First fMRI Study Shows VitaCholine®'s Impact on Brain Network Efficiency Post-Menopause

Montvale, New Jersey (April 14, 2026) – For the first time, new clinical research using functional magnetic resonance imaging (fMRI) has demonstrated that choline can influence brain network efficiency in post-menopausal women,[1] a population historically underrepresented in nutrition research. Published in the peer-reviewed journal *Nutrients*, the study used Balchem's VitaCholine® ingredient, showing its effects on working memory-related brain activation and functional connectivity. For nutraceutical manufacturers, these findings represent an important step towards creating more personalized nutritional solutions that support women's health at every stage of life.

Inside The Study: Mapping Choline's Effects on the Brain

In the pilot, randomized, cross-over study, 20 healthy postmenopausal women aged 50–65 years old consumed 1650 mg of choline (as VitaCholine®) or placebo before undertaking a working memory exercise (an N-back test) during a functional magnetic resonance imaging (fMRI) scan. Compared to placebo, researchers observed that choline intake had a rapid effect on the brain, significantly increasing functional connectivity within the working memory network to help optimize brain efficiency just 3 hours after consumption.[1]

"*Estrogen is a key driver of choline production in the body, so when levels of the hormone drop during menopause, women are at increased risk of choline deficiency.*[2] *This is important because choline is needed to make acetylcholine, a neurotransmitter involved in cognitive functions such as mood, memory and attention,*[3,4]" explains **lead author of the study, Professor Julie A. Dumas, of the University of Vermont.** *"Previous choline research has commonly relied on self-reported scores or assessments from participants, but what makes this study unique is that it utilized functional MRI scans and working memory exercises to capture an objective view of how brain networks respond to choline intake after menopause, gaining valuable insights into how targeted supplementation may support a pivotal moment of women's life."*

Supporting Women Through Every Stage of Life

This latest study adds to the existing body of evidence demonstrating the benefits of choline across different life stages. Previous research has established choline's role in supporting fetal brain and cognitive development during pregnancy and lactation,[5] with long-lasting benefits that extend beyond birth.[6,7] Additional research has also demonstrated that choline intake may support people's cognitive health later in life.[8,9,10] This new study expands the industry's understanding of choline's effects in postmenopausal women, representing a new frontier in personalized nutritional solutions for women's health.

"*Investing in women's health research is something we feel very strongly about at Balchem,*" adds **Eric Ciappio, PhD, RD, Senior Manager, Nutrition Science, Balchem HNH**. "*In the past, so much of nutrition science was largely shaped by male-centric studies and the assumption that these findings were also applicable to women's health.*[11] *This study is part of an essential shift towards a greater understanding of women's specific nutritional needs and how we as an industry can better support them at every stage of life. VitaCholine® is our premium, high-quality choline ingredient with a robust clinical track record, and it continues to be at the heart of pioneering research. We're excited about these preliminary results and are already building on them with further research underway.*"

For more information about Balchem and its branded ingredient VitaCholine®, visit: https://balchem.com/hnh/mn/vitacholine/

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Notes to Editors:

About Balchem Corporation
Balchem Corporation develops, manufactures, and markets specialty ingredients that improve and enhance the health and well-being of life on the planet, providing state-of-the-art solutions and the finest quality products for a range of industries worldwide. The company reports three business segments: Human Nutrition & Health; Animal Nutrition & Health; and Specialty Products. The Human Nutrition & Health segment delivers customized food and beverage ingredient systems, as well as key nutrients into a variety of applications across the food, supplement and pharmaceutical industries. The Animal Nutrition & Health segment manufactures and supplies products to numerous animal health markets. Through Specialty Products, Balchem provides specialty-

packaged chemicals for use in healthcare and other industries, and also provides chelated minerals to the micronutrient agricultural market.

About VitaCholine®

VitaCholine® is the gold standard choline ingredient from Balchem. Developed to supercharge body and mind, VitaCholine® supports innovative nutraceutical solutions for a wide range of applications, from prenatal to active lifestyle and healthy aging. VitaCholine® is a proud partner of the New York Jets, raising the profile of the critical nutrient and its benefits for mental performance and physical wellness.

More information at:
https://balchem.com/hnh/

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