

## Migraine Headaches

Migraines afflict about 28 million people in the United States. Up to 6% of all men and 18% of all women (12% of the population). Roughly 75% of migraine sufferers are women. Children also get migraine (5-10% of children under the age of 18 years).

Most adults will experience a tension-type headache at some time during their lives. Tension-type headaches are mild to moderate bilateral pressure or tightening. The pain is not usually aggravated by routine activity and is not associated with symptoms such as nausea and sensitivity to light and noise. Tension-type headaches are not usually disabling. If you have frequent tension type headaches it is likely that you are also prone to migraines. Many headache specialists believe that tension headaches and migraine don't exist as discrete conditions but form a continuum of the same entity.

Many blame their migraines on "sinus headache" due their frontal location. Patients that present with recurrent frontal headaches without infection usually have migraine. Sinus headaches are typically associated with a cloudy (not clear) nasal discharge. Sinus problems can act as a trigger in someone with a predisposition for migraine.

Many people like to divide her headaches as "stress headaches", "hunger headaches" along with her migraines. Like the example of the sinus headaches these are probably the triggers with underlying condition of the migraine being the main problem

### Classification Criteria for Migraine

- A. At least 5 attacks fulfilling criteria B-D below
- B. Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)
- C. Headache has at least two of the following characteristics:
  1. unilateral location (Can be bilateral)
  2. pulsating quality
  3. moderate or severe pain intensity
  4. aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
- D. During headache at least one of the following:
  1. nausea and/or vomiting
  2. photophobia and phonophobia
- E. Not attributed to another disorder

Migraine is triggered by a cascade of events that appear to be slightly different in different people. It is clear that *migraine is a biological disorder*. The brain of a migraine patient is thought to be very sensitive to triggers and environmental factors. Although it is not clear where or why it starts, some patients have a unique pattern of activity that spreads across the outer layers of the brain. This activity is thought to be responsible for the aura that about 30% of patients with migraine experience. The aura can be recognized as flashing lights, blurred vision, numbness or tingling. Some people experience vertigo or speech difficulty. The actual pain in migraine is thought to be caused by inflammation around the blood vessels that surround the outer layers of the brain. Up to 70% of people report persistent symptoms for few hours to days after the headache including sensitivity to light, lethargy, fatigue and inability to focus known as the "postdrome". Likewise, about 60% of people have a period of difficulty concentrating, yawning fatigue sensitivity to light and noise lasting a few hours to days before the aura and headache known as the "prodrome".

### Migraine Facts:

1. Migraine is a biological disorder.
2. Migraine is a disorder of the central nervous system
3. Migraine represents a hypersensitivity of the central nervous system to *specific triggers* and stimuli.
4. Migraine is genetic
5. There is no "cure" for migraine. While there is no cure *we do have appropriate and effective treatment options.*

## Headache Prevention

### Triggers and Lifestyle

Whether or not you take preventive medications, you may benefit from *lifestyle changes* that can help reduce the number and severity of migraines. Simple things like changes to a normal routine can lead to a severely disabling migraine attack.

It may be unrealistic to expect someone to completely change a certain lifestyle. Certain things are relatively easy to do. For example:

- **Maintain regular sleep patterns.** Go to sleep and wake up at about the same time each day.
- **Eat regular meals.** Skipping meals and hunger can cause headaches
- **Avoid common triggers** (see table on Common Triggers) such as foods, odors, and bright lights.
- **Limit stress.** Avoid conflicts and try to resolve disputes calmly.
- **Try to quit smoking.** Smoking can trigger headaches or make headaches worse.
- **Exercise regularly.** Aerobic exercise for at least 30 minutes three times a week can help reduce frequency and severity of migraine. *Warm up* because sudden, intense exercise can trigger a headache
- **Don't overuse your pain medications.** Using pain medications more than 2 days per week will cause analgesic rebound headaches

### Avoiding Triggers

"Triggers" are specific factors that may increase your risk of having a migraine attack. *The migraine sufferer has inherited a sensitive nervous system* that under certain circumstances, can lead to migraine.

