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Patient information: Headache in children (Beyond the Basics)**Authors**

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HEADACHE OVERVIEW — Headaches are common in children, occurring in up to 90 percent of school-age children.

Headaches become more frequent as a child becomes older. There are many possible causes of headaches, from common and non-harmful to more serious but rare conditions.

This topic reviews the causes, evaluation, and treatment of headaches in children. A separate topic discusses headaches in adults. (See "[Patient information: Headache causes and diagnosis in adults \(Beyond the Basics\)](#)" and "[Patient information: Headache treatment in adults \(Beyond the Basics\)](#)".)

HEADACHE CAUSES — There are numerous possible causes of headaches in children. The most common causes include the following:

- Viral or upper respiratory infections (including ear infections, the common cold, allergies, sinus infections, strep throat)
- Stress-related or stress-worsened headaches (eg, family or school problems)
- Minor head injury
- Migraine or cluster headaches
- Tension

Only a small minority of children with headaches have a serious cause, such as a brain tumor or life-threatening infection.

TYPES OF HEADACHES — The symptoms of a headache in a child depend upon the child's age and the type of headache. The most common types of headaches in childhood are illness or injury-related, tension-type, migraine, and cluster.

Illness or injury-related headaches — Viral or upper respiratory infections are a common cause of headaches in children. The headache may last for several days during the course of an illness.

Bacterial meningitis, a serious and sometimes life-threatening infection, can also cause a headache, although other signs and symptoms are usually also present. These may include fever, sensitivity to light, neck stiffness, nausea, vomiting, confusion, lethargy, and/or irritability. (See "[Patient information: Meningitis in children \(Beyond the Basics\)](#)".)

Head injuries, which can occur at home, school, or while playing sports, are a common cause of headaches. Children who have a head injury and who also have nausea, vomiting, loss of consciousness, or other worrisome signs or symptoms should be evaluated by a healthcare provider. (See "[When to seek help](#)" below and "[Patient information: Head injury in children and adolescents \(Beyond the Basics\)](#)".)

Tension-type headaches (TTH) — Tension-type headaches (TTH) cause a pressing tightness, usually located over the forehead, although it may feel like a tight band around the head. The pain is usually mild to moderate, does not throb, and it may last from 30 minutes to several days. Some children with TTH are sensitive to light or noise or feel lightheaded or tired. TTH does not usually cause nausea or vomiting and is not made worse by normal daily activities.

Migraine headaches — The symptoms of migraine vary with age. Migraines in children may have different symptoms than in adults.

- In toddlers, a caregiver may notice that the child is pale and/or less active than usual. An older child may vomit, cry, rock in place, or hide. Occasionally, toddlers with migraine become temporarily unsteady and off-balance, and act as though they are afraid to walk.
- In young children, the headache often begins in the late afternoon. The pain is usually pounding or throbbing, lasts between one and two hours, and may involve one or both sides of the head or the entire head. The headache is often accompanied by nausea and sensitivity to light and noise. A child may vomit one or more times.
- In adolescents, the headache pain usually begins gradually, intensifies over minutes to hours, and resolves gradually at the end of the attack. The headache is typically dull, deep, and steady at first, and may become throbbing or pounding if severe. Migraine headaches may be worsened by light, sneezing, straining, constant motion, physical exertion, or head movement. The pain usually lasts a few hours but can last up to 72 hours.
- Other symptoms can include passing out, abdominal pain, and motion sickness. Family members may have undiagnosed or misdiagnosed migraines (as an example, diagnosed with sinus headaches rather than migraines).

Aura — Some children with migraine headaches experience changes in their vision for several minutes before the headache. This is referred to as an aura. The aura may include flashing lights or bright spots, zigzag lines, or partial loss of vision.

Cluster headaches — Cluster headaches are severe, debilitating headaches that occur repeatedly for weeks to months at a time, followed by headache-free periods. Fortunately, cluster headaches are rare in children younger than 10 years of age and only affect approximately 0.1 percent of children age 10 to 18 years. Cluster headaches are more common in boys.

