

Heading Off Migraine

INNOVATIVE

THERAPIES

This is the sixth in a

series of regular articles

covering complementary

therapies. Also known

they are now being

tested by researchers

to augment standard

medical treatments.

as alternative therapies,

What's the evidence for non-pharmaceutical approaches?

BY GINA SHAW

ennifer Nierenberg Metzger, a 40-year-old New Jersey attorney and mother of two girls, had her first migraine when she was 10 years old. She still remembers where

she was: watching the movie *E.T.* But she doesn't recall her pediatrician ever being consulted about the persistent pain.

"I was told I was 'prone to headaches," Metzger recalls. "I was the only kid who went to sleep-away camp armed with a month's supply of Advil."

Metzger's headaches slowly got worse. But it wasn't until law school, while she was up for nearly three days straight preparing for a simulated court proceeding, that she was finally diagnosed with migraine. "I had this blinding, searing pain behind

my eyes and started vomiting. Everything got blurry and I was seeing spots. I actually started banging my head against the wall. That's when a friend rushed me to the hospital," she remembers.

Since then, Metzger says, she's tried a wide range of acute medications, which are used to treat the pain of a migraine—ideally, at the earliest sign of onset. Once an acute headache has set in, it is much more difficult to treat. Preventive medications, on the other hand, are taken regularly to reduce the frequency of migraine attacks. (See box, "Acute Versus Preventive Migraine Medications.") In a new guideline on migraine prevention issued in April, the

American Academy of Neurology (AAN) reported that the following prescription medications have been shown to be effective for preventing migraine by a high level of evidence: the antiepileptic drugs divalproex sodium (Depakote), sodium valproate (Epilim), and topiramate (Topamax); the beta-blockers metoprolol (Lopressor, Toprol), propranolol (Inderal), and timolol (Istalol); and the triptan frovatriptan (Frova). (See "New Migraine Guidelines from the American Academy of Neurology," page 15, for more on the levels of evidence supporting these therapies,

and go to **aan.com/guidelines** to access the full guidelines.)

Drugs that have been shown probably to be effective in preventing migraine according to the new guideline include the antidepressants amitriptyline (Elavil) and venlafaxine (Effexor), the beta-blockers atenolol (Senormin, Tenormin) and nadolol (Corgard), and the triptans naratriptan (Amerge) and zolmitriptan (Zomig). "I had this **blinding, searing pain** behind my eyes and started vomiting. I actually started banging my head against the wall. That's when a friend rushed me to the hospital," Jennifer Metzger recalls of the **first time she was diagnosed** with migraine.

Acute Versus Preventive Migraine Medications

Conventional treatments fall into one of two major categories: acute medications, used to treat the pain of a migraine at the earliest onset of symptoms, and preventive medications, taken regularly to reduce the frequency of migraine attacks.

Acute medications for migraine can also be divided into two categories: analgesics, which ease the pain; and abortive medications, which are designed to stop the headache in its tracks.

ANALGESICS INCLUDE:

- Nonspecific analgesics such as acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen and naproxen sodium. These medications aren't specifically aimed at treating migraines but are designed to relieve pain throughout the body.
- Narcotics, such as codeine and meperidine (Demerol).

ABORTIVE MEDICATIONS INCLUDE:

- Ergotamine, which is thought to work directly on certain migraine pathways.
- The triptans, which constrict blood vessels in the brain and relieve swelling. At least five different triptans are now on the market for treatment of migraines: almotriptan (Axert), frovatriptan (Frova), rizatriptan (Maxalt), sumatriptan (Imitrex), and zolmitriptan (Zomig).

PREVENTIVE MEDICATIONS INCLUDE:

- Calcium channel blockers and beta-blockers, which are both blood-pressure drugs. Propranolol (Inderal) and timolol (Istalol) are beta-blockers that have been approved specifically for migraine prevention by the Food and Drug Administration (FDA), and others are being studied.
- Antidepressant medications, including certain tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors (SNRIs), and selective serotonin reuptake inhibitors (SSRIs). It's thought that these drugs may work better in patients who have depression as well as migraine.
- Antiepileptic drugs. Divalproex sodium (Depakote) and topiramate (Topamax) are the only antiepileptic drugs currently approved by the FDA for migraine prevention. It's not completely understood why they may work to prevent migraines, but as with calcium channel blockers and betablockers, they act to reduce constriction of blood vessels in the brain.

Source: American Council for Headache Education: www.achenet.org/resources/migraine_treatments On the other hand, strong evidence suggests that the antiepileptic drug lamotrigine (Lamictal) is not effective in preventing migraine, the new guideline states.

Metzger started with sumatriptan (Imitrex) and then tried all of the other triptans approved for migraine. Her doctors also prescribed preventive medications including calcium channel blockers and antiseizure drugs such as topiramate, both of which appear to reduce the constriction of blood vessels in the brain. Currently, she takes a combination of therapies including a low dose of the tricyclic antidepressant protriptyline (Vivactil) and sumatriptan as needed.