Triggers do not "cause" migraine. Instead, they are thought to activate processes that cause migraine in people who are prone to the condition. A certain trigger will not induce a migraine in every person; and, in a single migraine sufferer, a trigger may not cause a migraine every time.

You may want to keep a *headache diary* so that you will be able to identify some triggers for your particular headaches. Once you have identified triggers, it will be easier for you to avoid them and reduce your chances of having a migraine attack.

### Stress and "Sinus" headaches

Many people blame their headaches on stress and sinus when they are actually migraine. Stress and sinus problems can be thought of as among many of the migraine triggers.

**Obesity:** People who are obese have 5 times greater risk for getting migraines.

**Depression:** People with depression have 3 times greater risk for getting migraines

**Sleep apnea:** People with poor sleep and sleep apnea have increased risk of headaches and chronic migraine.

## Common Triggers

Categories	Triggers	Examples
Dietary	Skipping meals/fasting Foods containing tyramine, nitrates, nitrites, sulfites, MSG Caffeine	MSG (monosodium glutamate) Chocolate Processed meats (nitrites/nitrates) Aged cheese Alcohol/red wine Too much caffeine
Chronobiology(Sleep)	Change in sleep patterns Irregular sleep patterns Poor sleep	Long naps Oversleeping Too little sleep Sleep apnea
Environmental	Bright lights or sunlight	Florescent or harsh or bright lighting Flashing lights or screens
	Noise	Loud music, machinery, screaming children
	Odors/pollution	Smog, perfumes, chemicals
	Weather changes	Rain, storms, humidity, heat, dehydration
Hormonal	Estrogen level changes	Menstruation Hormone replacement Birth control pills Around menopause Pregnancy
Stress	Work	Unrealistic timelines Job changes
	Home	Financial issues
	Family	Moving Childbirth Marriage Death/loss
Stress Letdown	Discontinuation of work	Weekends Vacations Ending a project or stressful task
Physical	Injuries and illness	Head trauma and concussion Whiplash Sinus problems and allergies(often normal)
	Over-exertion	Out of shape Dehydration
	Exertional Headaches	Sex induced, cough, lifting weights
Motion, Travel	Motion sickness	Cars, trains, planes, boats, amusement rides
Overuse of pain medication	Analgesic rebound headaches	Excedrin, Tylenol, NSAIDS or <b>any pain medication especially opioids and butalbital 3 or more days per week</b>



## MIGRAINE DIET

General: Foods containing *chocolate, yeast, tyramine, nitrates/nitrites sulfites and MSG*

