

# Migraine

Migraine is a condition that has many manifestations. It can produce many kinds of visual or neurological symptoms, as well as headaches. The symptoms of migraine are caused by transient inflammation of vessels, dilation of blood vessels, and abnormal firing of nerve cells in the brain.

## Information and Frequently Asked Questions

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Some people know “it will be a migraine day” because of tiredness, excessive energy, mood changes, yawning, or food cravings. In about 20% of people, migraine starts with visual or neurological symptoms. The next phase is the headache. Some people experience all phases, and some only one—it is not necessary to have headaches to have migraine.

Migraine is very common; approximately 15-20% of the population is affected (18% of women, 6% of men and children). After puberty, it is three times more common in women than men. Migraine often runs in families, and knowing about other family members’ headaches is often helpful for the diagnosis and treatment of migraine. Many migraine sufferers are also prone to motion sickness. There is also an association between some medical conditions and migraine, such as Raynaud’s phenomenon, depression, anxiety, bipolar disorder, asthma, epilepsy, and fibromyalgia.

### What are the symptoms of migraine?

**Headaches:** Headaches are the best known features of migraine, although it is possible to have migraine without having headaches. The headaches usually start as a mild ache, often on one side of the head. The pain gradually increases in intensity and becomes throbbing or pounding in nature. Many people also experience nausea, vomiting, diarrhea, inability to eat, blurred vision, or sensitivity to light, noise, and odors. Activity usually makes them worse, so most people prefer to lie down in a dark, quiet room, and can often get relief with sleep. Migraine headaches usually

last for hours, but sometimes last for days. Migraine in young children is briefer, usually lasting less than two hours.

**Visual:** Migraine can cause visual loss in one or both eyes. Visual loss in one eye may resemble a “mini stroke,” and in patients over age 50 without previous migraines, investigations for other causes of stroke may be recommended. The most common visual symptoms are “positive” visual phenomena, such as flashing lights, zig-zag lines, “heat waves,” stars, or other disturbances of vision. Some people experience loss of one side of the vision, tunnel vision, or complete loss of vision. The visual symptoms often begin gradually and fade away. Double vision occurs infrequently. A dilated pupil without any other symptoms has been described with migraine.

**Neurological:** Neurological manifestations of migraine include weakness, numbness, dizziness, speech difficulty, confusion, or loss of consciousness. A progressive “march” of symptoms can occur (for example, numbness on the face that resolves, then weakness of the arm that resolves, then flashing lights). The visual or neurological symptoms can last between seconds and hours, but usually last less than 45 minutes. Occasionally they are permanent.

### What factors trigger migraine?

**Food and drink:** There are many types of foods and beverages that trigger migraines in certain people. One way to determine whether you are susceptible is to keep a detailed diary and try to determine whether there is a cause and effect relationship.

Common “trigger” foods include:

- Aged cheeses
- Foods containing tyramine or nitrites (smoked/cured/deli meat, luncheon meats, hot dogs, bananas, avocados)
- Chocolate
- Onions
- Citrus fruits
- Monosodium glutamate or MSG (found in Chinese food, commercial pizza, many processed food products; also described as a “flavor enhancer”)
- Peanuts
- Pickled foods
- Olean™

Beverages containing alcohol and sulfites (especially wine), Nutrasweet™, and caffeine may need to be avoided. Some people are sensitive to dyes or other chemicals added to food.

**Emotional:** Does stress cause migraine? Probably not, but it can certainly provoke it. Sometimes migraines are worse during periods of stress. Others notice that the migraines are worse after the stress is over, such as on the weekend or the first day of vacation.

**Environmental:** Certain odors (strong perfumes, fumes, etc.) can provoke migraines. Others will develop migraine if their sleep pattern changes and can prevent migraines by waking up at the same time each day, even on the weekend. Migraine is often triggered by changes in the weather, sometimes leading to the incorrect diagnosis of “sinus” headaches. Very bright lights or loud noises may trigger a migraine. Regular exercise is helpful.

**How can migraine be treated?**

**Avoid provoking factors:** If any factors are known to trigger your symptoms, eliminating them is often beneficial. It is helpful to keep a diary or calendar of your migraines to determine whether any cause-effect relationship is present.

