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Medicine & Science

Taking control of memory loss

Brain: Exercise, chess and diets rich in omega-3 fats and antioxidants are among ways found to slow memory decay.

**By David Kohn
Sun Staff**

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Tired of forgetting where you put your car keys? Or blanking out the name of the movie you saw last week?

You can do something about it: Take up ballroom dancing. Learn to play trombone. Or maybe just eat a bowl of blueberries.

After decades of accepting the notion that humans have little control over the memory decline that comes with age, researchers now say the process is not predetermined. Like the heart, it turns out, the human brain can be protected from harm.

Scientists have discovered that a variety of activities can help forestall the memory decay that worries so many Americans over 40. Diet, exercise and simply using the brain can raise the odds that you'll remember your ATM password when you're 82.

"There's a lot more hope about older people's cognitive function than there was five or 10 years ago," said Dr. Molly Wagster, who oversees research on the neuropsychology of aging at the National Institute for Aging. "The older brain does change, but it's a lot more flexible than we knew."

Like most parts of the human body, the brain begins to wear down - even before the age of 30. Grey matter gets progressively creakier and processes information with less speed and efficiency. By middle age, many notice memory lapses of the misplaced-wallet variety. As the decades pass, the outlook gets gloomier - half of Americans over 85 suffer from Alzheimer's disease, the debilitating brain ailment whose symptoms include severe memory loss.

But while some memory loss is inevitable, the pace of decline is not fixed.

"We're all on our way. The question is how fast it's

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going to happen," says Dr. Gary Small, a geriatric psychiatrist who directs the UCLA Center For Aging.

Most researchers now believe that genetics plays a relatively small part in cognitive decline, accounting for less than a third of the total. That means environment and lifestyle are key elements.

Last year, Small created a "memory camp" for older people who want to bulk up their brains. Similar camps and seminars have cropped up around the country - some for Alzheimer's patients or those with a less serious condition called Mild Cognitive Impairment (MCI), others for middle-aged baby boomers worried about minor lapses.

Thanks largely to this last group, interest in memory research has exploded in the past decade.

"It is a super-hot topic. There has been more and more research going on," says [Johns Hopkins University](#) psychologist Dr. George Rebok. "People are worried about what's going to happen to them, particularly boomers."

Rebok is working on a national study that gives almost 3,000 senior citizens one of three different mental workouts. One trains them to sharpen memory, another to boost reasoning, and a third teaches them to focus simultaneously on multiple sensory inputs.

Scientists are tracking the subjects for five years to see which exercise works best at protecting cognitive skills.

Two years into the study, all three groups have shown lasting memory improvement, but those who learned the focusing techniques show the most progress.

For those who regularly think hard or learn new skills, exercises and seminars may not be necessary. A study published in last month's New England Journal of Medicine found that certain leisure activities seemed to ward off Alzheimer's.

The study of 469 Bronx residents, all over 75, identified four pursuits that seemed the most successful: reading; playing a musical instrument; games such chess, checkers or bridge; and ballroom dancing. Each reduced the risk of developing dementia by a whopping 63 percent. Doing crossword puzzles also helped, although not as much as the other activities.

Dancing offered the most benefit, said neurologist Dr. Joe Verghese, one of the study's co-authors. He wasn't surprised by the result: "There is a lot of mental effort in ballroom dancing. It requires coordination with your partner, it requires remembering steps. You have to follow the music."

A professor at Albert Einstein College of Medicine in New York, Verghese says other kinds of dancing may also protect seniors, but because his subjects preferred the ballroom, he can't tell for sure.

These results were bolstered by another study published last month in Neurology, which reported that formal education significantly diminished memory problems among those with Alzheimer's.

Verghese theorizes that education and some hobbies may create a buffer against cognitive loss by encouraging neuron growth, or by creating new brain circuits.

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When the brain begins to decay, those extra circuits are available to back up lost neurons.

Physical exercise also can help memory, several recent studies have found. Compared with sedentary individuals, seniors who keep fit have fewer memory problems and lose less brain volume in key areas, according to research by Dr. Art Kramer, a psychologist at the University of Illinois.

"There's clearly a big difference," says Kramer. In rats, he notes, exercise increases the number of brain capillaries, as well as the amount of a protective chemical called brain-derived neurotrophin factor (BDNF). Even small increases in fitness can boost memory, he says.

What you eat can also affect what you remember. Several researchers have found that antioxidants and omega-3 fats - found in fish and nuts - can slow memory loss. "In animal models, extracts from strawberries, spinach and blueberries retard cognitive decline in older rats," says Wagster of the NIA. Some studies have found that antioxidants - which remove harmful free radicals from tissue - can reverse age-related cognitive decline.

Unfortunately - for the two-thirds of Americans who are overweight - the overall number of calories consumed may also affect the brain.

While obesity itself has not been linked to memory loss, two of the most common risk factors associated with obesity - high blood pressure and diabetes - can degrade memory. Hypertension can restrict blood flow to the brain, while diabetes impairs sugar metabolism and can literally starve the brain.

Diabetics also have significantly smaller hippocampi, the brain region that "fixes" memories into permanence. New York University psychiatrist Dr. Anthony Convit believes memory problems may stem from an undiagnosed diabetes-like condition, and is testing anti-diabetic drugs as memory protectors.

Simply relaxing may also improve memory, researchers say. "When stressed, the body pumps out cortisol, which is bad for the brain - it shrinks the hippocampus," says UCLA's Small, who plans to test a program for healthy seniors that combines stress reduction, diet and exercises for brain and body.

The problem with all these hopeful discoveries, doctors say, is that many Americans aren't interested in healthy living.

"Exercise and eating well don't appeal to people," says Convit. "We live in the land of the magic pill." Not surprisingly, half a dozen drug companies are working on medications to prevent or reverse age-related memory loss. But they are at least a decade away.


Until then, preserving memory will require hard work - or at least a willingness to crack a book once in a while.

"In 50 to 100 years, it will be like The Terminator," says Small. "You'll go into the brain repair machine and get it all back. But we're not there yet."

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