Food Type	Foods Allowed	Foods to Avoid
<b>Beverages</b>	Decaffeinated coffee, fruit juices, club soda, non-cola sodas (7UP, ginger ale)	<b>Excessive Caffeine: <i>Limit to 2 cups or less per day</i></b> Coffee, tea, Cola, Mountain Dew, energy drinks  No <b>chocolate</b> or cocoa  <b>Alcoholic beverages: ALL!</b> Especially <b>red wine</b> (Contains tyramine and sulfites)
<b>Meat, Fish, Poultry</b>	Fresh or frozen Turkey, chicken, fish, fish, lamb, Veal, pork, egg as meat substitute Tuna, tuna salad	<b>Aged, canned, cured or processed meats:</b> Bacon, ham, hot dogs, bologna, salami, pepperoni, summer sausage, pickled herring, salted dried fish, chicken livers. (Contains tyramine, nitrates and nitrites.)
<b>Dairy</b>	Milk: Homogenized, 2% or skim Cheese: American, cottage, farmer, ricotta, cream cheese, Velveeta <b>Yogurt: limit to 1/2 cup</b>	Cultured dairy such as buttermilk and <b>sour cream Chocolate</b> milk <b>Aged Cheeses:</b> blue, Feta, Swiss, Gouda, Roquefort, Stilton, mozzarella, Parmesan, Provolone, Romano, (Contains tyramine)
<b>Breads And Cereals</b>	Commercial breads  All hot and dry cereals	<b>Yeasty breads:</b> fresh or homemade breads, coffeecake, doughnuts, and sourdough breads  Anything containing <b>chocolate or nuts</b>
<b>Potatoes, Rice and Pasta</b>	White potato, sweet potato, rice, macaroni, spaghetti, noodles	
<b>Vegetables</b>	All except those to avoid	<b>Beans:</b> All kinds. The tannins may be the culprit <b>Onions</b> except for flavoring, <b>Olives</b> – tyramine <b>Chili Peppers</b> – Some are sensitive to the capsaicin
<b>Pickled and Fermented foods</b>	AVOID ALL	<b>Pickles</b> , anything <b>Pickled or fermented</b> - pickled eggs, beets, olives etc.  <b>Sauerkraut, soy sauce.</b>
<b>Fruits</b>	Most fruits ok except as listed.  <i>Any fruit juice</i> such as prune, apple, applesauce, cherries, apricots, peach, pears, fruit cocktail	<b>Avocados, bananas</b> (1/2 per day), figs, raisins, papaya, passion fruit, <b>red plums.</b> (tyramine and histamine)  <b>Citrus: limit to 1/2 cup:</b> orange, grapefruit, tangerine, pineapple, lemon, lime. (tyramine and histamine)  <b>Dried fruits</b> contain sulfites.
<b>Nuts and Seeds</b>	NONE	<b>All Nuts and seeds:</b> peanut butter, sunflower, sesame and pumpkin seed, peanuts
<b>Soups</b>	Cream soups made from foods allowed, homemade broths	<b>Canned soups:</b> soup cubes, bouillon cubes, soup bases with autolyzed yeast or <b>MSG</b>
<b>Desserts</b>	Most fruits, sherbets, ice cream (non chocolate), cakes, and cookies made without chocolate or yeast, Jell-O	<b>Chocolate:</b> ice cream, pudding, cookies and cake
<b>Sweets</b>	Sugar, jelly, jam, honey, hard candy	<b>Chocolate</b> candies, chocolate syrup
<b>Miscellaneous</b>	Salt in moderation, lemon juices  Butter or margarine, cooking oil, whipped cream  White vinegar and commercial salad dressing in small amounts	<b>Pizza</b> - fresh bread and cheese  <b>MSG</b> - Monosodium glutamate  <b>Yeast</b> and yeast extracts  <b>Red and balsamic vinegar</b> (tyramine). Not white vinegar  <b>Artificial sweeteners</b> - Varies from person to person

