



EXERCISE: Food for Your Brain

Jeffrey L. Santee, Ph.D.

SUMMIT CLINICIANS

Joyce Babb
M.S.W., L.C.S.W., B.C.D.

Sharon Beck
D.N.P., P.M.H.N.P.-B.C.,
L.C.S.W.

Beverly J. Burch
M.A., L.C.P.C.

Todd Cartmell
Psy.D.

Lisa Hopkins
N.C.C., L.C.P.C., C.A.D.C.,
P.C.G.C.

Bonnie Knox
M.Ed., L.C.P.C., C.A.D.C.

Anna Mackender
M.D.

Andrew C. Nichols
M.S.W., L.C.S.W.

Danielle Romano-Cihak
Psy.D.

Jeffrey L. Santee
Ph.D.

David J. Van Dyke
Ph.D., L.M.F.T.

Daniel Wyma
M.D.

“YOU’RE GETTING CRANKY. You need to go for a run!!” my wife, Cindy, would say to me. For decades we both intuitively knew what neuroscience research now empirically supports: exercise is not only good for your body, it also helps to regulate your mood and improve your learning and memory. In fact, Harvard brain researcher and author of *Spark*, Dr. John Ratey, writes, “Going for a run is like taking a little bit of Prozac and a little bit of Ritalin because, like drugs, exercise elevates the neurotransmitters...and balances them.”

So what, specifically, does exercise do to your brain? In a nutshell, exercise affects your neurochemistry by naturally raising and balancing three vital neurotransmitters in your brain, and stimulates the release of neurotrophins like brain-derived neurotrophic factor (BDNF) and insulin-like growth factor (IGF-1). To unpack what all of that means, we need to first back up and review some basics of neuroscience.

Your brain is not a solid mass inside of your skull but consists of billions of interconnected brain cells (neurons), containing microscopic gaps (synapses) between them. The neurons signal one another via neurotransmitters that travel the synaptic gaps between the neurons. How these neurons connect and communicate with one another is determined largely by each individual’s experience and intentional learning. When I was in graduate school in the late 1970s at Johns Hopkins University we were taught that the brain is quite stagnant, meaning that we are born with only so many brain cells and that they die throughout the lifespan. In addition, the dogma

at the time was that once groups of neurons were recruited for a specific brain function, they could not be recruited for other functions. However, more recent neuroscience research has proven that the brain is both dynamic and regenerative. The concept of neuroplasticity explains how the activity and structure of the brain is determined by our



experiences and the ways in which we use our minds. Furthermore, the neurons that die are replaced by the growth of new brain cells.

Let’s get back to the fascinating ways in which exercise changes the brain. (For more information about neuroplasticity and how our experiences other than exercise change the brain, check out the book *The Brain that Changes Itself*, by Norman Doidge.) Exercise raises and balances the same three neurotransmitters that are targeted by most of the medications in the mental health field: Norepinephrine, which increases mental alertness and concentration, and promotes stress resilience; Serotonin, which decreases anxiety and elevates mood, impulse control, and motivation; and Dopamine, which increases pleasure, motivation, and attention. Also, exercise releases BDNF and IGF-1, which build and maintain the brain’s cell circuitry.

BDNF is sometimes referred to as “Miracle Grow for the brain,” because it increases the number of neurons and the complexity of their connections. Exercise increases both BDNF and IGF-1 in the hippocampus region of your brain, which is responsible for learning and memory. Exercise also increases the amount of blood flow and gray matter in the prefrontal cortex which is responsible for the executive functions found lacking in people with ADHD.

The benefits of exercise are so profound that many mental health providers are prescribing it along with medication and psychotherapy for patients with anxiety, depression, or ADHD. But how much and what type of exercise is the right amount? Although the research is not advanced enough to prescribe an ideal exercise plan, the best approach for building your brain is a combination of aerobic and complex activity that involves some type of skill acquisition, which increases the BDNF in the cerebellum. While aerobic exercise stresses the cardiovascular system and increases the blood flow and oxygen to the brain, skill-based exercise (e.g., rock climbing, yoga, balance drills) utilizes that material to strengthen and expand neural networks.

Although exercise is good brain food, consult with your doctor to make sure you are healthy enough to exercise, and never consider it to be a substitute for your medication. ■

Jeffrey L. Santee, Ph.D., is a clinical psychologist with advanced training in cognitive psychology and behavioral medicine. In addition to his work in men’s and marital issues, he specializes in the treatment of depression, anxiety disorders, and stress-related health problems. Treatment modalities include individual, marital, and group therapy.



630.260.0606
www.summitclinical.com
1761 S. Naperville Road
Suite 200
Wheaton, IL 60189

Jumpstart!

THE WINTER MONTHS CAN make it difficult to get up and get moving. Here are a few creative ways to jumpstart your body. Have fun!