The headache is usually deep, excruciating, continuous, and explosive in quality. Cluster headaches commonly cause eye redness and tear production on the side where the pain occurs, a stuffy and runny nose, sweating, a pale appearance, and possibly drooping of the eyelid. The headache is usually short in duration (between 15 minutes and 3 hours). There are also shorter-duration cluster headaches that have a similar quality and associated features but that last only last seconds to minutes.

Chronic daily headaches — When a headache is present for more than 15 days per month for at least three months, it is described as a chronic daily headache. Often, chronic daily headaches occur every day, and some people complain that they are present continuously for months. Chronic daily headache is not a type of headache but a category that includes frequent headaches of various kinds. Most children with chronic daily headache have migraine or tension-type headache as the underlying type of headache. Some children with frequent headache use headache medications too often, which may lead to the development of "medication-overuse headache".

HEADACHE EVALUATION — Headaches can often be treated at home. If a child is otherwise well and does not have worrisome signs or symptoms, it is reasonable to treat the child before seeking medical attention.

When to seek help — If a child has one or more of the following, s/he should be evaluated by a healthcare provider before any treatment is given:

- If the headache occurs after a head injury
- If the pain is severe or there are associated symptoms, such as vomiting, changes in vision or double vision, neck pain or stiffness, confusion, loss of balance or unsteadiness, and/or fever (temperature higher than 100.4°F/38°C)
- If the headache awakens the child or occurs upon waking
- If headaches occur more than once per month
- If the child is younger than three years of age
- If the child has certain underlying medical conditions such as sickle cell disease, immune deficiency, bleeding problems, neurofibromatosis, or tuberous sclerosis complex

History and physical examination — In most cases, the cause of a child's headache can be determined with a complete

medical history and physical examination.

In some cases, the provider will ask the parent/child to keep a headache diary for several months. A diary can provide detailed information about the time, date, and features of headaches ([table 1](#)).

Imaging tests — The need for an imaging test depends upon the individual child's signs and symptoms, physical examination, and medical history. However, most children with a headache who have a normal physical examination will not require an imaging test such as a CT scan (computed tomography) or MRI (magnetic resonance imaging). If a child has an abnormal neurologic examination, has a new severe headache, or has other worrisome signs or symptoms, an imaging test will usually be recommended.

HEADACHE TREATMENT — The treatment of headaches depends upon the child's age, the type and frequency of headaches, and other characteristics.

Illness or injury-related headache treatment — A child who has a headache caused by an underlying illness or minor head injury can be treated similarly to a child with a tension-type headache (see '[Infrequent TTH](#)' below). However, it is important to be aware of signs or symptoms that could indicate a more serious condition, which should be evaluated by a healthcare provider. (See '[When to seek help](#)' above.)

Tension-type headache treatment

Infrequent TTH — Infrequent tension-type headache (TTH) is defined as occurring less than once per month. Children with infrequent tension-type headaches may be treated with an over-the-counter pain medication, such as children's [acetaminophen](#) (sample brand name: Tylenol) or [ibuprofen](#) (sample brand names: Advil, Motrin). [Aspirin](#) is not recommended in children who are less than 18 years old due to the risk of a rare but serious condition called Reye syndrome. The dose of acetaminophen and ibuprofen should be based upon the child's weight, rather than age.

Other suggestions include the following:

- Identify and reduce or eliminate any factor that causes or worsens headaches, based upon information from the headache diary (eg, stress, lack of sleep, dietary factors).
- Notify the child's healthcare provider if any warning signs develop, including fever, stiff neck, loss of vision, or double vision.
- Rest – Ask the child to lie down and relax, and apply a cool wet cloth to the forehead. Talk to the child to determine if he or she is worried or anxious about activities at home or school.
- Stretch and massage – Stretch and massage the neck muscles if they are tight or tender.
- Food – If the child has not eaten recently, offer a snack. Skipping meals can sometimes worsen a headache.

