Meditation could help anxiety and cardiovascular health

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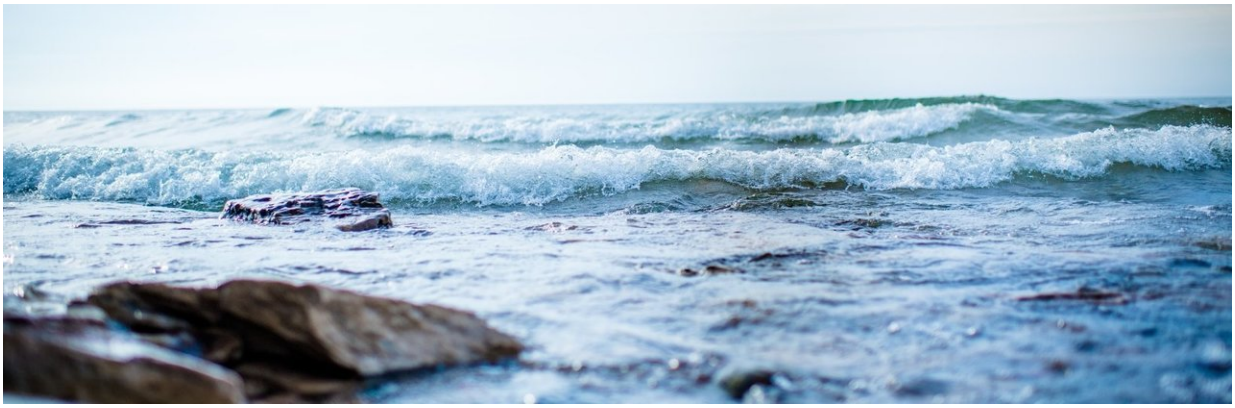

Credit: Michigan Technological University

In a student-led study, one hour of mindfulness meditation shown to reduce anxiety and some cardiovascular risk markers.

It sounds like a late-night commercial: In just one hour you can reduce your anxiety levels and some heart health risk factors. But a recent study with 14 participants shows preliminary data that even a single session of meditation can have cardiovascular and psychological benefits for adults with mild to moderate anxiety.

John Durocher, assistant professor of biological sciences, is presenting the work of a team of Michigan Technological University researchers

about mindfulness meditation and its ability to reduce anxiety at the 2018 Experimental Biology meeting April 21-25 in San Diego, which is attended by approximately 14,000 people.

In "Mindfulness Meditation Reduces Aortic Pulsatile Load and Anxiety in Mild to Moderately Anxious Adults," Durocher, along with fellow researchers Hannah Marti, a recent Michigan Tech graduate, Brigitte Morin, lecturer in biological science and Travis Wakeham, a graduate student, explains the finding that 60 minutes after meditating the 14 study participants showed lower resting heart rates and reduction in aortic pulsatile load—the amount of change in blood pressure between diastole and systole of each heartbeat multiplied by heart rate. Additionally, shortly after meditating, and even one week later, the group reported anxiety levels were lower than pre-meditation levels.

"Even a single hour of meditation appears to reduce anxiety and some of the markers for cardiovascular risk," Durocher says.

While it's well-documented that meditation over the course of several weeks reduces anxiety, there have been few comprehensive research studies on the benefits of a single meditation session. Durocher's team wanted to understand the effect of acute mindfulness on cognition and the cardiovascular system to improve how anti-anxiety therapies and interventions are designed.

Studying the physiological effects of mindfulness meditation

Durocher said the study hinged on a research design proposed by recent graduate Hannah Marti '17. Marti, who graduated from Michigan Tech with a bachelor's degree in Biomedical Engineering, will begin medical school in July at the Medical College of Wisconsin.

Marti designed the mindfulness study to include three sessions:

- An orientation session during which researchers measured anxiety using the Beck Anxiety Inventory (BAI) and conducted cardiovascular testing by measuring heart rate variability, resting blood pressure and pulse wave analysis;
- A meditation session that included repetition of the cardiovascular testing plus the mindfulness meditation—20 minutes introductory meditation, 30 minutes body scan and 10 minutes self-guided meditation—as well as repeating cardiovascular measurements immediately following meditation and 60 minutes after;
- A post-meditation anxiety test one week later.

During a body scan, the participant is asked to focus intensely on one part of the body at a time, beginning with the toes. By focusing on individual parts of the body, a person can train his or her mind to pivot from detailed attention to a wider awareness from one moment to the next.

One participant in the study commented that following the session they were the least stressed they'd been in a decade.

Durocher says Marti was capable of designing such a study because of her experiences with research during her undergraduate studies at Michigan Tech and by securing support through two Pavlis Honors College and Portage Health Foundation internships.

"She had some experience during the first internship so she could propose her own study for the second one," he says. "I helped to make minor adjustments, but Hannah did much of this project on her own."

Provided by Michigan Technological University