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Meditation may help brain tune out distractions



Meditation is another popular alternative treatment that's difficult to scientifically investigate - how can you tell whether someone's meditating or just relaxing? Still, transcendental meditation - a specific form of mantra meditation - appeared to lower blood pressure when studied. Zen Buddhist meditation and Qi Gong may also help. / ISTOCKPHOTO

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People who meditate may be able to use their **brain** in ways others can't to tune out distractions and focus on the task at hand.

A new study shows that experienced meditators may have less activity in parts of the brain associated with daydreaming and distraction while meditating and in their day-to-day lives.

Researchers say this brain network, known as the "default mode network," has also been linked to **anxiety**, attention deficit hyperactivity disorder (**ADHD**), and **Alzheimer's** disease.

"The default mode is when you ruminate, think about yourself, or daydream," says study researcher Judson Brewer, MD, PhD, medical director of the Yale Therapeutic Neuroscience Clinic. "Everybody has it, but experienced meditators have a different type."

Brewer found that people who meditate are able to link up other parts of their brains to monitor activity in the default mode network that tell them to get back on task when distractions arise and be present in the moment.

The study is published in the *Proceedings of the National Academy of Sciences*.

Experts say the results help explain the benefits of **meditation** on concentration and open the door to future research using meditation to treat and potentially

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Meditation Modifies Brain Networks

In the study, researchers used functional **magnetic resonance imaging** (fMRI) to analyze brain activity in 12 experienced meditators (more than 10 years of experience practicing mindfulness meditation) and 12 novice meditators. The scans were done as they practiced three different types of mindfulness meditation as well as at rest.

The results showed that experienced meditators had less activity in the default mode network, regardless of the type of meditation they practiced.

In addition, the scans showed that when the default mode network was active, other brain regions responsible for self-monitoring and thought control were also activated in experienced, but not novice meditators.

"This new default mode in meditators has these other components that are monitoring and telling you to get back on task and be present," Brewer tells WebMD.

More Benefits of Meditation

Experts say the findings build on previous studies that have shown meditation can alter brain structure by increasing gray matter density and brain activity to improve concentration.

"The finding sheds light not just on meditation's effect on the brain but on some basic brain operations that may have implications beyond meditation," says Catherine Kerr, PhD, director of translational neuroscience, contemplative studies initiative, Brown University. She has studied the effects of meditation on brain wave activity.

Kerr says the brain has two networks, the attentional network and the default network. The attentional network is usually focused on something external, such as a manual task. The default network is involved in internal chatter and daydreaming.

Usually these networks work exclusively of each other. When one is on, the other shuts down, Kerr says.

"But meditators are using this default network in unusual and novel ways," Kerr tells WebMD. "People who meditate don't get lost in mindless negative chatter. Meditation protects you from repetitive negative thinking, which puts you at risk for **depression**."

Kerr says meditation may work like a spotlight to bring the mind's attention away from internal distractions and back to the task at hand.

Sara Lazar, PhD, associate scientist at Massachusetts General Hospital, says the study is also interesting because it distinguishes meditation from rest.

Lazar, who has studied meditation's effect on brain structure, says the increased brain connectivity found in experienced meditators in this study is consistent with the structural changes she has documented.

Lazar and Kerr say more research is needed to determine if meditation may be beneficial for those at risk for mental illnesses or with early **signs of Alzheimer's** disease.

By **Jennifer Warner**

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SOURCES: Brewer, J. Proceedings of the National Academy of Sciences, online,

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Nov. 21, 2011. Judson Brewer, MD, PhD, medical director, Yale Therapeutic Neuroscience Clinic; assistant professor, Yale University School of Medicine. Sara Lazar, PhD, associate scientist, Massachusetts General Hospital; instructor, Harvard University. Catherine Kerr, PhD, director of translational neuroscience, contemplative studies initiative, Brown University. News release, Yale University.

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