Frequent or chronic TTH — If a child has frequent or chronic TTH, the first line of treatment is an over-the-counter (OTC) rescue pain medication, such as children's [acetaminophen](#) (sample brand name: Tylenol) or [ibuprofen](#) (sample brand names: Advil, Motrin). [Aspirin](#) is not recommended in children who are less than 18 years due to the risk of a rare but serious condition called Reye syndrome.

To avoid medication-overuse headache (also called "rebound" headaches), OTC pain medications should not be used more than two days in a given week without the express recommendation of a clinician. In addition, the daily dose should not exceed that recommended by the manufacturer.

Programs that help to alleviate stress may also be helpful for children with chronic TTH. This may include psychological counseling, relaxation therapy, or biofeedback. Biofeedback teaches the child to voluntarily control certain body functions, like heart rate, blood pressure, and muscle tension.

If the headaches do not improve with rescue medication, the healthcare provider may recommend that the child be evaluated by a specialist (eg, neurologist). The specialist may recommend a medication, such as a small daily dose of a tricyclic antidepressant (TCA), such as [amitriptyline](#) (Elavil). The dose of TCAs used for treating chronic pain is typically much lower than that used for treating depression. It is believed that TCAs reduce pain perception when used in low doses, although the exact mechanism of their benefit is unknown.

Migraine headache treatment

General measures — Many triggers can bring on a headache attack or worsen a preexisting headache. The specific factors that trigger attacks can differ from one person to another. A partial list appears in the Table ([table 2](#)). Children who have frequent or severe migraines should keep a record of their headaches in a headache diary ([table 1](#)). This can help to determine if a specific trigger can be avoided to prevent future headaches.

There are two types of migraine treatments: abortive and preventive. Abortive treatments are given to treat the current migraine symptoms (eg, pain, nausea, etc), while preventive treatments are given to prevent migraines from developing.

Abortive treatments — The first medication generally recommended to stop a migraine is an over-the-counter rescue pain medication, such as [acetaminophen](#) (sample brand name: Tylenol) or [ibuprofen](#) (sample brand names: Advil, Motrin). This should be given as soon as possible, at the first sign of the migraine.

If the child develops nausea or vomiting, a prescription medication may be given to relieve these symptoms. One of the most commonly recommended anti-nausea medications for children older than two years is [promethazine](#) (sample brand name: Phenergan). Promethazine may be given by mouth or as a suppository in the rectum.

If the headache does not improve or if the child begins vomiting before [acetaminophen](#) or [ibuprofen](#) is given, a medication called a triptan may be recommended. In children who are five years and older, triptans are usually given by nasal spray. The best studied triptans in children are [sumatriptan](#) (sample brand name: Imitrex) and [zolmitriptan](#) (sample brand name: Zomig). Parents should discuss the potential risks and benefits of triptans with their child's healthcare provider.

The most common side effect of [sumatriptan](#) nasal spray is an unpleasant taste in the mouth. This can be minimized by tilting the head forward and/or sucking on a hard candy as the spray is given. [Zolmitriptan](#) nasal spray does not have an unpleasant taste.

Preventive treatments — The safety and efficacy of preventive treatments for migraine headaches in children have not been well studied. Some experts have found the following medications to be helpful, although the most effective treatment will depend upon the age and characteristics of the individual child.

- [Cyproheptadine](#) (brand name: Periactin) is an antihistamine that is sometimes given to prevent migraines in adults. It may be recommended for migraine prevention in young children. Side effects can include sleepiness and increased appetite.
- [Propranolol](#) (sample brand name: Inderal) is a blood pressure medication that is frequently given to prevent migraines in adults. It is sometimes recommended for prevention of migraines in children. The child's heart rate and blood pressure should be monitored during treatment, as both may be lowered by the medication. Propranolol should not be used by children with asthma or type 1 diabetes.
- [Amitriptyline](#) (brand name: Elavil) is a tricyclic antidepressant that, when given at low doses, can help to reduce the frequency, severity, and duration of migraine headaches. The medication is usually given at bedtime because it can cause sleepiness. The dose may be increased slowly over time as needed.
- Although scientific studies have not shown herb or vitamin supplements to be effective in all cases, some patients have found riboflavin or coenzyme Q10 to be helpful as a preventive treatment for migraines. These agents are unlikely to be harmful. Nonetheless, parents should talk to their child's healthcare provider before using this type of treatment.

