

Fasting during Ramadan may reduce seizure frequency

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For Muslims, intermittent fasting is a highly valued religious practice. For Muslims with epilepsy, it can also improve seizure control. A 2020 study found that fasting during Ramadan significantly improved the

frequency of seizures in Muslim patients with epilepsy, specifically those with focal, absence and myoclonic seizures.

Epilepsy care during Ramadan

Rehab Magdy, lecturer in the Department of Neurology at Cairo University and primary author of the study, said fasting during Ramadan is a concern for Muslims with epilepsy.

"This is a very frequent question we hear from our patients," she said. "Can I fast during Ramadan safely or is it dangerous for me?"

Ramadan is the Arabic name for the ninth month in the Islamic calendar, considered one of the holiest months by Muslims. The holiday takes place at a different time each year and is marked most notably by fasting from dawn to sunset when neither food nor drink is consumed.

Typically, all Muslims fast, with the exception being those whose health would be impacted, prepubescent children and those who are pregnant, breastfeeding or menstruating.

In evaluating how fasting during Ramadan would affect seizures, Magdy and her team faced a dilemma.

"Some aspects of Ramadan fasting may precipitate seizures, like sleep deprivation, physical fatigue, and exhaustion," she said. "On the other hand, we had an opinion that intermittent fasting is the principle of treatment of some [seizure](#) types, like the principle that the ketogenic diet relies on."

The classic ketogenic diet tricks the body into thinking it's fasting by maximizing high-fat foods and limiting carbohydrates. In comparison, Ramadan fasting involves no ingestion of food or liquids, including

water, for up to 16 hours a day.

Magdy's study observed over 300 people with epilepsy aged 12 and older over three months—the month of Ramadan and the months before and after. All participants were taking antiseizure medication and had experienced one or more seizures in the previous year. They answered questions during in-person interviews throughout the study.

Seizure reduction

The frequencies of focal, myoclonic and absence seizures were significantly reduced during Ramadan. About 40% of those with focal or myoclonic seizures, and 60% of people with absence seizures, experienced a least a 50% reduction in seizures. The frequencies of focal and myoclonic seizures continued to show significant reductions in the month after Ramadan, when fasting had ended.

"We are surprised by the results," Magdy said. "At first, we expected that Ramadan fasting wouldn't change the frequency of seizures."

The study also found that unlike the ketogenic diet, Ramadan fasting did not improve seizure rates in people with generalized tonic-clonic seizures. Magdy said this may be because of [sleep deprivation](#), a familiar hallmark of the Ramadan experience.

"Patients with generalized tonic-clonic seizures can fast," she said. "But with some precautions. For example, they must have enough rest, sleeping for about eight hours at least every day."

The findings of the study can guide how physicians and epilepsy professionals advise Muslims with epilepsy before Ramadan. Magdy said those who want to fast should visit their physician two to three months before Ramadan, sort out any issues with antiseizure medications

before fasting, and drink lots of water before the holiday begins. She said that those with focal or myoclonic seizures should be encouraged to fast, while people with drug-resistant epilepsy should not fast.

"Every patient knows their own specific factors," Magdy added. "If a patient knows that fasting is a trigger for his seizures, we ask him not to fast."

Intermittent fasting and the ketogenic diet

For more than 100 years, the ketogenic diet—designed to mimic the positive effect that fasting had on seizures—has proved a successful treatment for some people with epilepsy. But for others, it's not always an effective, nor easy, diet to follow.

Classically, the treatment calls for calorie and fluid restriction, like Ramadan fasting. But Mackenzie Cervenka, the director of the Adult Epilepsy Diet Center at Johns Hopkins Medicine, said the typical common ketogenic diet now has no calorie or fluid restrictions, and that there is a shift towards individualizing many diet treatments.

"We make changes depending on type of epilepsy, age of the patient, specific diet preferences and things like that," she said. "There are a lot of variations on the ketogenic diet at this point."

The ketogenic diet and Ramadan fasting produce slightly different effects in the body. The ketogenic diet produces a state of ketosis; the body pivots from using glucose as its primary fuel source to using fatty acids, which are metabolized into ketone bodies.

Cervenka said that fasting used during Ramadan is a [common type](#) of intermittent fast that other people with [epilepsy](#) use as well. She believes there are circumstances where people could use the method to control or

treat specific seizures, but that more information is needed.

"It may end up being that there are certain types of seizures that benefit more from intermittent fasting versus using a ketogenic [diet](#)," she said.

Future research

Other research also has found that certain types of intermittent fasting can improve [seizure control](#).

One 2020 study, constructed similarly over a three-month period with 37 participants, found a 21% decrease in seizures during the month of Ramadan and a 29% decrease in the month after. Another small pilot study found that [intermittent fasting](#) can be successfully combined with the [ketogenic diet](#) to reduce seizure frequency in pediatric patients.

How the eating pattern precisely affects seizure frequency isn't clear, but Magdy's study found elevated levels of brain-derived neurotrophic factor and insulin-like growth factor in people who fasted during Ramadan, and that higher serum levels of these molecules were correlated with higher seizure frequencies.

Magdy's next study in this area is on the effects of fasting on pediatric populations. She also hopes to repeat the Ramadan study during winter months, when fasting hours are shorter, and wants to study the additional effects that sleep and metabolic changes have on seizure frequency while [fasting](#).

More information: Rehab Magdy et al, Fasting and post fasting effect of Ramadan on different seizure types in patients with active epilepsy, *Nutritional Neuroscience* (2020). [DOI: 10.1080/1028415X.2020.1840048](https://doi.org/10.1080/1028415X.2020.1840048)

Khalid Alqadi et al, Effects of fasting during Ramadan on seizure control and quality of life in patients with epilepsy, *Epilepsy & Behavior* (2020). [DOI: 10.1016/j.yebeh.2020.107440](https://doi.org/10.1016/j.yebeh.2020.107440)

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