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# Mindfulness therapy and seizures

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**WHAT WAS THE STUDY ABOUT?** In the article “Mindfulness-based therapy for drug-resistant epilepsy: An assessor-blinded randomized trial,” Dr. Tang and colleagues studied how mindfulness-based therapy (MT) might help people who have seizures.<sup>1</sup> All of the people in the study had seizures that were not easily controlled with medication(s). This type of seizure is often referred to as *refractory* or *drug-resistant*. All of the participants continued their medications. In fact, they were encouraged to take their medications on time, get good sleep, and exercise. In addition, Dr. Tang and colleagues assigned patients to receive either MT plus social support (SS) or SS alone. They then studied whether adding these therapies helps people who have difficult-to-manage epilepsy.

Some people may not be familiar with MT. It is a popular form of psychotherapy that focuses on being actively present in the moment. MT encourages the nonjudgmental acceptance of current thoughts and body sensations. In doing so, individuals are better able to reduce the emotional distress that accompanies these feelings. MT has been shown to have a wide range of health benefits, including improved management of pain and stress, mental health, and cognitive function.<sup>2</sup>

People with epilepsy often have more problems than just those caused by the seizures. People with epilepsy are more likely to have depression and anxiety.<sup>3</sup> The fear of having a seizure occur, particularly in public, may cause significant social isolation. The depression, anxiety, and fear affect a person's quality of life. A poor quality of life can complicate the treatment of epilepsy, which in turn may make the epilepsy worse. In this study, the researchers wanted to see which was better at improving the quality of life in people with refractory epilepsy: MT + SS groups or SS groups alone.

**WHO WERE THE PARTICIPANTS?** Dr. Tang and colleagues work at Prince of Wales Hospital, a teaching hospital in Hong Kong. They recruited adult patients with drug-resistant epilepsy from the neurology clinics at Prince of Wales Hospital. More than 100 patients were invited to participate. Sixty were recruited and completed the study. Patients were randomly assigned to 1 of 2 groups: an experimental group

that received MT plus SS over 4 biweekly sessions or a control group that received only SS during these 4 sessions. Both groups received identical information packets on basic knowledge and management of epilepsy.

There were several phases to the study. At the beginning, the researchers collected information about the people in the study. For instance, what kind of epilepsy did they have? How many medications were they taking? Next, both groups were asked to keep track of their seizures very carefully for 6 weeks using a seizure diary. This was followed by a 6-week interventional period, where patients had 4 biweekly sessions of either MT + SS or SS alone. After the final session, patients continued to record their seizures for 6 weeks and then met with the researchers for a post-intervention assessment.

In the mindfulness group, patients were given progressive group training on accepted mindfulness techniques. They were instructed on using active acceptance as a coping mechanism for their seizure-related disturbances. They were encouraged to practice these techniques daily. Patients in the control group were provided with a supportive group environment where they could reflect on their illness experience. The amount of time that the participants spent on MT + SS vs SS alone was the same.

**WHAT WERE THE RESULTS?** There were 60 people in the study. Thirty people were assigned to each group. Patients were matched by sex and age. Both groups had similar baseline rates of seizures. Both were on similar medication regimens. At the conclusion of the study, both groups showed statistically significant improvements in anxiety, quality of life, and subjective well-being. Patients in the mindfulness group had far greater improvements in these categories than the control group did, particularly with regard to seizure worry and energy levels. In addition, only the mindfulness patients achieved statistically significant improvements in memory, a measure of intellectual performance. Seizure frequency was significantly reduced in both groups.

**WHY IS THE STUDY IMPORTANT?** This study shows the benefits of short-term group-based psychotherapy for patients with drug-resistant epilepsy. There were

improvements in quality of life, depression, and anxiety and a reduction in seizure frequency. Specifically, this study provides evidence that MT with SS is more effective than SS alone. The authors noted that during MT patients were trained to recognize and accept, rather than avoid, their feelings associated with seizures, such as fear or discomfort. By accepting these feelings, patients were able to reduce their overall levels of anxiety and improve their ability to retain information. These findings suggest that MT might be particularly helpful for patients with epilepsy who also have anxiety.

