

Better sleep and tai chi reduce inflammation and promote health

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Credit: Vera Kratochvil/public domain

Inflammatory processes occur throughout the body, with a primary

function of promoting healing after injury. However, when too active, these inflammatory processes can also damage the body in many ways, and may contribute to heart disease, stroke, certain cancers, and other significant medical problems.

Stress, including sleep disturbance, is a major contributor to [inflammation](#) in the body. Insomnia, one of the most common sleep disorders, is associated with increased risk for depression, medical comorbidities, and mortality.

A new study published in the current issue of *Biological Psychiatry* reports that treatment for insomnia, either by [cognitive behavioral therapy](#) or the movement meditation tai chi, reduces inflammation levels in older adults over 55 years of age.

"Behavioral interventions that target sleep reduce inflammation and represent a third pillar, along with diet and physical activity, to promote health and possibly reduce the risk of age-related morbidities including depression," said Dr. Michael Irwin, who conducted this work along with his colleagues at the Cousins Center for Psychoneuroimmunology at the University of California Los Angeles.

For this study, the researchers recruited 123 older adults with insomnia who were randomized to receive one of 3 types of classes: cognitive behavioral therapy for insomnia, the movement meditation tai chi, or a sleep seminar (the control condition).

They found that treatment of sleep disturbance with cognitive behavioral therapy for insomnia reduces insomnia symptoms, reduces levels of a systemic marker of inflammation called C-reactive protein, and reverses activation of molecular inflammatory signaling pathways. These benefits were maintained throughout the study's 16-month follow-up period.

Tai chi, a lifestyle intervention that targets stress that can lead to [insomnia](#), was also found to reduce inflammation, and did so by reducing the expression of inflammation at the cellular level and by reversing activation of inflammatory signaling pathways. The reduction of cellular inflammation was also maintained during the 16-month follow-up.

Those participants assigned to the sleep seminar classes showed no significant changes in inflammatory markers, as expected.

These results provide an evidence-based molecular framework to understand how [behavioral interventions](#) that target sleep may reduce inflammation and promote health.

"This study suggests that there are behavioral approaches that can improve [sleep](#), reduce stress, and thereby improve health," commented Dr. John Krystal, Editor of *Biological Psychiatry*. "It is a reminder, once again, that there is no health without mental health."

More information: Michael R. Irwin et al. Cognitive Behavioral Therapy and Tai Chi Reverse Cellular and Genomic Markers of Inflammation in Late-Life Insomnia: A Randomized Controlled Trial, *Biological Psychiatry* (2015). [DOI: 10.1016/j.biopsych.2015.01.010](https://doi.org/10.1016/j.biopsych.2015.01.010)

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