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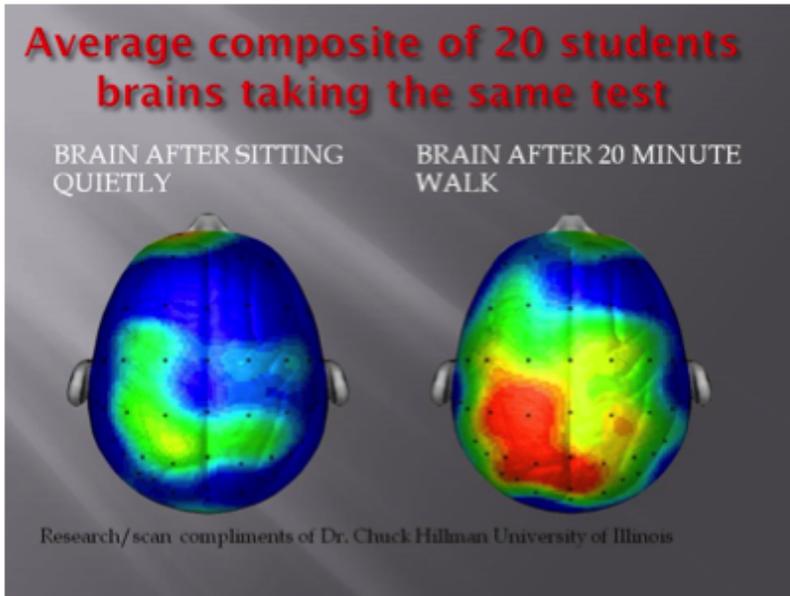
BLOG: White Coat Notes

HEALTH NEWS, FITNESS

4 Ways to use exercise to boost brain power

03/07/2013 4:27 PM

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courtesy of Dr. Chuck Hillman

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By Deborah Kotz, Globe Staff

No doubt, the biggest appeal of exercise is to build biceps, heart muscle, and perhaps some definition in those abdominal muscles, but how about using exercise to build your brain?

It's been known for some time that exercise can lift your mood, ward off depression, and help the brain age more gracefully -- free of memory loss and dementia.

But now researchers have found that even just one bout of exercise can -- even better than a

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Daily Dose gives you the latest consumer health news and advice from Boston-area experts. Deborah Kotz is a former reporter for US News and World Report. Write her at dailydose@globe.com. Follow her on Twitter at [@debkotz2](https://twitter.com/debkotz2).

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task you face that day.

A new analysis of 19 studies involving 586 kids, teens, and young adults that was published Wednesday in the [British Medical Journal](#) found that short 10 to 40 minutes bursts of exercise led to an immediate boost in concentration and mental focus, likely by improving blood flow to the brain.

“These results provide further evidence that doing about 20 minutes of exercise just before taking a test or giving a speech can improve performance,” said Harvard psychiatrist Dr. John Ratey, who wrote the best-selling book [Spark: The Revolutionary New Science of Exercise and the Brain](#).

Another piece of proof can be seen in the brain scan above -- from a [2009 University of Illinois study](#) also included in the new analysis -- which compares the brain activity of 9-year-olds who took a brisk walk and those who didn't take a walk. The walkers had far more activity in brain regions involved with focused attention and filtering out noisy distractions while they were taking a challenging test compared to the non-walkers.

“We're not sure how long these effects last short-term,” Ratey said, but it's likely to be for at least a few hours.

Public health experts have long complained about the cutting of gym and recess time at school to make time for more academics, which could actually be having the opposite effect of impeding kids' learning.

Ratey is a big fan of [before-school activity programs, like BOKS](#), that are starting to gain traction at public schools in Massachusetts and elsewhere to replace the shrinking time for activity during the school day.

Over the long term, regular exercise is believed to boost a chemical called BDNF -- which Ratey calls Miracle-Gro for the brain -- that's instrumental for the development of new nerve connections and brain tissue in areas of the brain responsible for higher reasoning. Slow and steady workouts several times a week also increase levels of “feel good” brain chemicals such as serotonin to increase your energy and mood.

Here are some ways to use exercise to increase brain power, whether you're 7 or 70.

1. To improve immediate mental performance, think quick-and-dirty exercise bouts. A short, sweaty session of jumping rope, running in place, squat bends can quickly improve blood flow to the brain, helping to improve the transmission of signals through the nerve cells, according to Ratey. Try to squeeze in this mini-workout within an hour before you're expected to perform.

2. Reduce and prevent depression through steady activity a few times a week. Studies over the past several years have indicated that burning off 350 calories three times a week through sustained, moderate activity can reduce symptoms of depression about as effectively as antidepressants. That's, at least, for those with mild depression. Exercise can also work hand-in-hand with medications and therapy to help control depression in those with more severe symptoms.

3. Pick up a new sport or skill to improve learning. Taking up a new workout routine that requires hand-eye coordination or fancy foot moves puts a little stress on your brain cells to help them grow, according to Ratey. Complicated activities may also improve your concentration skills over the short-term even better than more straight-forward workouts, according to one German study.

4. To retain your memory, even mild daily activity works. While the latest British Medical Journal review study couldn't find evidence that exercise provided a temporary memory boost, other studies have suggested that elderly adults who engaged in leisure activities such as short walks, gardening, cooking, and cleaning were less likely than their sedentary peers to have memory loss and a crumbling vocabulary.

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trueendurance

03/08/2013 11:10 AM

This fact regarding exercise and "creative thought", surely stems from human's continuous evolution from earliest times.... Imagine, if you will, running from a lion, or tiger, for almost ten minutes... In that instance, you better have "a great idea", because now that you are nearly out of gas, that's all that stands between you and being a nice sitdown meal... For the lion, or tiger, that is.....



debkatz

03/08/2013 12:11 PM

Excellent point. Evolutionary biologists like Harvard's Daniel Lieberman say the brain was designed for exercise. Lieberman's email to me that didn't make it into this piece on this: "Just as an absence of adequate nutrition or social stimuli leads to impaired development of many parts of the body, an absence of regular doses of vigorous physical activity is also abnormal and pathological, and is also known to contribute to some impairment of normal development (e.g., cardiovascular, musculoskeletal, and so on). Given substantial evidence that physical activity affects processes that act on brain growth and function (for example via brain derived neurotrophic growth, BDNFs), why should the brain be any different?"



ECLAP

03/09/2013 10:07 AM

I always recommend that my students do a vigorous warm-up before taking the SAT or ACT. They laugh at me. Now I have proof to back me up.



j-m-

03/08/2013 02:46 PM

So, classrooms should become more like fitness centers?

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