After giving birth to her oldest daughter in March 2006, Metzger decided that conventional treatments weren't enough. "My migraines had been manageable for awhile—I would only have a migraine maybe once or twice a month. But for 18 months after Ellis was born, I had a migraine almost every single day. I tried all of the conventional treatments, and things weren't getting better." It was only then—after 25 years of headaches—that she sought the advice of a doctor specifically trained to treat migraines: a neurologist.

TRENDING COMPLEMENTARY

For the past five years, she's augmented her conventional treatment with complementary therapies, including supplements such as butterbur extract and mind-body therapies like biofeedback. She discusses them all with her neurologist, Richard B. Lipton, M.D., professor and vice chair of The Saul R. Korey Department of Neurology at Albert Einstein College of Medicine of Yeshiva University in New York City, director of the Headache Center at Montefiore Medical Center, also in New York City, and a Fellow of the AAN. "I wouldn't ever consider doing something to treat my migraines without talking to my doctor first."

Metzger isn't alone. A study published last year in the medical journal *Headache* found that nearly half of all people with migraine (sometimes called migraineurs) used complementary therapies, compared with only about one-third of people without migraine. (See Resource Central, page 44, for the reference to this and the other studies cited in this article.)

But are non-pharmaceutical therapies effective?

Some non-pharmaceutical therapies have better evidence supporting them than others. That's one of the reasons the AAN also issued a new guideline on complementary and over-thecounter therapies for migraine prevention.

A number of experts, such as AAN member-neurologist Steven Herzog, M.D., medical director of the Headache Institute at Texas Neurology in Dallas, believe that traditional medications should only be one piece of the migraine-management puzzle.



"I believe that focusing only on medications is not very effective," Dr. Herzog says. "It would be like trying to treat diabetes with insulin alone. Lifestyle modifications such as exercise, good nutrition, and avoiding triggers—along with complementary therapies such as certain vitamins or supplements—all have their place," he says.

VITAMINS AND SUPPLEMENTS

Let's take a look at what some top neurologists—and the AAN's new guideline on migraine prevention—say about the evidence behind the most popular vitamins and supplements for migraine treatment and prevention.

BUTTERBUR EXTRACT

According to the new AAN guideline, the only supplement shown to be effective in preventing migraine by a high level of evidence is extract of the root of the butterbur plant.

However, caution needs to be employed when taking butterbur, according to Dr. Lipton. "The root has some toxic chemicals in it, so if the extraction is done incorrectly, it's not completely safe," he says. Dr. Lipton recommends a German brand such as Weber & Weber because Germany regulates supplements more strictly than does the United States.

RIBOFLAVIN/VITAMIN B2

The AAN's new guideline states that vitamin B2 (riboflavin) found in milk, cheese, and leafy green vegetables—has been shown probably to be effective in preventing migraines.

A big plus: B2 has very few side effects, notes Dr. Lipton, "other than turning your urine bright yellow." Not all watersoluble vitamins are as safe as B2: Large doses of vitamin B6, for example, can cause nerve damage. But B2 in these doses is well studied and very safe, according to Dr. Lipton. "It's one of my favorite natural products because it gives people with migraine the opportunity to feel better with very little risk," he says.

MAGNESIUM

The AAN guideline also states that magnesium has been shown probably to be effective in preventing migraines. "The idea is that magnesium helps to stabilize the brain by reducing the transmission between nerve cells," Dr. Lipton says.

There's a down side: Too much magnesium can cause diarrhea.

FEVERFEW

Some studies indicate that feverfew is beneficial in preventing migraine, but the overall weight of the research isn't as strong as for butterbur extract, says AAN member-neurologist Brad Klein, M.D., medical director of the Abington Headache Center at Abington Memorial Hospital, near Philadelphia, PA.

Still, the new AAN guideline found that the evidence shows feverfew is probably effective in preventing migraine. And feverfew causes few adverse reactions—the most common being minor stomach distress. "So feverfew could potentially be a good benign first-line agent for migraine prevention in some people," Dr. Klein says.

COENZYME Q10

The AAN guideline found that the evidence shows supplement coenzyme Q10 is possibly effective in preventing migraine. In a randomized, controlled study conducted in Switzerland and published in the AAN's journal *Neurology*, coenzyme Q10 cut migraine frequency by about half.

Vitamin B2 and coenzyme Q10 are thought to work against migraine in much the same way: Both stimulate the energy of cell powerhouses called mitochondria. Some scientists believe that a mitochondrial deficiency is involved in the development of migraines.

MIND-BODY THERAPIES

In addition to vitamins and supplements, many people try complementary mind-body therapies to help manage migraines. One of the most commonly used—and with the most evidence behind it—is biofeedback.

BIOFEEDBACK

"Biofeedback helps someone achieve a calm inner state, diminishing the excitation of nerve cells," explains Dr. Klein. "People can try to achieve this with meditation as well, but biofeedback offers input so that they know if they are doing it correctly."

Biofeedback equipment allows people to monitor their automatic bodily responses, especially reactions to stress. The idea is that once the patient learns to monitor these responses, he or she can modify them, changing skin temperature and heart rate, for example.