# Migraine Abortive Therapy

Medication	Advantages	Disadvantages/Risks
<p><b>Over-the-counter medicines</b> (Acetaminophen, Ibuprofen, Naproxen)</p>	<ul style="list-style-type: none"> <li>• Low-cost</li> <li>• Helpful for many people with mild migraines, especially if migraines are rare</li> </ul>	<ul style="list-style-type: none"> <li>• Headaches can get worse or they can happen more often with use of these drugs more than 15 days a month</li> <li>• Liver damage with frequent, continued use</li> <li>• May cause stomach irritation</li> </ul>
<p><b>Triptans (prescription only)</b> Sumatriptan (Imitrex) Rizatriptan (Maxalt) Eletriptan (Relpax) Zolmatriptan (Zomig) Naratriptan (Amerge) Almotriptan (Axert)</p>	<ul style="list-style-type: none"> <li>• Significantly reduce pain within two hours for most people</li> <li>• Relieve other migraine symptoms, such as nausea, vomiting, and sensitivity to light, noise, and motion</li> <li>• Generally safe when used correctly and prescribed for the right patients</li> <li>• Less expensive generics available</li> <li>• Nasal spray, injectable and oral</li> </ul>	<ul style="list-style-type: none"> <li>• Certain people should not take these drugs, including those who have <i>heart conditions</i>, have had a <i>stroke</i>, or have high blood pressure</li> <li>• Can have side effects such as upset stomach, dry mouth, dizziness, sleepiness, and low energy</li> <li>• Can increase the risk of chest tightness, heart attack or stroke, or change your heart rhythm</li> <li>• Overuse headaches can occur</li> <li>• Higher cost than over-the-counter drugs (when no generic available)</li> </ul>
<p><b>Prescription NSAIDs</b> Cambia (diclofenac) celecoxib (Celebrex) Indomethacin</p>	<ul style="list-style-type: none"> <li>• Cambia is quick acting</li> <li>• Can be used in combination with other agents</li> </ul>	<ul style="list-style-type: none"> <li>• Cost (Cambia)</li> <li>• GI irritation</li> <li>• Cardiovascular concerns</li> </ul>
<p><b>Dihydroergotamine (prescription only)</b> Nasal spray (Migranal) IV DHE</p>	<ul style="list-style-type: none"> <li>• Efficacy, especially IV DHE</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiovascular risks</li> <li>• Can't be used with triptans</li> </ul>
<p><b>Anti-CGRP (gepants) (prescription only)</b> Nurtec ODT Ubrelvy</p>	<ul style="list-style-type: none"> <li>• Significantly reduce pain within two hours for most people</li> <li>• Relieve other migraine symptoms, such as nausea, vomiting, and sensitivity to light, noise, and motion</li> <li>• No cardiac side effects</li> <li>• Well tolerated. Fewer side effects than triptans</li> <li>• Less/no risk of rebound or dependence</li> </ul>	<ul style="list-style-type: none"> <li>• Newest, no generics</li> <li>• More expensive (copay cards for commercial ins)</li> <li>• Rare drowsiness</li> </ul>
<p><b>Butalbital and opioids (prescription only)</b> Fiorinal, Fioricet</p>	<ul style="list-style-type: none"> <li>• May work as rescue medication when nothing else has worked</li> </ul>	<ul style="list-style-type: none"> <li>• <b>NOT RECOMMENDED</b> as 1st line or sole treatment</li> <li>• Less effective with repeat use</li> <li>• Headaches get much worse and happen more often with frequent use</li> <li>• Habit forming</li> </ul>



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### **Migraine Preventative/Prophylactic Medication**

People with regular or severe migraine attacks may benefit from taking medications on a daily basis to prevent or reduce their headache frequency. These medications are called prophylactic or preventative medications. They help reduce your headache sensitivity. Another way of thinking about it is that they will raise the threshold at which you get a headache. *Prophylactic medications are not a cure.* Abortive, as-needed medication will still be necessary almost all patients.

Traditional migraine medication preventative therapies were originally developed for other medical problems. Through experience we have found that these medications are helpful for migraines. These medications come from one of 3 major categories including *antihypertensives, anti-seizure medications and antidepressants.* If we prescribe one of these medications *it does not mean that we feel that your headaches are due to hypertension, seizures or depression.*

The newest class of migraine preventative medication is the *anti-CGRP* (calcitonin gene related peptide) monoclonal antibodies. These are migraine specific medications given by injection. They are touted as potentially reducing headache frequency by 50% in between 40-50% of people using them. Since this is a new medication it is expensive and insurance companies may require that you have tried and failed traditional therapy. Unlike traditional medications these tend to have a more rapid onset of action.

*Botox* treatments are beneficial for people who have chronic migraines. You have chronic migraines if you're having headaches 15 days or more each month for 6 months or more. Insurance companies require that you have tried and failed at least 2-3 traditional therapies.

#### Guidelines

- We try to pick a drug with the best efficacy and the fewest side effects
- We try to take a drug that is least likely to interact with your other medications.
- We initiate the chosen drug at a low dose and titrate up to an effective dose or until there are side effects.
- Note: *It takes time for traditional migraine prophylactic to work. While you may start feeling benefit in 2-3 weeks, a 2 to 3 month trial is often needed to assess the efficacy of a treatment.*
- We often try to use a drug that may benefit any comorbid or coexisting conditions the patient has. For example the patient has hypertension we will use one of the antihypertensives that is also beneficial for migraine.
- The role of the anti-CGRP medications may change how we prescribe preventative medications over time

