# Improved Mental And Physical Condition Is Directly Linked To Nutrition, Study Shows

- New research from the University of Illinois, Urbana-Champaign, Abbott, and U.S. Air Force published in the journal Scientific Reports demonstrates that the right nutrition is directly linked to physical and cognitive performance in active duty men and women in the U.S. Air Force

- Research subjects from the U.S. Air Force, who consumed a specialized nutrition drink with key nutrients, showed an 11% improvement in working memory, resulting in better information processing, problem-solving and multitasking skills

- When nutrition was combined with an exercise regimen, study participants showed statistically significant improvements in 80% of key fitness and cognition metrics measured

ABBOTT PARK, Ill., Oct. 19, 2020 /PRNewswire/ -- Researchers at the University of Illinois, Urbana-Champaign, Abbott (NYSE: ABT), and the U.S. Air Force Research Lab announced today the results of a new study that found a direct link between physical fitness, cognitive performance, and optimal nutrition. The scientists revealed that getting the right nutrition not only fuels our bodies and improves fitness, but gives us an edge mentally, too.

The double-blind study, published this week in the journal *Scientific Reports*, examined the effectiveness of optimal nutrition and exercise to enhance fitness and cognitive performance among a population of active-duty men and women in the U.S. Air Force. Researchers divided the 148 study participants into two groups for 12 weeks. Both groups performed the same training program, which included a balanced exercise program comprised of aerobic and resistance training performed five days per week. In addition to the training program, one group was given a prototype nutritional drink, the other group received a placebo.

The study showed that exercise, along with the addition of a high-protein nutrition drink containing lutein, omega-3 fatty acids, phospholipids, vitamin D, and beta-hydroxy-beta-methylbutyrate (HMB), led to statistically significant changes to the following compared to exercise alone.

- Improved working memory by 11% (i.e., information processing and problem-solving), which predicts multitasking and is often impaired under stress
- Improved reaction time by 6% - participants became faster and more accurate
- Increased muscle mass by more than two pounds
- Lowered resting heart rate by 8% - a sign of increased cardiovascular fitness. Resting heart rate improved from 71 beats per minute to 65 beats per minute

"The physical and mental health benefits of exercise are well known, but this study demonstrates how optimal nutrition can help boost brain function as well," said lead study author, Chris Zwilling, Ph.D, a postdoctoral researcher working with the study's principal investigator Aron Barbey, Ph.D. at the Beckman Institute for Advanced Science and Technology at the University of Illinois. "We are excited by the results because they provide critical insights into how simple dietary changes can make a big difference in helping people be as efficient and productive as possible in today's world. "

**FUELING BODY AND BRAIN**

"Abbott has been researching the impact of nutrition on brain function for more than a decade," said Matthew Kuchan, Ph.D., a research fellow and brain health scientist at Abbott and co-author of the study. "These results confirm that by combining the right nutrition and exercise, people who are facing high-pressure situations can stay sharp physically and mentally when they need it most."

Abbott Research Fellow, Tapas Das, Ph.D., led the design of the innovative liquid nutritional drink used in the study. It contained DHA, an omega-3 fatty acid, lutein, a carotenoid, as well as phospholipids and micronutrients to support mental performance. The nutrition formulation also included protein, vitamin D, and HMB to support muscle health. Abbott will leverage these results and ingredients to design future nutritional products to allow individuals to live their lives to the fullest.

"It is clear that nutrition is a critical component for developing and maintaining the physical and cognitive performance of the men and women in the U.S. Air Force," said Adam Strang, Ph.D., and lead investigator with the Air Force Research Laboratory. "This research confirms that a nutritional supplement with the right nutrients can support and facilitate those improvements when paired with balanced exercise training. We hope to use this knowledge now and, in the future, to better prepare them for the complex and diverse mission sets they are facing."

**PERFORM LIKE AN AIRMAN**

Like U.S. Air Force personnel, healthy adults can prime their bodies and brains to work more efficiently and juggle multiple priorities:

- **Muscle gains:** After a workout, make sure your muscles reap the benefits by consuming foods rich in protein to help build muscle, like lean meats and dairy, salmon, tuna, fortified milk, and egg yolks.
- **Mind your meals:** Support memory and multitasking abilities by getting enough DHA, an omega-3 fatty acid in your diet. Adding more fatty fish like salmon and tuna can help tackle a growing to-do list
- **Focus foods:** Support information processing and problem-solving acumen by opting for more lutein at meals. Lutein can be found in egg yolks, dark leafy greens like kale and spinach, and brightly colored fruits and vegetables, including bell peppers, carrots, corn, tomatoes, sweet potatoes, peas, avocados, oranges, and melons

**About the Study**

*Enhanced Physical and Cognitive Performance in Active Duty Airmen: Evidence from a Randomized Multimodal Physical Fitness and Nutritional Intervention* was published online in *Scientific Reports*. The study is a collaborative effort between the University of Illinois, Urbana Champaign; Abbott; and the U.S. Air Force Research Lab. It examined the efficacy of an innovative nutritional supplement and 12-week exercise program in enhancing physical and cognitive performance in U.S. Air Force personnel.

Data were collected from 148 active-duty personnel, who drank two 8-ounce servings of the supplement (either active or placebo) every day, while also engaging five days a week in a high-intensity interval training (HIIT) exercise program that involved mission-relevant resistance and cardiovascular exercise routines. Researchers evaluated the effects of combined nutrition and exercise regimens on strength, endurance, flexibility, heart functions, lean muscle mass, processing speed, working memory, problem-solving and reaction time.

**About Abbott:**

Abbott is a global healthcare leader that helps people live more fully at all stages of life. Our portfolio of life-changing technologies spans the spectrum of healthcare, with leading businesses and products in diagnostics, medical devices, nutritionals and branded generic medicines. Our 107,000 colleagues serve people in more than 160 countries.

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