



27 WAYS TO POWER UP YOUR BRAIN

☉ YOU WORK OUT AND EAT SMART TO SCULPT YOUR BODY. TAKE A SIMILAR APPROACH TO TRAIN YOUR BRAIN: USE THIS PLAN TO SHARPEN MEMORY, BOOST CREATIVITY, AND SLAY STRESS.

Thanks to advances in scanning technology, doctors now have unprecedented insights into how a man's brain works. "It's scary, but we can actually see how cramming for an exam, hitting the weights, or partying in Vegas can expand or destroy your mental circuitry," says P. Murali Doraiswamy, M.D., a neuroscientist with the Duke institute of brain sciences and a Men's Health brain-health advisor. "Throughout your life, your neural networks are constantly rewiring themselves in response to your diet, exercise, work, and social habits." By tapping into this ability of your brain to change its own structure and function, you can achieve peak mental fitness.

1. EXERCISE

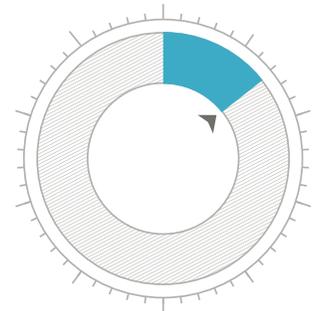
Working out boosts production of the proteins that stimulate brain-cell growth, says John J. Ratey, M.D., author of *Spark: The Revolutionary New Science of Exercise and the Brain*. "It also revs your heart to pump more blood to your brain, which brings glucose and oxygen to help your neurons work optimally." A variety of research shows that exercise may also improve memory, delay neural aging, and fight depression.

WORKOUT STRATEGIES TO BUILD MENTAL MUSCLE

▼ **RUN A MEMORY UPGRADE**
Forty minutes of aerobic training three times a week for a year can increase the size of an older adult's hippocampus by 2 percent, which may lead to improvements in memory, according to research by Arthur F. Kramer, Ph.D., a psychology professor at the University of Illinois at Urbana-Champaign. "It appears that the type of activity is interchangeable, but we're still trying to figure out the exact criteria for frequency." In his study, the participants walked, but we suggest moderate-intensity cycling, running, rowing, or swimming.

▼ **BENCH-PRESS FOR BRAINPOWER**
Strength training for 60 minutes, three times a week for 6 months can help improve short- and long-term memory performance and attention as you age, according to a Brazilian study published in *Medicine & Science in Sports & Exercise*. The need to focus on technique when doing different lifts provides a cognitive challenge you may not get while doing a repetitive exercise like running, says Gary Small, M.D., director of the UCLA longevity center and coauthor of *The Alzheimer's Prevention Program*.

▼ **REDLINE IT TO RENEW NEURONS**
Doing high-intensity intervals or resistance training—heart rate at 80 to 85 percent of its max—spikes your levels of brain-healthy hormones, says Dr. Ratey. In fact, a study in *Medicine & Science in Sports & Exercise* found that levels of BDNF (see below) increased 13 percent after 30 minutes of high-intensity exercise but showed no significant increase after low-intensity exercise. Aim for two 30-minute sessions a week. Team sports that demand interval-like intensity—say, hoops or soccer—add a social aspect and are even better for your brain.



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PERCENTAGE
JUMP IN OLDER ADULTS' PERFORMANCE ON WORKING-MEMORY TESTS AFTER THEY STRENGTH TRAINED USING INCREASING RESISTANCE 3 DAYS A WEEK FOR 6 MONTHS

→ Source: *Journal of Aging and Physical Activity*

BDNF

BRAIN-DERIVED NEUROTROPHIC FACTOR, OR BDNF, IS THE NAME OF A PROTEIN RELEASED WHEN YOU EXERCISE. IT BOOSTS THE FUNCTION AND GROWTH OF NEURONS; BINDS TO RECEPTORS AT YOUR SYNAPSES, UNLEASHING THE FLOW OF IONS TO INCREASE VOLTAGE AND IMPROVE SIGNAL STRENGTH; AND ACTIVATES GENES THAT CALL FOR THE PRODUCTION OF MORE BDNF, SAYS DR. RATEY. "IT'S LIKE MIRACLE-GRO FOR YOUR BRAIN!"

2. DIET



Your brain is a fuel-guzzling engine, and to keep it from misfiring, you need to eat the same foods that keep your heart healthy. These include lean protein, good fats, whole grains, and plenty of antioxidant-rich and inflammation-fighting vegetables and fruits, says Dr. Doraiswamy. What follows is the perfect day of eating for your brain.

BREAKFAST		Eggs contain choline, an essential nutrient that helps brain function; steel-cut oats are high in fiber, which helps regulate blood sugar.
SNACK A		Blueberries are high in epicatechin, which has been shown to promote bloodflow, improve mood, and hone focus. The almonds provide protein and fiber.
LUNCH	6 OZ WILD ALASKAN SALMON WITH THREE-BEAN SALAD	Salmon is laden with omega-3 fatty acids, which appear to promote brain health. Beans are loaded with the fiber you need to keep your blood sugar off the roller coaster.
SNACK B		Dark chocolate (at least 65 percent cocoa) is rich in flavanols, antioxidants that may improve cognitive function, and it contains a little caffeine, which may help concentration.
DINNER	FIVE-VEGETABLE CURRY STIR-FRY WITH BROWN RICE	Toss eggplant, onions, broccoli, and yellow and red peppers into a wok to unlock the maximum variety of antioxidants. Sprinkle on turmeric for anti-inflammatory protection.
SNACK C		Cherries are a good source of melatonin, a sleep-regulating hormone. Greek yogurt is packed with protein and tryptophan, an amino acid that relaxes your nervous system.