## Migraine Preventative Medication

Medications	Medication Class	Generic Name	Side Effects
<b>Blood pressure medications</b>	Beta-Blockers	Atenolol Metoprolol Nadolol Propranolol Timolol	Bronchospasm/exacerbate asthma Low blood pressure Fatigue Depression Dizziness
	Angiotensin Receptor Blockers	Candesartan	Dizziness Incr Potassium
	Calcium channel blockers	Verapamil	Weight gain Constipation Dizziness Low blood pressure
<b>Antidepressants</b>	Tricyclic antidepressants	Amitriptyline Nortriptyline	Weight gain Dry mouth Sedation Decreased libido (sex drive) Memory loss with long term use
	Selective Serotonin Reuptake Inhibitors (SSRI/SSNRI)	Venlafaxine	Weight gain or loss Decreased libido Withdrawal symptoms
<b>Anticonvulsants</b>	Anticonvulsants	Topiramate (Qudexy Trokendi) Zonisamide Divalproex sodium Gabapentin	Weight gain (Depakote and gabapentin) Weight loss (topiramate and zonisamide) Kidney stones (topiramate and zonisamide) Sedation (gabapentin) Forgetfulness (topiramate) Numb and tingling (topiramate) Mood changes
Botox injections (For Chronic >14d/month)	Botulinum toxin	Botox Onabotulinumtoxin A	8-9 fewer headache days/month Multiple injections every 3 months Small risk of droopy eyelid
Emgality (SQ) Aimovig (SQ) Ajovy (SQ) Vyepi (IV)	CGRP mAb's Calcitonin Gene Related Peptide monoclonal antibodies	Galcanezumab-gnlm Erenumab-aooe Fremanezumab-vfrm Eptinezumam-jjmr	50% have 50% fewer headaches 20-30% may have 75% fewer headaches Constipation, inc BP with Aimovig Injection reactions ~5% ? Long term - too new
Serotonin antagonists		Methysergide Methylergonovine	Blood vessel spasm Abdominal scarring (very rare)
<b>Unconventional treatments</b>	Magnesium salts	Magnesium oxide, magnesium diglycinate magnesium chloride slow release	Diarrhea
		Melatonin	
	Vitamins	Riboflavin (B2) CoQ10	Urine discoloration (Riboflavin)
	Herbals	Feverfew Butterbur	Burping, GI upset (Butterbur)



# Rebound Headaches (Medication Overuse Headache)

## Overview

You feel a headache coming on, so you reach for a pain reliever. Or maybe you take pain medication in advance — even every day — to stave off frequent headaches. After all, that's what pain relievers are for, right?

*Think again.*

Pain relievers offer quick relief for occasional headaches. But there's a limit. If you find yourself taking pain medication **more than two or three days a week**, you may actually be contributing to your headaches rather than easing them. It's a cycle known as rebound headaches.

The cycle starts when you take too much headache medication. Soon, your body adapts to the medication and you become dependent upon it. You may not even realize that you've been dosing yourself too often until you miss a day and your head starts to hurt again.

The only way to stop rebound headaches is to reduce or stop taking the pain medication that's causing them.

## Signs and symptoms

Rebound headaches, also called **medication overuse headaches**, tend to occur almost every day, sometimes waking you in the early morning and continuing throughout the day. Sometimes, a rebound headache causes dull, achy pain. In other cases, the pain is throbbing or pounding. Other symptoms can include nausea, anxiety, depression, memory problems and insomnia. At times you may have your typical migraine symptoms such as nausea and photosensitivity.

## Causes

Overuse of nearly **any pain reliever** can contribute to rebound headaches. But some medications are more likely to lead to rebound headaches than are others.

- **Simple pain relievers.** Acetaminophen (Tylenol). Even NSAIDs such as ibuprofen (Motrin) and Naprosyn (Aleve) can contribute to rebound headaches if taken more than 10 days per month
- **Combination pain relievers are particularly likely to cause rebound.** Over-the-counter pain relievers that contain a combination of caffeine, aspirin and acetaminophen (Excedrin, others) are common culprits.
- **Prescription medications containing the sedative butalbital**, acetaminophen and caffeine such as Fioricet, Fiorinal and Esgic are extremely likely to cause rebound and are **highly addictive**.
- **Migraine medications.** Overuse of migraine medications including ergotamines and triptans such as sumatriptan, Imitrex, Treximet, Maxalt and Relpax.
- **Opiates.** Painkillers derived from opium or from synthetic opium compounds include combinations of codeine and acetaminophen (Tylenol with Codeine No. 3 and No. 4, others).
- **Caffeine;** from your morning coffee, your afternoon soda, or any pain reliever or other product containing this mild stimulant.

