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## Better Sleep and Tai Chi Reduce Inflammation and Promote Health

*Reports new study in Biological Psychiatry*

**Philadelphia, PA, November 5, 2015** – 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.”

The article is “Cognitive Behavioral Therapy and Tai Chi Reverse Cellular and Genomic Markers of Inflammation in Late-Life Insomnia: A Randomized Controlled Trial” by Michael R. Irwin, Richard Olmstead, Elizabeth C. Breen, Tuff Witarama, Carmen Carrillo, Nina Sadeghi, Jesusa M.G. Arevalo, Jeffrey Ma, Perry Nicassio, Richard Bootzin, and Steve Cole (doi: 10.1016/j.biopsych.2015.01.010). The article appears in *Biological Psychiatry*, Volume 78, Issue 10 (November 15, 2015), published by Elsevier.

## Notes for editors

Full text of the article is available to credentialed journalists upon request; contact Rhiannon Bugno at +1 214 648 0880 or [Biol.Psych@utsouthwestern.edu](mailto:Biol.Psych@utsouthwestern.edu). Journalists wishing to interview the authors may contact Dr. Michael Irwin at +1 310 825 8281 or [mirwin1@ucla.edu](mailto:mirwin1@ucla.edu).

The authors' affiliations, and disclosures of financial and conflicts of interests are available in the article.

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The journal publishes novel results of original research which represent an important new lead or significant impact on the field, particularly those addressing genetic and environmental risk factors, neural circuitry and neurochemistry, and important new therapeutic approaches. Reviews and commentaries that focus on topics of current research and interest are also encouraged.

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