The SS group also had statistically significant improvements in quality of life, although to a lesser degree. The authors propose that this may be due to the group setting, as it provides a supportive forum for the sharing of similar experience. This social experience may in itself improve quality of life, as studies have shown that patients with epilepsy who attend social support groups have a more positive outlook about their illness.

Somewhat surprisingly, the frequency of seizures decreased in both groups in the postintervention period. The authors believe that this is the result of improved knowledge of epilepsy treatment and reduced levels of stress and anxiety in both groups. By improving quality of life and reducing distress, the various seizure triggers were lowered for both groups.

In conclusion, both MT and SS appear to improve well-being, mental health, and seizure control in patients with epilepsy. Future studies may look to see whether these effects can be maintained long term and include more objective measures of seizure activity.

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## Section Editors

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# About epilepsy

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**WHAT IS A SEIZURE?** Nerve cells “talk” to each other constantly. They do this by sending signals and messages to each other. These messages are both electrical and chemical (the chemical messages are called neurotransmitters). Sometimes, brain cells send the “wrong” messages. Our brains have their own autocorrect, but just like a cell phone, sometimes an error still goes through. When the wrong signal is sent, other brain cells respond to the error by sending abnormal signals. If enough brain cells start sending the same wrong message, it results in a seizure.

One way to think of this is that the brain works like an orchestra. There are different sections in an orchestra, each with its own instruments. Although each instrument plays its own part, it is only when they all play together that complex music is made. While playing, each member of the orchestra has to listen to the other members. The best music is made when the orchestra works as a team, playing together and listening to one another.

However, what if one person began playing a different tune? At first, no one would notice that someone was playing the “wrong” tune. Nearby orchestra members would become confused: which tune were they supposed to play? As more members of the orchestra began playing the “different” tune, it would eventually become noticeable. At some point, the “different” tune might become louder than the original music.

This is similar to how a seizure gets started and keeps going. The nearby brain cells start playing the wrong tune, and they encourage other brain cells to do the same thing. Eventually, a person cannot stay aware of what is going on around him or her because too many brain cells are busy doing something else (having a seizure).

**WHAT IS EPILEPSY?** Epilepsy is not one illness. There are actually many kinds of epilepsy. Just as there are many kinds of epilepsy, there are many kinds of seizures. The definition of epilepsy is having 2 or more unprovoked seizures in a lifetime.

**HOW IS EPILEPSY DIAGNOSED?** The doctor will need to know as much as possible about what happened immediately before, during, and after the seizure. How often do the seizures occur? Is there a warning sign? Does the person remember anything

about the seizure? All of these questions help the doctor to better understand the kind of seizures and the kind of epilepsy that the person is experiencing. In addition, asking someone who has seen the seizure to describe it can provide valuable information. If the patient does not remember his or her seizures, the observer may provide information that the patient may not know.

Medical testing can also help to better understand a person’s seizures. Electroencephalography (EEG) is a simple and painless study that records the brain’s electrical activity. The brain waves are picked up by tiny electrodes that are applied to the person’s scalp. The EEG is reviewed to look for specific brain wave patterns that happen during or between seizures in patients with epilepsy. These patterns provide critical information about the person’s epilepsy and help with the diagnosis.

Imaging studies are critical in understanding the cause of a person’s seizures. The 2 most common studies are magnetic resonance imaging (MRI) and computed tomography (CT). Modern CT and MRI provide very detailed pictures of the brain and are critical for locating tumors, scars, or other abnormalities that may cause seizures.

**HOW ARE SEIZURES TREATED?** There are many treatments for seizures. Medicines are tried first. If these do not work, your doctor may consider special diets, brain surgery, or devices for the treatment of seizures. Usually the physician tries to stop all seizures while causing no side effects. It is very important to tell your doctor about the kinds of problems you experience while on a medication (or any treatment). Together, you will make the best choice of treatment(s).

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*Neurology* 2015;85:e101-e103  
DOI 10.1212/WNL.0000000000002048

**This information is current as of September 28, 2015**

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