Menstrual migraine treatment — Some adolescent girls have migraine headaches around the time that their menstrual period begins. If the migraines occur infrequently, they are usually treated with an abortive treatment, as described above. (See ['Abortive treatments'](#) above.)

If menstrual migraines occur on a predictable schedule, a preventive treatment may be recommended. This is usually started a few days before and continues for a few days after the menstrual period starts. Preventive treatments may include a nonsteroidal anti-inflammatory medication (eg, [naproxen](#)), a birth control pill, or a triptan. (See ["Patient information: Headache treatment in adults \(Beyond the Basics\)"](#).)

Cluster headache treatment — Cluster headaches are usually managed by a specialist (eg, neurologist). The treatment of cluster headaches in children is based upon treatments that have been successful in adults. Cluster headaches are poorly studied in children because they occur so rarely. (See ["Patient information: Headache treatment in adults \(Beyond the Basics\)"](#).)

Chronic daily headache treatment — The treatment of chronic daily headaches usually centers on lifestyle changes. Since many children with chronic daily headache overuse headache medications, it is important to discontinue any overused pain medications (eg, [acetaminophen](#) [sample brand name: Tylenol]) as quickly as possible. Management of chronic daily headache requires a coordinated approach with the child's clinician and should be individualized according to the needs of the child; clear guidelines regarding the use of OTC medications should be discussed.

Lifestyle changes include drinking an adequate amount of fluids, reducing or eliminating caffeine, getting regular exercise, eating and sleeping on a regular schedule, and stopping smoking.

Some children with chronic daily headaches stop attending school or other normal daily activities. It is important to encourage the child to return to these activities as a part of treatment. If necessary, the child can be allowed to lie down in the school nurse's office for a brief period (eg, 15 minutes once daily) when headache pain is worst.

WHERE TO GET MORE INFORMATION — Your child's healthcare provider is the best source of information for questions and concerns related to your child's medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient information: Headaches in children \(The Basics\)](#)

[Patient information: Headache \(The Basics\)](#)

[Patient information: Migraine headaches in children \(The Basics\)](#)

[Patient information: Closed head injury \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

[Patient information: Headache causes and diagnosis in adults \(Beyond the Basics\)](#)

[Patient information: Headache treatment in adults \(Beyond the Basics\)](#)

[Patient information: Head injury in children and adolescents \(Beyond the Basics\)](#)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Approach to the child with headache](#)

[Classification of migraine in children](#)

[Emergent evaluation of headache in children](#)

[Management of migraine headache in children](#)

[Pathophysiology, clinical features, and diagnosis of migraine in children](#)

[Tension-type headache in children](#)

The following organizations also provide reliable health information.

- The Children's Hospital of Philadelphia

(<http://www.chop.edu/healthinfo/headaches.html>)

- The Nemours Foundation

(kidshealth.org/parent/general/aches/headache.html, available in Spanish)

- American Headache Society

(www.achenet.org/resources/headaches_in_children/)

[1-4]

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Headache triggers

Diet	Stress
Alcohol	Let-down periods
Chocolate	Times of intense activity
Aged cheeses	Loss or change (death, separation, divorce, job change)
Monosodium glutamate (MSG)	Moving
Aspartame (Nutrasweet)	Crisis
Caffeine	Changes of environment or habits
Nuts	Weather
Nitrites, Nitrates	Travel (crossing time zones)
Hormones	Seasons
Menses	Altitude
Ovulation	Schedule changes
Hormone replacement (progesterone)	Sleeping patterns
Sensory stimuli	Dieting
Strong light	Skipping meals
Flickering lights	Irregular physical activity
Odors	
Sounds, noise	

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