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Rx for the Brain: Move

Recent Studies Indicate That Exercise Has Mental as Well as Physical Benefits

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Older Americans play with video games that promise to keep their minds sharp. Some do crossword puzzles, try to master foreign languages or learn to play musical instruments -- all in the hope of staving off Alzheimer's. Now, a growing body of research is offering tantalizing evidence that a brisk walk in the morning or maybe some laps in the pool might accomplish the same task.

"There's an avalanche of neuroscience to support that [physical] exercise is good for the brain," said John J. Ratey, an associate clinical professor of psychiatry at Harvard Medical School and co-author of a book on the subject that is to be published in January.

That's hopeful news for many who worry that growing old may mean losing their minds.

A 2006 survey conducted by [Harris Interactive](#) for the MetLife Foundation found that Alzheimer's was a bigger source of anxiety for Americans 55 and older than heart disease, stroke and diabetes.

"Losing one's mental faculties is people's biggest fear," said Shawn Brennan, who specializes in promoting senior health initiatives for Montgomery County's Department of Health and Human Services. "Whenever we have an event focusing on improving your memory, people just flock to it."

Dorothy Mudd, 80, of [Chevy Chase](#) has heard enough to change her habits. Her goal is to be physically and mentally fit, so six months ago she hired a personal trainer. She was sore at first, but within a few months, she says, she felt stronger -- and mentally sharper.

In a six-year study of 1,740 adults 65 and older published last year in the *Annals of Internal Medicine*, researchers found those who exercised more than three times a week were less likely to develop dementia than those who didn't. A 2005 study of 3,375 adults in the same age group produced similar results. But investigators said the findings, while encouraging, don't yet prove that exercise prevents the onset of dementia.

Scientists believe aerobic exercise increases activity in the frontal regions of the brain that control "executive functions": working memory, multi-tasking and the ability to sort and screen out distractions. The findings are especially promising because these are the areas of the brain most vulnerable as people age, researchers say.

"Exercise can help turn off the death march of cells both in our bodies and our brains," Ratey said.

Designing research to test the possible effect of exercise on specific brain functions, however, can be

tricky.

For one study published this year, Bradley Hatfield, a professor of kinesiology and sports psychology at the [University of Maryland](#), and fellow researchers devised tests of mental skills: In one, they asked 120 seniors to distinguish quickly between a series of auditory tones; in another, the seniors had to sort through conflicting visual information. Hatfield and his team found that physically active participants showed "more vigorous" responses to the tests than others. Technological advances are also letting scientists monitor changes in the brain.

In a study published in 2006, a team of researchers from the [University of Illinois at Urbana](#) was among the first to use functional magnetic resonance imaging, a neuroimaging technique, to show changes in the brains of subjects they studied. Those who took part in aerobic exercise showed the largest change in brain volume, particularly in the frontal areas of the brain associated with memory, the study showed.

Arthur Kramer, a professor of neuroscience who was part of the University of Illinois team, said the findings suggest that aerobic exercise has the potential to help roll back normal age-related declines in brain structure, though more evidence is needed.

Kramer said research demonstrates that aerobic exercise generates new neurons in the hippocampus, the area of the brain responsible for some aspects of memory. He said animal studies show a strong link between exercise and a sharper mind.

"Just a few weeks of exercise for [mice and rats] will improve their learning and memory in the tasks that are used to test these functions," Kramer said. "We have no reason to believe that would be different for humans."

Kramer said the team's finding and those of others across the country are especially promising because they offer people an easy, low-cost path to better mental health.

But while early data look promising, scientists say more research is needed to answer such questions as how much exercise is optimum and what kind of workout is best.

"What is still not quite determined is whether it's physical fitness or physical activity," Hatfield said. "Just moving may be the key, as opposed to being someone who can run the [Marine Corps](#) Marathon."

Once that's answered, another question will remain: Will the findings be enough to get seniors off the couch?

Despite this growing body of research extolling the physical and mental benefits of exercise, government surveys show that seniors remain the least likely to exercise. In fact, the older Americans get, the less likely they are to be physically active.

According to government surveys conducted between 2002 and 2004, about 39 percent of adults age 18 to 24 engage in regular leisure-time physical activity. That compares with just 17 percent of adults 71 and older. A 2004 survey by the [Centers for Disease Control and Prevention](#) found that more than half -- 58 percent -- of people 65 and older reported 10 minutes or less per week of leisure-time physical activity. In the District the percentage of sedentary seniors was 60 percent; in [Maryland](#), it was 54 percent; in [Virginia](#), 52.

Nonetheless, Kramer is optimistic that people's concern will translate into action.

Those who work with seniors say there are a variety of reasons older folks might be reluctant to start an exercise program. Some are fearful they'll get hurt, others would rather take a pill, and still others are just lazy.

As the senior sports and fitness coordinator for the Rockville Senior Center, it's Chris Klopfer's job to get people moving, whether it's pushing them to sign up for a Chair Cardio class or senior belly dancing.

"I tell some people, 'Just start out with five minutes -- get through five minutes on the bike. Walk five minutes on the treadmill,' " said Klopfer, who has become a pro at coaxing reluctant seniors onto treadmills. "I don't think people realize they can start out with that little bit and still make progress."

Nina Clarke of [Rockville](#) never cared much for exercise. She was too busy raising a family and working as an elementary school principal. But when she was 75, her doctor told her she needed to sit less and move more. She signed up for the two-day-a-week Soft Aerobics class at the Rockville Senior Center. Fifteen years later, she's one of the course's most dedicated students.

Clarke said she doesn't need research to tell her there's a link between her workouts and a sharp mind. Just trying to keep up with her aerobics teacher's shouted instructions keeps her alert and thinking.

"I joked with [the instructor] that first she was working on our bodies, now she's trying to cure our Alzheimer's," Clarke said.

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