**Symptomatic treatment:** Symptomatic treatment works best for people who have infrequent headaches. The use of pain medication—even over-the-counter medications—more than two or three times a week can make headaches

worse and less likely to respond to preventive treatments (“analgesic rebound” or “medication overuse” headaches). The neurological and visual manifestations of migraine cannot be treated with symptomatic treatment. The most common types of symptomatic treatment include:

- **Anti-inflammatory/analgesic medications:** This group includes aspirin, ibuprofen, and similar medications (naproxen). The most common side effects of these medications are stomach upset and dizziness. Acetaminophen (Tylenol) containing medications can also be effective.
- **Narcotics and opioids:** This group includes medications such as codeine, hydromorphone, oxycodone, hydrocodone—drugs that are used for severe pain control. They generally don’t work well for migraine, and they cause drowsiness, may produce or worsen nausea, and can be addictive.
- **Anti-emetic medications:** These medications are helpful for people who have nausea and vomiting. Suppositories are a good option for people with severe vomiting. Drowsiness is a common side effect.
- **Sedatives:** Since many people can “sleep off” their headaches, a medication that induces sleep can be helpful. Prolonged use of sedatives is not recommended.
- **Combination preparations:** These compounds may contain an analgesic (aspirin or acetaminophen), narcotic analgesic, sedative, and an agent to constrict blood vessels (caffeine). Commonly used preparations include butalbital (Fiorinal, Fioricet), Excedrin, Midrin (not commercially available), Bellergal. Over-the-counter preparations may include an analgesic, magnesium, feverfew, or riboflavin.
- **Dihydroergotamine (DHE):** DHE affects serotonin and constricts blood vessels, primarily veins. DHE produces nausea and requires pre-treatment with an anti-emetic. It can be given by injection (into a vein, muscle, or below the skin), by nasal spray (Migranal), or capsule. (Capsules are not commercially available).
- **“Triptans” sumatriptan (Imitrex), naratriptan (Amerge), rizatriptan (Maxalt), zolmitriptan (Zomig), almotriptan (Axert), frovatriptan (Frova), eletriptan (Relpax), sumatriptan/naproxen (Treximet):** The triptans are available

in tablets, nasal spray, and for injection (under the skin). Relief occurs in about 30-60 minutes in most cases (sooner with injectable form and nasal spray); they can be used twice daily. The triptans should not be used with basilar migraine, in people with coronary artery disease, or during pregnancy. They cannot be used within 24 hours of each other or with DHE. They work best when taken early in the headache process.

- **Non-pharmaceutical treatment:** Biofeedback, relaxation therapy, stress management, cognitive behavioral therapy, physical therapy, and other treatments are beneficial in some patients.
- **Preventive (prophylactic) therapy:** In addition to symptomatic treatment, people with frequent, debilitating headaches may prefer to try and prevent the headaches with prophylactic agents. Preventive treatment is usually recommended for migraine equivalents, migraine with aura, or complicated migraine, due a small increased risk of stroke in these patients. Prophylactic therapy requires taking medication every day. More than one agent may be required. All of the preventative medications were originally developed for other conditions and later shown to be effective for migraine, specifically, antidepressants, medications for treating epilepsy, and medications for high blood pressure.
- **Aspirin:** Daily aspirin works by preventing platelets from adhering to each other and affects serotonin levels. A low dose (one 325 mg adult aspirin or one 80 mg aspirin) daily is often effective. It should be taken on a full stomach. Daily aspirin may cause easily bleeding and bruising, and should be discontinued at least three days prior to surgery or dental work. Aspirin can also cause an ulcer, and should be avoided in people with pre-existing ulcer disease. Coated aspirin may help with stomach irritation.
- **Tricyclic antidepressants amitriptyline (Elavil), nortriptyline (Pamelor), protriptyline (Vivactil):** After they were marketed for depression, these medications were found to be very effective in various neurological pain syndromes, including headaches and migraine phenomena. They are usually effective for migraine in much lower doses than those used for treating depression. To avoid excessive sedation, these medications are usually introduced in low doses at bedtime and gradually increased. The most common side effects include sedation (especially with amitriptyline) or insomnia, dry mouth, constipation, rapid heart rate, and weight gain. Most patients notice that they get a headache if they miss a dose and these drugs should not be stopped suddenly, if possible.
- **Other antidepressants Fluoxetine (Prozac), venlafaxine (Effexor), bupropion (Wellbutrin), and others:** These agents are often helpful alone or in combination with other preventative medications. They have an effect on headache, independent from the antidepressant effect, but are also helpful for people with headaches and mood disorders. As a group, common side effects include tremor, stomach upset or nausea, and vivid dreams.
- **Beta blockers propranolol (Inderal), nadolol (Corgard):** This group of drugs has been a mainstay of migraine prevention for many years. Some headache specialists caution against their use with basilar-type migraine, so they are not usually used as a first-line agent in these patients. The medication has to be taken two to four times daily, but long-acting preparations can be used when the optimum dose is found. The most common side effects are sleepiness, fatigue, low blood pressure, and sexual dysfunction. These medications cannot be used in people with asthma or congestive heart failure, and should be used with caution in diabetics.
- **Calcium channel blockers verapamil, amlodipine (Norvasc):** These medications work by stabilizing blood vessel walls to prevent spasm. They are most useful to complicated migraine/migraine equivalents, especially for transient visual loss in one eye. They are also effective for migraine headaches. They are taken two to three times daily, and long-acting preparations are available. Side effects include dizziness, swelling, and constipation. These drugs cannot be used in people with an abnormal heart rhythm, liver disease, or kidney disease.

