Niagen. BIOSCIENCE

NEWS RELEASE

Niagen Bioscience Announces Results from First-Ever Randomized Controlled Trial Exploring Niagen (Patented Nicotinamide Riboside, NR) Supplementation in Long COVID

2025-11-12

Findings show a significant increase in NAD+ levels and within-group benefits in fatigue, depression, and sleep quality

LOS ANGELES--(BUSINESS WIRE)-- **Niagen Bioscience, Inc.** (NASDAQ: NAGE), the global authority on NAD+ (nicotinamide adenine dinucleotide) with a focus on the science of healthy aging, today shared promising results from the first-of-its-kind clinical trial published today in The Lancet peer-reviewed journal **eClinicalMedicine** demonstrating that daily supplementation with Niagen®, Niagen Bioscience's patented nicotinamide riboside (NR) ingredient, significantly increased NAD+ levels and improved executive functioning, fatigue, depression, and sleep quality, when compared to their baseline levels, in some individuals with long COVID, also known as post-acute sequelae of SARS-CoV-2 infection (PASC).

The 58 participant, randomized, double-blind, placebo-controlled study was led by Edmarie Guzmán-Vélez, PhD, formerly an Assistant Professor in the Department of Psychiatry and the McCance Center for Brain Health at Massachusetts General Hospital, and now Assistant Professor in the Department of Neurology at the Robert Wood Johnson Medical School, and the Center for Health Aging Research (CHAR) at the Institute for Health, Rutgers University.

"These findings demonstrate that ten weeks of Niagen NR supplementation increased NAD+ levels and improved long COVID symptoms of fatigue, sleep quality, and depression, compared to symptoms before treatment," said Rob Fried, Chief Executive Officer of Niagen Bioscience. "As part of our mission to advance the science of cellular

health, we are pleased to see Niagen NR used in research exploring the lasting impact of COVID-19 and look forward to future studies that further our understanding of NAD+ augmentation in recovery and resilience."

Long COVID continues to affect a significant number of individuals around the globe, with no proven treatments available. According to the **U.S. Centers for Disease Control and Prevention**, between August and September 2024, 5.3% of adults in the U.S. reported that they are currently experiencing long COVID.

"Our goal with this study was to understand whether increasing NAD+ levels with NR could improve cognitive performance primarily, but also other common symptoms in individuals with long COVID," said Dr. Guzmán-Vélez. "We saw encouraging within-group improvements in fatigue, sleep, and mood, although we did not observe statistically significant differences between people taking NR and those taking a placebo. These findings suggest that restoring NAD+ remains a promising avenue for recovery and advancing our understanding of how to help individuals affected by long COVID. More research is needed to confirm and expand on these findings."

The Connection Between NAD+ & Long COVID

A multi-system disorder, long COVID symptoms persist months or years after infection, including common fatigue, breathlessness, cognitive impairment or "brain fog" (attention, memory, sleep), muscle aches, depression, and anxiety (**Taher et al., 2025**, **Soriano et al., 2022**, **Ely et al., 2024**, **Taquet et al., 2022**, **Davis et al., 2021**). Emerging evidence suggests that interacting mechanisms underlie long COVID, including immune dysregulation, mitochondrial dysfunction, oxidative stress, disrupted cellular energy metabolism, and depletion of NAD+, a molecule crucial for cellular energy and repair (**Block et al., 2022**).

"Long COVID presents with a wide range of symptoms because coronaviruses disturb NAD+ and thereby disturb multiple organ systems," commented Charles Brenner, PhD, Alfred E Mann Family Foundation Chair in Diabetes and Cancer Metabolism at City of Hope, Chief Scientific Advisor to Niagen Bioscience, and study co-author. "What is encouraging is that despite variability among patients, we observed consistent signals of improvement with elevation of NAD+ levels. This suggests that restoring the NAD+ system can restore multiple biological pathways implicated in long COVID — including mitochondrial function, inflammation, and cellular repair. It is a compelling indication that NAD+ biology can be effectively targeted in conditions of metabolic stress such as long COVID."

Study Overview

This 24-week, randomized, double-blind, placebo-controlled, parallel group study analyzed the effects of elevating NAD+ with Niagen NR supplementation on cognitive and symptomatic recovery in individuals with long COVID.

A total of 58 non-hospitalized adults (mean age, 45.1 years) with persistent symptoms following COVID-19 infection

were randomized to receive either Niagen NR (2,000 mg/day) for 20 weeks or placebo for 10 weeks, followed by Niagen NR for an additional 10 weeks. The study included a two-week placebo lead-in period and a two-week follow-up period.

The primary endpoint analyzed the change in cognitive performance, measured using validated scales and tests, including the Everyday Cognition (ECog), Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), and Trail Making Test-B (TMT-B). Secondary endpoints were assessed using standardized scales to evaluate fatigue, mood, and sleep quality (FSS, BDI, BAI, and PSQI).

