

# Exercise Enhances Learning Ability



Jul 2, 2010 [Jennifer Copley](#)

Exercise Boosts Brain Power - *Federico Stevanin*

Most people know that exercise is good for the body, but many people are not aware that it is also good for the brain.

Exercise boosts brain power and enhances the capacity for learning. This occurs because “Physical activity presents a physiological stress to the brain that, when balanced with recovery, promotes adaptation and growth, preserves brain function, and enables the brain to respond to future challenges” ([Sattelmair & Ratey, 2009](#)).

## How Physical Activity Improves Brain Function

According to Sattelmair and Ratey, research has shown that exercise improves cognitive ability and memory by:

- enhancing synaptic, vascular, and structural plasticity, making the brain more positively adaptive
- modulating neurotransmitters
- Promoting the growth of new neurons within the hippocampus (a brain center that facilitates memory and learning)

These effects not only enhance learning and memory among younger people, but also slow age-related cognitive decline for older individuals. A study of 766 women aged 70-81 found that the risk of cognitive impairment was 20% lower among the most active subgroup ([Sport Information Resource Centre, 2009](#)).

The cognitive benefits of exercise can even occur in utero. Experiments have shown that when female rats are more active while pregnant, their pups are born with 40% more cells in their hippocampi.

## Exercise Reduces the Symptoms of Anxiety, Mood, and Attention Disorders

Exercise is effective in treating depression, [anxiety](#), and anger, and can reduce or even eliminate the symptoms of [attention deficit hyperactivity disorder](#) (ADHD). This makes it easier for both children and adults who suffer from mood, anxiety, or attention disorders to concentrate and absorb new material, which aids the learning process. Many studies have demonstrated the ability of exercise to improve mind-body health, including the following (reported by the Sport Information Resource Center):

- A Finnish study of 3,403 individuals 25-64 years of age found that subjects who exercised at a moderate level two or three times a week felt significantly less sadness, distrust, stress, and anger than participants who exercised little or not at all.
- Individuals suffering from severe depression achieved significant improvements after engaging in an aerobics program. Benefits were similar to those of antidepressant medications, and individuals with a higher aerobic exercise capacity were less likely to suffer relapses than those taking medication.
- Researchers divided 156 women aged 50 and up with serious depressive disorders into three groups: antidepressant medication only, exercise only (30 minutes three times per week at 70-85% of maximum heart rate), and both medication and exercise. After four months, all three groups achieved a significant reduction in depressive symptoms, but when researchers evaluated the groups six months later, those who were still exercising had been less likely to suffer relapses.
- A study of 4,500 teenagers found that participants who engaged in increased physical exercise (undertaken as a leisure activity) suffered fewer depressive symptoms over the course of two years than their less-active peers.
- Older people who engaged in [resistance \(strength\) training](#) several times a week for 24 weeks experienced significant improvements in overall mood and reduced tension, anger, and confusion.

## **The Amount of Exercise Required to Enhance Cognitive Ability**

When people hear about the cognitive benefits of exercise, they naturally want to know how much exercise they need to do in order to achieve those benefits. According to Ratey (2008), just 10 minutes of rigorous physical activity in academic settings has been found to enhance both attention and problem-solving skills among children. However, longer workouts have been associated with greater benefits for young and old alike, particularly when there are additional problems that interfere with learning such as anxiety, depression, and attention disorders.

### *References:*

- Ratey, J.J. (2008). [\*Spark: The Revolutionary New Science of Exercise and the Brain\*](#). New York, NY: Little, Brown and Company.
- Sattelmair, J., & Ratey, J.J. (2009). [Physically Active Play and Cognition: An Academic Matter?](#) Board of Trustees of the University of Illinois.
- Sport Information and Resource Centre (SIRC). (2009). [“Recommendations for Physical Activity, Mental Health Benefits of Exercise.”](#) SIRC.ca.

[Memory Loss Guide](#) [www.JohnsHopkinsHealthAlerts.com](http://www.JohnsHopkinsHealthAlerts.com)

Groundbreaking Memory Loss Report. Hopkins Memory Loss Guide - Free!

[1 Trick to Improve Memory](#) [www.TotalFitness.com/Memory-Loss](http://www.TotalFitness.com/Memory-Loss)

Top Researchers Discover Trick to Improve Memory & Focus. Read More.

[Exercise & Nutrition Tips](#) [www.ExerciseAndSportNutrition.com](http://www.ExerciseAndSportNutrition.com)

Exercise & Sport Nutrition. The Ultimate Training & Nutrition Guide

[Power & Praise](#) [Beachbody.com/Body-Gospel-Workouts](http://Beachbody.com/Body-Gospel-Workouts)

Combine the Power of Your Faith w/ Your Desire to Lose Weight Today!

[Ads by Google](#)

Copyright [Jennifer Copley](#). Contact the author to obtain permission for republication.

[Print Article](#) | [Share Article](#) |