

# To Your Health

## Brain Fitness

Forging new neural pathways through your gray matter will help you stay healthier and happier as you age.

▲ In the battle against aging, many people spend their time and energy on health clubs, the latest diet, hair color, and assorted nips, tucks, and cosmetic treatments. But what are they doing for their brains? That three-pound control center requires certain kinds of stimulation to stay in tip-top condition, and there are things you can do to sharpen a sluggish brain and avoid memory loss.

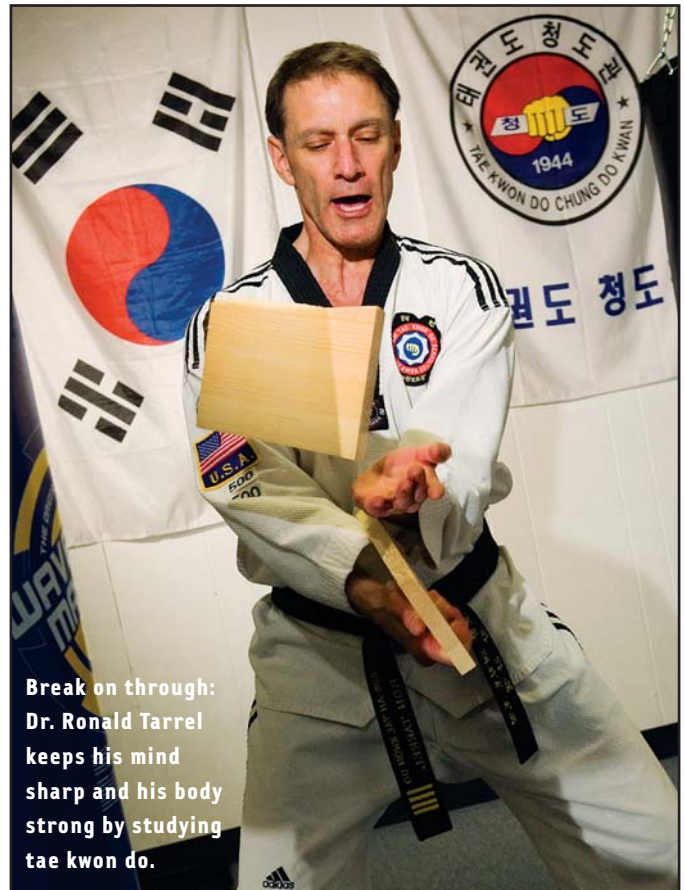
### Exercise Your Brain

According to the Society for Neuroscience, research from the 1990s and onward indicates that the brain can grow new cells throughout its lifespan; it was previously believed that the brain did not produce new neurons after birth. If the adult brain can grow and change, the argument goes, it can develop a renewed state of fitness, much like the body can. Brain fitness is characterized by “quick, efficient, and flexible cognitive processing” according to SharpBrains, a San Francisco-based company that promotes brain fitness. In other words, you can learn new tricks—and remember them, too.

Most people notice the first signs of fading memory in their 40s. That could include forgetfulness or taking longer to complete normal mental tasks. Mild forgetfulness, such as misplacing your keys or forgetting a person's name, is a normal part of aging, but not knowing how to use the keys or not recognizing a close friend or family member may be a sign of Alzheimer's disease or another form of dementia. Or it could signal something else. According to the National Institute on Aging, serious memory problems can result from certain medications, dehydration, vascular disease in the brain, low vitamin B12 levels, or thyroid disease.

For people whose problems amount to mere middle-aged forgetfulness, the best time to “sharpen the saw” and get started on brain fitness is the present.

“The fact that things take longer as we get older is not abnormal—that's part of aging,”



**Break on through:**  
Dr. Ronald Tarrel  
keeps his mind  
sharp and his body  
strong by studying  
tae kwon do.



by **TERI J. DWYER**

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says Dr. Ronald Tarrel, director of Abbott Northwestern's stroke program in the Neurocritical Care Unit. “We did find that the brain has more plasticity than we gave it credit for. It is able to regenerate. It is able to remodel itself in ways we didn't know were possible before,” he says.

Remodeling and regeneration—or neurogenesis as the latter also is called—occur in the hippocampus, a region of the brain involved in learning and memory, according to the Society for Neuroscience. The brain changes or grows by creating neurons (the cells of the brain), and increasing and improving neural connections, which draws more blood and oxygen to the brain. Although scientific evidence strongly suggests that neurogenesis improves the ability to learn, it is unclear exactly how. It could be simply that having more neurons enables a person to retain more memories. Or it could

be a more complex process that takes place, essentially “time stamping” memories and keeping them from interfering with each other. Adult neurogenesis has also been linked to the ability to deal well with stress, though the mechanism by which that happens also is unclear.

### Sudoku is Super, But . . .

The Sudoku craze has stimulated minds across the country, including Tarrel’s. He admits to being a bit of a Sudoku junkie. But he cautions that such games are not enough.

“I think they’re beneficial, but they’re very limited,” he says of the games’ “linear” thinking requirements, which do not stimulate the brain to use different functions at the same time. How-ever, he says that “Sudoku requires a very precise kind of thinking, which can be utilized in many different parts of life.”