Study Highlights

- NAD+ levels increased up to 3.1-fold after 5–10 weeks of Niagen NR supplementation, confirming NAD+ restoration in whole blood.
- In the post-hoc exploratory analysis, significant within-group improvements were observed in fatigue severity (FSS), sleep quality (PSQI), and depressive symptoms (BDI) following 10 weeks of Niagen NR supplementation.
- Niagen NR was well-tolerated, with no significant differences in adverse events between the Niagen NR and placebo groups.
- Statistically significant differences between the Niagen NR and placebo groups were not observed for primary or secondary outcomes, likely due to the small sample size and high dropout rates resulting from reinfection, relocation, and medication changes, which reduced statistical power. This underscores the need for larger studies to further understand the observed trends in symptom improvement.

Relevance

This study is the first randomized controlled trial to demonstrate that Niagen NR supplementation safely and effectively elevates NAD+ levels in individuals with long COVID, a condition marked by fatigue, cognitive dysfunction, and sleep disturbance.

While between-group differences were not statistically significant, these findings show within-group improvements from baseline in key symptoms and establish NAD+ restoration as a measurable biological response, suggesting a potential therapeutic role of NAD+ in post-viral recovery and energy metabolism.

These results build upon a growing body of evidence linking NAD+ repletion to improved mitochondrial function and cellular resilience, suggesting a possible new avenue for addressing persistent symptoms associated with long COVID. Further large-scale, placebo-controlled studies are warranted to build upon these early findings.

The study was funded by the McCance Center for Brain Health at Mass General Hospital and by Niagen Bioscience.

While Niagen Bioscience partially funded the study and provided Niagen NR and placebo materials, it had no role in study design, conduct, outcomes, analyses, or study publication.

For additional information on the science supporting Niagen, visit **www.niagenbioscience.com**.

About Niagen Bioscience:

Niagen Bioscience, Inc. (NASDAQ: NAGE), formerly ChromaDex Corp., is the global leader in NAD+ (nicotinamide adenine dinucleotide) science and healthy-aging research. As a trusted pioneer of NAD+ discoveries, Niagen Bioscience™ is dedicated to advancing healthspan through precision science and innovative NAD+-boosting solutions.

The Niagen Bioscience team, composed of world-renowned scientists, works with independent investigators from esteemed universities and research institutions around the globe to uncover the full potential of NAD+. A vital coenzyme found in every cell of the human body, NAD+ declines with age and exposure to everyday lifestyle stressors. NAD+ depletion is a key contributor to age-related changes in health and vitality.

Distinguished by state-of-the-art laboratories, rigorous scientific and quality protocols, and collaborations with leading research institutions worldwide, Niagen Bioscience sets the gold standard for research, quality, and innovation. There's a better way to age.

At the heart of its clinically proven product portfolio is Niagen® (patented nicotinamide riboside, or NR), the most efficient, well-researched, high-quality, and legal NAD+ booster available.

Niagen Bioscience's robust patent portfolio protects NR and other NAD+ precursors. Niagen Bioscience maintains a website at **www.niagenbioscience.com**, where copies of press releases, news, and financial information are regularly published.

Forward Looking Statements:

This release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including, without limitation, statements related to the potential health benefits of Niagen® (nicotinamide riboside) supplementation, the interpretation of clinical study findings, future research directions, and matters related to the infringement or non-infringement of intellectual property rights. Statements that are not a description of historical facts constitute forward-looking statements and may often, but not always, be identified by the use of such words as "expects," "anticipates," "intends," "estimates," "plans," "potential," "possible," "probable," "believes," "seeks," "may," "will,"

“should,” “could,” or the negative of such terms, or other similar expressions.

Forward-looking statements are based on current expectations, assumptions, and scientific understanding, and are subject to numerous risks and uncertainties that could cause actual results, performance, or achievements to differ materially from those described or implied. These risks and uncertainties include, but are not limited to: the inherent variability of scientific research and clinical outcomes; the possibility that future studies may not confirm the results described herein; the ability to obtain and maintain necessary regulatory approvals; the scientific, regulatory, and commercial challenges inherent in dietary supplements and healthy-aging research; market acceptance of the Company’s products and educational initiatives; the outcome of ongoing or future clinical studies; the protection and enforcement of intellectual property; competition; and other factors described in Niagen Bioscience’s filings with the Securities and Exchange Commission, including its most recent Annual Report on Form 10-K and Q.

Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this release. Actual results may differ materially from those suggested by these forward-looking statements. All forward-looking statements are qualified in their entirety by this cautionary statement, and Niagen Bioscience undertakes no obligation to revise or update any forward-looking statements to reflect events or circumstances after the date hereof, except as required by applicable law.

Niagen Bioscience Media Contact:

Kendall Knysch, Senior Director of Public Relations & Communications
310.405.5227
kendall.knysch@niagenbio.com

Niagen Bioscience Investor Relations Contact:

ICR, LLC
Reed Anderson
(646) 277-1260
Stephanie Carrington
(646) 277-1282
niagenir@icrinc.com

Source: Niagen Bioscience, Inc