- **Anti-epileptics Sodium valproate (Depakote), topiramate (Topamax), and gabapentin (Neurontin) and others:** Initially marketed for the treatment of epilepsy, these drugs are also useful in the treatment of headache. The dose is typically much lower than when used for seizures. Valproate can cause tremor, hair loss, stomach upset, and sedation but is better tolerated in the long-acting preparation. It rarely causes bone marrow problems and liver malfunction. Topiramate may produce sedation, trouble thinking clearly, weight loss, tingling, kidney stones (rarely), and sudden glaucoma. Sedation and confusion are possible side effects of gabapentin.
- **Anti-inflammatory drugs:** See above. There is a higher risk of ulcer or intestinal bleeding or liver problems with chronic daily use.
- **Onabotulinum toxin (Botox):** injections are used successfully in many patients who do not have relief with other preventive treatments and are FDA-approved for the treatment of chronic migraine.
- **Others:** Vitamin B2, co-enzyme Q, magnesium, Petadolex™, or feverfew supplements may be beneficial. Nerve blocks are also employed for both acute and preventive treatment. Atypical antipsychotic medications and other antihypertensive drugs are effective in some patients. Surgery, such as occipital nerve stimulation, may be used for patients who do not improve with other therapies.

IF YOU EXPERIENCE ANY PROBLEMS WITH YOUR MEDICATION, CALL YOUR PHYSICIAN IMMEDIATELY. PLEASE CONTACT YOUR PHYSICIAN'S OFFICE A WEEK IN ADVANCE FOR A REFILL TO PREVENT LAPSES IN YOUR THERAPY.

#### Diagnostic tests

If the patient's symptoms are typical for migraine and the neurological exam is normal, usually no tests are needed, particularly if there is a family history of migraine. If the symptoms are not typical, or the headaches develop later in life, a brain scan may be recommended. Sometimes migrainous visual loss can be confused with attacks of visual loss caused by vascular disease or blood clots from the neck or heart. In this case, other tests will be recommended to be sure that migraine is the cause.

#### Ongoing therapy

The key to successful management of migraine is communication with your physician. If the therapy prescribed does not appear to be effective after the expected trial period, an adjustment in the dose is often successful, so do not discontinue "ineffective" medications on your own. Most physicians assume that "no news is good news"—if you are having problems, please call to report them.

#### Suggested Reading:

*Heal Your Headache: The 1-2-3 Program for Taking Charge of Your Pain* by David Buchholz 2002

American Headache Society website:  
[www.americanheadachesociety.org](http://www.americanheadachesociety.org)

National Headache Foundation website:  
[www.headaches.org](http://www.headaches.org)

#### Headache and Facial Pain Disorders Program

Aston Building  
5303 Harry Hines Blvd., Suite 400  
Dallas, TX 75390  
[utsouthwestern.org/headache](http://utsouthwestern.org/headache)  
214-645-8300 (New Patients)  
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