BEVERAGES

WATER Sipping water every 15 minutes throughout the day may deter feelings of fatigue caused by dehydration.

COFFEE Caffeine may protect memory and improve focus. Limit yourself to one cup 30 minutes before you need to be at your peak, Dr. Doraiswamy says. The effect can last up to 6 hours, but studies show that higher dosages of caffeine (four to five cups of joe) may hinder cognitive performance.

GREEN TEA If you need an afternoon pick-me-up, opt for green tea. It has about one-third the caffeine of coffee, so it won't fry your circuits.

SUPPLEMENTS

"I don't recommend any supplements for brain performance because there's no magic bullet yet," says Dr. Doraiswamy. "But I don't stop people from taking **B VITAMINS** (B₆, B₁₂, and niacin), because many people's diets lack them. I also allow **ACETYL-L-CARNITINE**, an amino acid that shows good neuroprotective effects in animal models." (We like GNC Vitamin B-Complex and Vitamin World Acetyl-L-Carnitine.)

EPICATECHIN

THIS POWERFUL ANTIOXIDANT IS FOUND IN DARK CHOCOLATE, BLUEBERRIES, TEA, AND GRAPES. PRELIMINARY RESEARCH SHOWS THAT IT MAY ENHANCE YOUR MEMORY AND PROTECT NEURONS, SAYS ZAHOOR A. SHAH, PH.D., AN ASSISTANT PROFESSOR IN THE DEPARTMENT OF MEDICINAL AND BIOLOGICAL CHEMISTRY AT THE UNIVERSITY OF TOLEDO.

3. CHALLENGES

Cognitive performance in almost every category declines after your mid-20s (see "Save Your Brain"). But you may be able to make your brain more resilient if you're constantly learning new, mentally complex things, says Denise Park, Ph.D., codirector of the center for vital longevity at the University of Texas at Dallas.

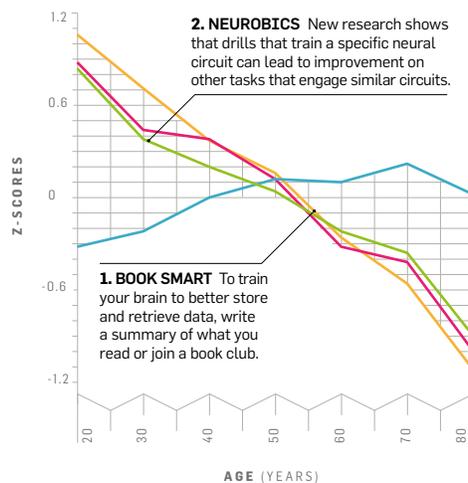
EXERCISE YOUR INTELLIGENCE

Brain researchers name their top picks for techniques to grow your gray matter

TAKING DANCE CLASSES	MEDITATING AND DOING YOGA
POWER READING ¹ (SEE "SAVE YOUR BRAIN" CHART)	LEARNING A MUSICAL INSTRUMENT
STUDYING A FOREIGN LANGUAGE	PLAYING CHESS (AND OTHER CHALLENGING BOARD GAMES)
TAKING COLLEGE-LEVEL OR ADVANCED COURSES	DOING COGNITIVE TRAINING GAMES ² (SEE "SAVE YOUR BRAIN" CHART)
LEARNING A COMPLEX SKILL, SUCH AS WOODWORKING OR PAINTING	JUGGLING

→ Sources: P. Murali Doraiswamy, M.D., professor at Duke University and coauthor of The Alzheimer's Action Plan; Gary Small, M.D., director of the UCLA longevity center and author of The Alzheimer's Prevention Program; Denise Park, Ph.D., codirector of the center for vital longevity at the University of Texas at Dallas
→ Chart (right) derived from Denise Park and Patricia Reuter-Lorenz, Annual Review of Psychology.

SAVE YOUR BRAIN



KEY
 Speed of Processing
 Working Memory
 Long-Term Memory
 Knowledge



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PERCENTAGE INCREASE IN PEOPLE'S TEST SCORES OF FLUID INTELLIGENCE (WHICH INVOLVES PROBLEM SOLVING) AFTER THEY COMPLETED 25-MINUTE WORKING-MEMORY DRILLS 5 TIMES PER WEEK FOR 4 WEEKS

→ Source: Proceedings of the National Academy of Sciences

NEUROPLASTICITY

YOUR BRAIN'S ABILITY TO CHANGE IN RESPONSE TO EXPERIENCE. MORE NEUROPLASTICITY EQUALS DENSER CONCENTRATIONS OF SOME BRAIN CELLS AND STRONGER, FASTER CONNECTIONS BETWEEN THOSE CELLS, SAYS HENRIETTE VAN PRAAG, PH.D., OF THE NATIONAL INSTITUTE ON AGING.