- 1 Dance along to your favorite songs
- 2 Talk and walk — grab a friend and have a walking coffee date
- 3 Do jumping jacks during television commercials or show credits
- 4 Go bowling
- 5 Have a snowball fight — either outside with real snow or inside with balled socks or soft stuffed animals
- 6 Strike a pose — a yoga pose!
- 7 Park in a parking spot further from the entrance
- 8 Break out the game of Twister
- 9 Take the dog on an extra long walk
- 10 Play videogames with a movement component like Just Dance or Wii Outdoor Challenge
- 11 Build an indoor fort
- 12 Set an alarm for every 60 minutes — every time it goes off, walk up and down the stairs
- 13 Jump on a mini trampoline or in a bounce house (adults included!)
- 14 Window shop around town or around the mall
- 15 Join a local rec league, such as soccer or dodgeball
- 16 Take the family sledding
- 17 Have a jam session — whether it's drums, vocals or air guitar! ■

Danielle Romano-Cihak, Psy.D. is a child psychologist who works with children, young adults and families to support healthy self-care and coping skills.

More Reasons to Get MOVING!

Most of us recognize that regular exercise is good for the body. But exercise is also an effective way to improve our mental health, with a positive impact on depression, anxiety, ADHD, and more. It also relieves stress, improves memory, helps us sleep better, and boosts overall mood. And we don't have to be fitness fanatics to reap the benefits. People who exercise regularly tend to do so because it gives them a sense of well-being. They feel more energetic throughout the day, sleep better at night, have sharper memories, and feel more relaxed and positive about themselves and their lives.

■ EXERCISE and Depression

Exercise is a powerful depression fighter as it promotes all kinds of changes in the brain, including neural growth, reduced inflammation, and new activity patterns that promote feelings

of calm and well-being. It also releases endorphins, powerful brain chemicals that energize our spirits and make us feel good. Finally, exercise can also serve as a distraction, allowing us to break the cycle of negative thoughts that feed depression.

■ EXERCISE and Anxiety

Exercise is a natural and effective anti-anxiety treatment. It relieves tension and stress, boosts physical and mental energy, and enhances well-being through the release of endorphins. We benefit most when we mindfully pay attention during exercise instead of zoning out.

■ EXERCISE and Stress

When we are under stress, our muscles may tense, especially in our face, neck, and shoulders, leaving us with back or neck pain, or headaches. We may feel a

tightness in our chest, a pounding pulse, or muscle cramps. We may also experience insomnia, heartburn, stomachache, diarrhea, or frequent urination. The worry and discomfort of these physical symptoms can in turn lead to even more stress, creating a vicious cycle between mind and body. Exercising is an effective way to break this cycle.

■ EXERCISE and ADHD

Exercising regularly is one of the easiest and most effective ways to reduce the symptoms of ADHD and improve concentration, motivation, memory, and mood. Similar to ADHD medications, physical activity immediately boosts the brain's dopamine, norepinephrine, and serotonin levels—all of which affect focus and attention. ■

Bonnie Knox, L.C.P.C., C.A.D.C., provides individual and family therapy to adolescents and adults. In addition to treating depression and anxiety disorders along with addictions, she specializes in offering EMDR services.

START the Positives

"I wish Michael would stop arguing about his homework all the time!"

"Why doesn't Haley just brush her teeth without all the commotion?"

Questions like these plague the average parent. Why do kids keep making the same bad choices over and over? Why don't they just STOP?

One of the best ways to get someone to STOP doing something is to get them to START doing something else. So instead of sitting around bemoaning your kids' negative behavior, here is how you can "get moving" to help your kids start some new behaviors.

1 Make a plan.

Choose one behavior you would like your child to stop, such as arguing about homework. Sit

down with your child and come up with a simple plan for what you would like your child to start doing instead. Make sure you get your child's input in developing the plan, to help them be invested in doing it. Your plan may include things to think, say, or do. For example, the plan for homework time may look like this:

- a) Take a 30 minute break with a snack.
- b) Think: *I should just get my homework done; the sooner I start, the sooner I can have free time.*
- c) Say: *"OK Mom/Dad," when asked to do your homework.*
- d) Do: *Just do it, and do the best job you can.*

You can devise a simple plan to START any behavior. Once agreed upon, practice it together a few times with short role-plays. Make

any needed adjustments until you and your child have it down pat. Practice every few days if needed.

2 Make it worth it.

Make a chart to keep track of how often your child successfully completes the new plan. Set a reasonable goal, such as doing the plan five times, and determine a small prize or extra privilege your child can earn for reaching their goal. Finally, make sure you provide lots of immediate positive encouragement and warm physical touch (e.g., squeeze on the shoulders) when you see your child making an effort (even with some mistakes) to do the plan.

Parenting takeaway: When you focus on helping your child START positive behaviors, you'll have fewer negative behaviors to STOP. ■

Todd Cartmell, Psy.D. is a child psychologist and author of *8 Simple Tools for Raising Great Kids*.