More beneficial than improving a very specific kind of mental process is challenging yourself with a variety activities that require your brain to behave in ways it never has before. “What’s really important,” says Tarrel, “is to take on novel endeavors. Maybe you’ve never played music. Take on something new like music, and [you can] teach your brain a whole new, different operating system. And trying to get good at that is probably more important than doing more of what your brain is already good at.”

That said, revisiting the pastimes of your youth can give you a mental boost, too. Remember playing the card game Concentration? It’s back as a computer game for adults to help maintain memory. Did you learn to play the guitar or piano or learn a new language as a youngster? Try again as an adult. Studying music, as well as learning a language, taps into many parts of the brain, causing new neural pathways—a group of neurons that send information to all parts of the body via nerve impulses—to develop. New pathways allow for greater connectivity in the brain.

Physical activity helps, too. Several recent studies have indicated that exercise leads to growth of new brain cells, which in turn aids memory.

Tarrel follows his own advice. At age 48, he pursues martial arts training, yoga, and meditation, and is learning Spanish. He also recently took up the guitar again for the first time in years. “I’m really trying to learn how to play the guitar. I still stink at it, but it really doesn’t matter. I’m not worried about performing,” he says. He has studied tae kwon do for 30 years. “Even when you take on something for as long as I have, and you stick with that and just that, you can continue to grow within it,” Tarrel says. “Because your priorities change and your abilities change, you look for different outcomes.”

### Never Too Late

For some people, brain fitness is more a way of life than a newly established goal. Dorothy Spencer, 74, has had an eclectic career. A longtime runner, she was one of the founders of Grandma’s Marathon in Duluth in the late 1970s. She’s also been a school bus driver, an executive administrative assistant, a calligrapher, a sign painter, and a masseuse to athletes. She was winding down her career in sports massage in 1995 when a client asked her to help him run a fast marathon.

His day job was building homes, and Spencer found herself helping him with a project. “I went out there one day to his job site and brought him some lunch. He said, ‘While you’re here and not doing anything, why don’t you cut me

## BRAIN EXERCISE

SharpBrains, a San Francisco company that aspires to make “brain gyms” and other neuroscience-based products and programs as ubiquitous as physical fitness centers, developed the exercise below. It works the frontal lobes (the part of the brain that deals with memory and attention, among other things) and the parietal lobes (the part of the brain responsible for visual interpretation).

Quick! Count the number of times the number 6 appears below. Then, count the total of both 3s and 7s, trying to add the total number of both as you see either. (That is, don’t just count all the 3s and then the 7s.)

The most important thing here is not to get the right answer, but to try.

1 2 3 4 4 6 7 8 8 9 9 7 4 6 7 4 6 5 7 8 6 5 8 7 6 5 7 6 5 7 6  
3 5 7 6 5 7 3 6 2 5 4 3 2 6 5 7 3 4 6 5 7 8 4 3 6 5 7 8 3 4 2  
2 7 3 2 1 8 8 5 8 2 7 3 5 8 2 7 4 5 6 7 2 4 6 8 7 3 4 3 8 2 8  
7 6 7 2 8 7 8 6 8 2 7 6 8 7 2 3 6 8 2 3 7 6 7 8 3 7 6 8 2 6 7  
2 6 4 7 6 4 8 8 2 3 1 7 8 3 4 6 4 3 2 7 6 4 8 7 6 7 7 4 6 5 3  
7 4 3 6 5 7 4 3 8 6 5 8 1 4 8 3 6 2 7 8 6 8 6 5 3 8 7 3 4 6 5

This type of exercise has been used by the military to improve attention for decades. The answer appears on the bottom of page 28.

Source: [www.SharpBrains.com](http://www.SharpBrains.com)

some boards?” Soon Spencer, who had never used a saw, found herself sawing lengths of wood and tearing shingles off a second-story roof. She still works in construction today.

“You’re working constantly [in construction]. You’re using your brain constantly,” she says. “Life is easier when I can do these things, when I can keep up with people who are a lot younger than I am.” A lifetime of learning new skills has made it possible for her to physically and mentally meet new challenges—like hanging sheetrock.

### Relax, Don’t Worry

Not all brain fitness comes from heightened activity. Sometimes the brain needs to be recharged, which can be accomplished through calming activities. Meditation is a way of “learning how to empty your brain, learning how to let your day’s work go, and just be there in the moment,” Tarrel says. If meditation doesn’t sound like your kind of relaxation, walking, yoga, or reading for pleasure are other ways you can refresh your brain.

All that effort to stimulate and calm your brain can lead to impressive results: faster calculations, deductions, and reactions, and clearer thinking and problem solving. Forging new neural pathways makes your brain stronger and more flexible.

Tarrel likens it to clearing a forest: “I’m sitting here with this image of a guy with a machete, walking through the forest, just literally forging new paths. Cutting away the brush and then coming back and forth and trampling down the ground—and doing it over and over until you have a nice, well-worn path, easily taken.” And once that path is worn, you can clear a new one. **TCB**

Answer: There are 33 6s and 59 3s and 7s.