

# Six-day clinical trial finds integrative medicine program alters blood serum

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In a novel controlled clinical trial, participants in a six-day Ayurvedic-based well-being program that featured a vegetarian diet, meditation, yoga and massages experienced measurable decreases in a set of blood-based metabolites associated with inflammation, cardiovascular disease risk and cholesterol regulation.

The findings, published in the September 9 issue of *Scientific Reports*, represent a rare attempt to use metabolic biomarkers to assess the reported health benefits of integrative [medicine](#) and holistic practices. Senior author of the study, which included researchers from multiple institutions, was Deepak Chopra, MD, clinical professor in the Department of Family Medicine and Public Health at University of California San Diego School of Medicine and a noted proponent of integrative medicine.

"It appears that a one-week Panchakarma program can significantly alter the metabolic profile of the person undergoing it," said Chopra, whose foundation provided and managed funding for the study. "As part of our strategy to create a framework for whole systems biology research, our next step will be to correlate these changes with both gene expression and psychological health."

Study co-author Paul J. Mills, PhD, professor of [family medicine](#) and [public health](#) and director of the Center of Excellence for Research and Training in Integrative Health, both at UC San Diego School of Medicine, noted that alternative and [integrative medicine](#) practices, such

as meditation and Ayurveda, are extremely popular, but their effects on the human microbiome, genome and physiology are not fully understood. "Our program of research is dedicated to addressing these gaps in the literature."

"The researchers looked at the effects of a Panchakarma-based Ayurvedic intervention on plasma metabolites in a controlled clinical trial," said first author Christine Tara Peterson, PhD, a postdoctoral fellow at UC San Diego School of Medicine. "Panchakarma refers to a detoxification and rejuvenation protocol involving massage, herbal therapy and other procedures to help strengthen and rejuvenate the body."

The study involved 119 healthy male and female participants between 30 and 80 years of age who stayed at the Chopra Center for Wellbeing in Carlsbad, Calif. Slightly more than half were assigned to the Panchakarma intervention (the Chopra Center's Perfect Health program, which typically costs \$2,865 for a six-day treatment). The remainder to a control group. Blood plasma analyses, using liquid chromatography and mass spectrometry, were taken before and after the six-day testing period.

The researchers found that in the Panchakarma group there was a measurable decrease in 12 specific cell-membrane chemicals (phosphatidylcholines) correlating with serum cholesterol and inversely related to Type 2 diabetes risk.

"These phospholipids exert broad effects on pathways related to inflammation and cholesterol metabolism," said Peterson. "Plasma and serum levels of the metabolites of phosphatidylcholine are highly predictive of [cardiovascular disease risk](#)."

Application of a less stringent measurement standard identified 57

additional metabolites differentially abundant between the two groups of participants. The authors suggested that given the very short duration of the trial, the serum profile changes were likely driven by the [vegetarian diet](#) component of Panchakarma. They said further studies were needed to more fully understand the processes and mechanisms involved.

**More information:** Christine Tara Peterson et al, Identification of Altered Metabolomic Profiles Following a Panchakarma-based Ayurvedic Intervention in Healthy Subjects: The Self-Directed Biological Transformation Initiative (SBTI), *Scientific Reports* (2016). [DOI: 10.1038/srep32609](https://doi.org/10.1038/srep32609)

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