to the growing evidence that both mental and physical exercise help older adults flex their minds and bodies with greater health as they age.

Scientists at the Indiana University School of Medicine found that people 65 or older continued to function better than those in a control group five years after participating in certain types of mental exercise training. The research, supported by the National Institutes of Health and published in the *Journal of the American Medical Association* (Dec. 20, 2006), showed that the benefits of a relatively brief program of cognitive training not only persisted but offset some of the expected decline in older adults' thinking skills and showed promise for maintaining cognitive abilities needed to do instrumental activities of daily living, such as shopping, making meals and handling finances.

The results are from part of a national research effort titled Advanced Cognitive Training for Independent and Vital Elderly, or ACTIVE, Study being conducted at multiple locations funded by the National Institute on Aging and National Institute of Nursing Research, components of the National Institutes of Health.

According to neuropsychologist Frederick W. Unverzagt, leader of research at the Indiana site, ACTIVE included 2,802 adults ages 65 and older (average age, 74), who were living independently and had normal cognitive and functional status at the beginning of the study. Participants were randomly assigned to three intervention groups that took part in training targeting a specific cognitive ability—memory, reasoning or speed of processing—and the fourth group received no cognitive training.

People in the three intervention groups attended up to 10 cognitive-training sessions lasting 60 to 75 minutes each, over a five- to six-week period. Analysis showed that immediately after the initial training, 87% of speed-training participants showed improvement. (They learned ways to identify an object on a computer screen at increasingly brief exposures, while also to quickly note where another object was located on the screen.) Also, 74% of the group training in reasoning skills improved after learning strategies for finding the pattern in a letter or word series and identifying the next item in a series. And 26% of the memory-training participants improved after being taught ways to remember word lists and sequences of items, text and story ideas, along with details.

Then, 11 months and again 35 months after the initial training, about 60% of the participants took part in four 75-minute “booster” training sessions designed to maintain improvements gained from the initial sessions.

The investigators tested the participants at baseline, after the intervention and annually over the course of five years. After five years, people in each of the three groups continued to perform at a higher level in their respective areas of mental ability training than people in the control group. The subjects who received additional booster training had the greatest advantage.

In addition, five years after training, all three cognitive-training groups reported less difficulty than the control group in performing daily tasks, such as preparing meals, managing money and doing housework. The subset of subjects who received the most computer-based visual attention training also performed better on such daily tasks as reacting to road traffic signs and reading instructions on medicine bottles.

Furthermore, researchers at the University of Illinois added to research demonstrating that physical exercise can help to reverse brain shrinkage that occurs as people age. The research team showed that three hours of brisk walking per day can trigger biochemical changes that increase production of new brain neurons. The article is one of five about exercise and aging published in the latest issue of *The Journal of Gerontology: Medical Sciences* (vol. 61A, no. 11), a refereed publication of The Gerontological Society of America. This special issue is available online for \$25 at www.geron.org. ❖