## How Much Medication Is Too Much?

For an episodic migraine condition to transform into a chronic one, medications need to be taken for only a modest number of days per month: 5 to 10, depending on the type of medication.

- A pivotal study found that **butalbital** combinations were most likely to cause medication overuse headache, needing to be taken on *merely 5 or more days per month*.
- **Opioids** caused it if taken *8 or more days per month*.
- **Triptans** if taken *10 or more days per month*.
- **Nonsteroidal anti-inflammatory drugs** (NSAIDs) actually protected against transformation to daily headache *if used 5 or fewer days per month*, but *caused medication overuse headache if used 10 or more days per month*.
- Thus, there was a hierarchy of risk, with butalbital being the worst, opioids in the middle, and NSAIDs and triptans the least risky. Excedrin (aspirin and acetaminophen and caffeine) was not included in this study but is frequently overused and is a common cause of rebound headaches.

## Risk factors

- Anyone who has a history of migraine headaches,
- People with a history of obesity, depression, anxiety, smoking, physical inactivity and chronic GI and/or musculoskeletal complaints

## Complications

Drug dependency may be a risk of any drug that results in rebound headaches. Excessive use of some types of pain medication also may cause stomach ulcers, liver damage and kidney problems.

## Treatment

To break the cycle of rebound headaches, you'll need to restrict how much pain medication you use. Depending on what drug you've been taking, your doctor may recommend stopping the medication right away or gradually reducing the dose until you're taking the drug **no more than twice a week**.

Stopping pain medication isn't easy. Expect your headaches to get worse before they get better. You also may experience withdrawal symptoms such as nervousness, restlessness, nausea, vomiting, insomnia, abdominal pain, and diarrhea or constipation. But it doesn't last forever. Within a week to 10 days, your headaches may become less intense and happen less often. With perseverance, most people break the rebound headache cycle within two months. You may need a *bridging medication*, something to help alleviate headache pain and the side effects associated with drug withdrawal. **Prednisone** is often very effective.

Before or during withdrawal, you will need to begin a **daily preventive medication**, such as:

- An antidepressant such as amitriptyline or nortriptyline (Elavil and Pamelor)
- An anticonvulsant such as topiramate (Topamax), zonisamide (Zonegran) or valproic acid (Depakote)
- A blood pressure medication such as propranolol, metoprolol or verapamil.
- Botox injections can be used if multiple oral medications have failed.

## Prevention

- **Avoid migraine triggers.**
- **Keep a headache diary.** If you're not sure what triggers your headaches, keep a headache diary. Include details about every headache. When did it start? What were you doing at the time? What did you eat that day? How did you sleep the night before? What's your stress level? How long did it last? What, if anything, provided relief? Eventually, you may begin to see a pattern — and take steps to prevent future headaches.
- **Get enough sleep.** Go to bed and wake up at the same time every day — even on weekends. If you're not tired at bedtime, don't fight it. Read or watch television until you become drowsy and fall asleep naturally.
- **Don't skip meals.** Start your day with a healthy breakfast. Eat lunch and dinner at about the same time every day. Avoid any foods that seem to trigger headaches.
- **Exercise regularly.** Physical activity causes your body to release chemicals that block pain signals to your brain. With your doctor's OK, choose activities you enjoy — such as walking, swimming or cycling. Always start slowly by warming up and then cool down to prevent exercise-induced headaches.
- **Reduce stress.** Get organized. Simplify your schedule. Plan ahead. When the going gets tough, stay positive.
- **Relax.** Try yoga, meditation or relaxation exercises. Set aside time to slow down. Listen to music, read a book or take a hot bath.
- **Quit smoking.** Smoking can trigger headaches or make them worse.
- **Lose weight.** Recent data suggests that **obesity** is linked to chronic migraine.