Two kinds of biofeedback are commonly used to combat migraine: skin temperature biofeedback, which teaches people to warm their hands; and electromyogram (EMG) biofeedback, which teaches people to relax their muscles.

Why would these therapies help with migraines? The idea is that during migraines, blood flow increases to certain areas in the head and decreases in the extremities, such as the hands. Modifying a response such as the temperature of the hands might increase blood flow back to that area, reducing the pressure of blood flow to stressed or overexcited areas in the head. It might

"Lifestyle modifications such as exercise, good nutrition, and avoiding triggers—along with **complementary therapies** such as certain vitamins or supplements—all have their place," Dr. Herzog says.

also have an overall calming effect on the central nervous system.

"A substantial body of evidence shows that biofeedback improves migraine, and the difference is almost as great as what you see with some prescription drugs," says Dr. Lipton.

ACUPUNCTURE

Metzger recently started seeing an acupuncturist at the recommendation of a friend, who claims the same acupuncturist rid her of the migraines that had become unbearable since the birth of her second son.

But research findings are less than conclusive.

In two large studies of acupuncture as a preventive treatment for migraine, migraineurs who were assigned to receive "real" acupuncture, in which the needles were inserted along the meridians (key acupuncture regions according to traditional Chinese medicine), did in fact see a reduction in the frequency of their headaches. But so did patients who received "sham" acupuncture—that is, needles inserted at random sites rather than along the meridians.

"One possible conclusion we could draw from these trials is that acupuncture doesn't work," says Dr. Lipton. "That's the conventional view: that these are failed studies. Another possibility is that placing the acupuncture needles just about anywhere is an effective treatment for migraine, not just along the meridians."

Dr. Lipton doesn't suggest that his patients try acupuncture, but he is happy to refer if a patient asks. "My clinical experience is that a lot of patients do better when they get acupuncture," he says.

STOP PULLING THE TRIGGER

Another key strategy for many people with migraine is lifestyle modification, which starts with learning their particular triggers.

Metzger does her best to avoid her triggers, which include red wine, lack of sleep, and stress. But some—such as her menstrual cycle—can't be entirely avoided. "For me, some of my biggest triggers are hormones and weather, which I can't do much about. But biofeedback has been particularly helpful with a trigger like stress," she says.

General lifestyle modification can also help lessen migraine triggers. The foundation of any lifestyle approach to migraine is exercise and a proper diet, Dr. Herzog says. "It's not just about eliminating foods that are triggers—such as processed foods, caffeine, soft drinks and artificial drinks—but about actively choosing to eat things that are healthier and drinking enough water."

Dehydration is a well-known headache trigger. The Institute of Medicine recommends that men get about 3 liters (13 cups) of total beverages a day; the recommendation is about 2.2 liters, or 9 cups, for women. One good way to meet this total is to carry a reusable water bottle with you and refill it frequently. Exercise is a double-edged sword in that it can sometimes trigger migraines. But one study in 2010 found that a three-month program of indoor cycling three times a week reduced the number of migraine attacks that participants experienced as well as the number of days with migraine, migraine intensity, and the need for medication.

Proper sleep is yet another vital aspect of migraine prevention. "Sleep is something that many people neglect. Often, they don't realize its importance until it's too late," Dr. Klein says.

Finally, says Dr. Herzog, don't forget about downtime. He recommends setting aside at least five minutes in the morning and five minutes in the evening for a re-energizing break. "Close the door, take a deep breath, and do something for you. Listen to some music or go for a walk outside," he says.

Jennifer Metzger is striving to adopt a healthier lifestyle and using several complementary approaches in addition to her prescription medication. "Tve had a difficult time during the last six months. The previous six months were much better. So I'm keeping a diary to track my triggers and see if anything has changed over these last six months. Hopefully I'll get myself back to where I was."

For references to the studies cited in this article, see RESOURCE CENTRAL on page 44.

The Holistic Migraine Bookshelf

Books recommended by Dr. Herzog, Dr. Lipton, and Dr. Klein for a holistic or whole-person approach to managing migraine include:

- Headache Relief for Women, by Alan Rapoport, M.D., and Fred Sheftell, M.D. (Little, Brown and Company, Jan. 1996)
- Heal Your Headache: the 1-2-3 Program for Taking Charge of Your Pain, by David Buchholz, M.D. (Workman Publishing Company, Aug. 2002)
- Managing Migraine: A Patient's Guide to Successful Migraine Care, by Roger K. Cady, M.D., Richard B. Lipton, M.D., Kathleen Farmer, Psy.D., and Marcelo E. Bigal, M.D. (Baxter Publishing Inc, Oct. 2008)
- The Migraine Brain: Your Breakthrough Guide to Fewer Headaches and Better Health, by Carolyn Bernstein, M.D., and Elaine McArdle (Free Press, Sept. 2008)
- Tell Me What to Eat If I Have Headaches and Migraines, by Elaine Magee, M.P.H., R.D. (Career Press, May 2008)