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## Train your brain

Memory problems of aging can be lessened or prevented with mental workouts, diet and exercise

**By Barb Berggoetz**

[barb.berggoetz@indystar.com](mailto:barb.berggoetz@indystar.com)

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The signs were small, but annoying.

Jim Klein looked at someone at church, but couldn't recall his name. Once, for several days, he tried to recall the name of a famous New York building.

Finally, he asked his wife. It was the Empire State Building.

The 77-year-old Indianapolis retiree can joke about it now, but the growing problems, primarily with short-term memory, bothered him. The more anxious he became, the harder it was to remember things.

Klein has a lot company: Aging baby boomers (a bit younger than he) -- and even people in their 40s are also seeking ways to maintain brain fitness, local and national experts say. More research is showing that the brain can rewire itself in old age and create new cells when it's jump-started.

A bit of background: The brain maintains and develops its cognitive abilities through creating new neurons and dendrites, hairlike projections that connect neurons. If new neurons don't stay active, they lose connections. The body discards them. Stress can inhibit new neurons, too.

To get your mind in good shape, you need to pay attention to your body, too.

"It's really a combination of mental and physical exercises, social stimulation and good diet," said Polly Shepard, a neuropsychologist and co-owner of the Memory Clinic of Indianapolis.

"Doing all those things together is going to give you the greatest benefit.

"You need to learn new information, do new things."

Keeping your mind sharp may benefit you beyond just remembering, while you're standing in the video store, the name of that movie you wanted to rent. There's more urgency to memory sharpness because of an anticipated jump in people with Alzheimer's disease, a form of dementia.

More than 5.1 million Americans have the disease now, and the Alzheimer's Association predicts that by 2050, the number could range from 11 million to 16 million.

While it's a genetic disorder that can't be totally prevented, Shepard said, brain research has shown some people have a better chance of maintaining brain health with preventive steps to build up a "cognitive reserve."

Sharpening your brain is a good idea all around: A wealth of evidence, especially in the past few years, suggests that brain aging and the increase in Alzheimer's in the U.S. and Europe are due to bad diets, obesity and lack of physical exercise, said Martin Farlow, a neurology professor and director of Indiana University's Center for Alzheimer's Disease and Related Disorders.

So what kinds of "brain exercises" or activities really work? That depends on whom you consult and what type of help -- memory, concentration, reasoning, speed of processing information -- you need.

For example, if you want to improve memory or processing speed, then doing crossword puzzles or Sudoku probably won't have much effect, said Jeffrey Elias, editor of Experimental Aging Research at University of California-Davis Medical School.

While they have some cognitive benefits, they won't likely have an overall impact on brain functioning that would forestall decline, said Elias, former chief of the National Institute on Aging's cognitive-aging program.

When Klein started being forgetful, he sought help from the Memory Clinic of Indianapolis to see if anything was wrong. Cognitive tests showed that his intellect is intact, but he's experiencing the slowdown that often comes with age.

Now he takes many steps to stay sharp -- from reading nonfiction books, memorizing Bible verses and learning the alphabet backward, to singing at nursing homes, playing games, eating better and exercising more.

Since stress can kill brain cells, he's trying to worry less about it, too.

All these things have eased his mind and helped him recall things more quickly.

"It helps me to relax a little bit, breathe deeply and then it will come later out of thin air," says Klein, a former facilities manager for the Internal Revenue Service.

Meanwhile, the market is brimming with products, from science-based computer software to Brain Age games for Nintendo DS and online brain exercises.

In the past six months, at least a dozen companies have been touting brain exercise programs -- and more are expected to flood the market soon.

Sales soared from \$2 million in 2005 to \$30 million in 2006, according to a survey by San Francisco-based SharpBrains, which offers brain fitness classes, online information ([www.sharpbrains.com](http://www.sharpbrains.com)) and software from several firms.

The ACTIVE (Advanced Cognitive Training for Independent and Vital Elderly) study, which involved 2,800 healthy seniors, reported last December that relatively short training regimens -- such as 10 sessions spread over six weeks -- significantly improved mental functioning for as long as five years.

Each type of training -- for memory, speed or reasoning -- didn't have an effect on other types, said Dr. Frederick Unverzagt, director of the Neuropsychology Clinic at IU's medical school, which helped do the study.

But, at five years, many people reported they could better perform daily chores, such as balancing their checkbook.

Experts also are excited by results released last month by Rush University Medical Center in Chicago that showed seniors who did brain exercises, read, went to museums or did other mentally stimulating activities were 2.6 times less likely to develop dementia and Alzheimer's.

"Most people don't really know how they need to exercise their brains," says Alvaro Fernandez, CEO and founder of SharpBrains.

"The earlier they start, the better."

### Useful mind games

Here are some brain fitness activities, games and tests:

- BrainBuilders: Variety of brain games developed by Dr. Thomas Perls, leader of New England Centenarian Study at Boston University, that strengthen brain activity, available at [http://fun.eons.com/brain\\_builders](http://fun.eons.com/brain_builders), an online community for adults 50 and older.

- Free cognition test: Alliance for Aging Research, Washington D.C.-based, private, nonprofit organization, offers Brain Resource WebNeuro test free until Dec. 31 to help assess cognitive function. Visit [www.agingresearch.org](http://www.agingresearch.org).

- Brain Fitness Program: Computer software program developed by Posit Science, San Francisco-based company, helps improve hearing and auditory processing skills. Cost: \$395 ([www.sharpbrains.com](http://www.sharpbrains.com)).

- Lumosity: Online brain fitness program designed to improve memory and attention, developed by Lumos Labs, offers a daily mix of games, exercises, progress reports and brain health tips; 30 sessions, 10 minutes each. Cost: \$79.95 for unlimited one-year use ([www.lumosity.com](http://www.lumosity.com)).

- MindFit Brain Workout Personal Edition: Software program developed by CogniFit, designs individualized training program for adults. 24 sessions of 20 minutes a day, three times a week, repeated three times. Cost: \$149 ([www.sharpbrains.com/get-started/mindfit/](http://www.sharpbrains.com/get-started/mindfit/)).

- The emWave PC Stress Relief System: Biometrics feedback-based software and hardware program designed to teach users to prevent and manage the negative effects of stress, often linked to memory loss. Cost: \$280 ([www.sharpbrains.com](http://www.sharpbrains.com)).