

Train Your Brain With Exercise

Not only is exercise smart for your heart and weight, but it can make you smarter and better at what you do.

By Jean Lawrence

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Anyone with a brain exercises these days, but did you know exercise can return the favor and train your brain? Not only is exercise smart for your heart and weight, but it can make you smarter and better at what you do.

"I like to say that exercise is like taking a little Prozac or a little Ritalin at just the right moment," says John J. Ratey, MD, an associate professor of psychiatry at Harvard Medical School and author of *A User's Guide to the Brain*. "Exercise is really for the brain, not the body. It affects mood, vitality, alertness, and feelings of well-being."

Stephen C. Putnam, MEd, took up canoeing in a serious way to combat the symptoms of adult ADHD (attention deficit hyperactivity disorder). Then he wrote a book, titled *Nature's Ritalin for the Marathon Mind*, about the benefits of exercise on troublesome brain disorders such as ADHD, a neurological/behavioral condition resulting in hyperactivity and the inability to focus on tasks. Putnam cites studies of children who ran around for 15 to 45 minutes before class and cut their ants-in-the-pants behavior by half when they got to class. As with most exercise, the effects were relatively lasting -- smoothing out behavior two to four hours after the exercise.

Putnam also points to some preliminary animal research that suggests that exercise can cause new stem cells to grow, refreshing the brain and other body parts. According to Ratey, exercise also stimulates nerve growth factors. "I call it Miracle-Gro for the brain," he says.

How Exercise Trains the Brain

Christin Anderson, MS, wellness and fitness coordinator of the University of San Francisco, explains that exercise affects many sites within the nervous system and sets off pleasure chemicals such as serotonin and dopamine that make us feel calm, happy, and euphoric. In other words, if you don't want to wait for those good feelings to come by accident (if they do), you can bring them on by exercising.

"When one exercises," Anderson says, "you can think more clearly, perform better, and your morale is better. This is pure science -- stimulate your nervous system and function at a higher level."

Effects of Exercise on Depression

Almost everyone has heard of the "fog of war," but the "fog of living" is depression. "Depression affects memory and effectiveness (not to mention the ability to get up, get dressed, and function)," Anderson says. "If you can control your physiology, you can relax, focus, and remember."

In a study reported in the Journal of Sports Medicine and Physical Fitness in 2001, 80 young male and female volunteers were tested for mood and then did aerobics for an hour. Of the 80, 52 were depressed before the exercise. That group was the most likely to benefit, reporting a reduction in anger, fatigue, and tension. They also felt more vigorous after the workout.

A well-known study was done at Duke University involving 150 people 50 or older who had been diagnosed with depression. They were divided into three groups and given either exercise as a treatment for four months, the antidepressant drug Zoloft, or a combination of the two. At the end of the four months, all three groups felt better. But the researchers didn't leave it there. They checked again in six months, and the exercise group had relapsed at significantly lower rates than the Zoloft or combination groups. In fact, the scientists felt that giving the Zoloft along with the exercise undermined the effects of the exercise, saying the combination group might have preferred to feel they had worked for their improvement rather than having to take a pill. This doesn't mean, the researcher said, that exercise is a cure-all for every case of depression. Seeking out the study showed motivation, and motivation can be hard to come by when you're depressed.

Bipolar disorder also does not seem to respond as well to exercise. On the other hand, anxiety disorders sometimes respond even more quickly.

If You Want to Try Exercise as a Brain Trainer

Single bouts of exercise can reduce anxiety for several hours afterward, although there may be a lag time before the good feeling sets in if exercise is too intense (good news for those who find fanatical, prolonged, "check your pulse" exercise unappealing).

Therefore, low to moderate forms of exercise are recommended for brain training. Ratey recommends 8 to 12 minutes a day of sweating and breathing-hard exercise (60% of maximum heart rate) for brain training.

Anderson says a minimum would be 30 minutes of moderate exercise, walking, hiking, or swimming, three times a week. Half an hour to an hour, four to five times a week would be even better. For those who want to be REALLY on the ball, 90 minutes five to six times a week would not be out of line, she says.

Anderson recommends two sessions a day for this purpose, rather than one big heaving workout. "Swim for 20 minutes in the morning, then walk at night," she advises. "Right after hard, intense exercise, you may not be as acute. Overtraining can set off enzymes that can lead to fatigue, which is the enemy of alertness."

Anderson also says the type of exercise you select depends on your personality. It may be the opposite of what you'd expect. "If you're a 32-year-old male, work 70 hours a week, play ball twice on the weekend and jog daily," she says, "you may need to do some yoga to improve your mental acuity." Some coaches, she points, out actually have to get people to relax to find their "edge." Meditation can also be a great complement to exercise, she adds. Then: "Do

what you enjoy. That's important."

"You want to ready your brain for learning," Ratey says. For that to happen, all the chemicals must "jog" into place.

Star Lawrence is a medical journalist based in the Phoenix area.

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