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# Migraine

Migraine causes attacks of headaches, often making you feel sick or causing you to be sick. Treatment options include avoiding possible triggers, painkillers, anti-inflammatory painkillers, anti-sickness medicines, and triptan medicines. A medicine to prevent migraine attacks is an option if the attacks are frequent or severe.

## What is a migraine?

Migraine is a condition that causes attacks (episodes) of headaches. Other symptoms such as feeling sick (nausea) or being sick (vomiting) are also common. Between migraine attacks, the symptoms go away completely.

### Migraine vs. headache

'Migraine' and 'headache' can be confusing terms. Many people use the term 'migraine' to mean a severe headache.

To doctors, a 'headache' is a symptom, whereas 'migraine' is a diagnosis. Lots of different things can cause headaches. Migraines are one of them, and are a very common cause of headaches.

So, a headache is one of the common symptoms of a migraine attack. Migraine attacks can also cause many other symptoms.

Typically, headaches due to migraines:

- Last between 4 to 72 hours (unless they end sooner due to treatment).
- Affect one side of the head.

- Feel like a pulsating or throbbing pain.
- Cause moderate or severe pain.
- Are worsened by simple physical activity (such as walking or climbing stairs) - during a migraine attack, people might avoid doing these things as a result.
- Are associated with feeling sick or vomiting, with difficulty looking at bright lights, or sensitivity to loud noises.

Not everyone has all of these symptoms. There are also other potential symptoms in certain types of migraine - see below for details.

### Migraine vs. tension headache

Tension headaches are another common cause of headaches, and can be confused with migraines.

Typically, tension headaches:

- Last between 30 minutes and 7 days.
- Affect both sides of the head.
- Feel like a pressing or tightening pain.
- Cause mild to moderate pain.
- Aren't worsened by simple physical activity, such as walking or climbing stairs.
- Aren't associated with feeling sick, vomiting, finding it difficult to look at bright lights, or being sensitive to loud noises

See the separate leaflet called Tension headache for more details.

People with migraine can also develop tension headaches as well, but these will feel different to their migraines.

### Migraine vs. cluster headaches

Cluster headaches can also be confused with migraine.

Typically, cluster headaches:

- Cause very severe headaches or head pain, usually felt around one eye or over the temple on one side.
- Last between 15 minutes and 3 hours.
- Occur in 'clusters', meaning that they happen frequently (from multiple times a day to every other day) for a time, usually weeks or months.
- Can be associated with eye watering, facial or forehead sweating, eye redness, or nasal congestion on the same side as the headache.

See the separate leaflet called Cluster headaches for more information.

## What causes migraines?

Migraines are one of the "primary" headache disorders. Primary headache disorders are standalone conditions, whereas "secondary" headaches are caused by other medical problems.

We don't fully understand why migraines happen.

An old, but still influential, theory is that changes in blood flow in the brain cause migraines. This theory proposed that narrowing of blood vessels caused migraine auras, and that when those blood vessels then widen, this causes the headache. However, more recent research indicates that this is not the case, or, at least, that it's not the full story.

It is now thought that some chemicals in the brain increase in activity and parts of the brain may then send out confusing signals which cause the symptoms. The exact changes in brain chemicals are not known. It is also not clear why people with migraine should develop these changes. However, something may trigger a change in activity of some brain chemicals to set off a migraine attack.

Recent research has looked at the role of calcitonin gene-related peptide (CGRP) in migraine development. CGRP release seems to be important for transmitting pain signals in migraine. New treatments that target CGRP have been successfully used to treat migraine.

### Family history

Migraines are more common in people who have relatives who suffer from migraines. So, there is probably a genetic component to migraines. This is complicated, and not clearly understood.

It's possible that there are many different genes involved in migraines, and that some people inherit a set of genes that make them more likely to develop migraines later.

There are also some very rare types of migraines that do have a clear genetic link, such as familial hemiplegic migraine (see below).

## Migraine symptoms

Migraines have up to four different stages, with different symptoms.

Some people only experience one or two of these stages, whereas others go through all of them.

### Migraine prodrome

This is the very first part of a migraine attack. Most, but not all, people with migraine experience this, although they may not realise it. The prodrome phase indicates that a migraine is starting. It can last from hours to days.

Symptoms can include:

- Feeling irritable.
- Feeling depressed or low.
- Feeling tired.
- Having cravings for certain foods.

- Yawning more than usual.
- Neck pain or stiffness.
- Feeling restless.
- Feeling thirsty.

Some people get other symptoms, or just have a feeling that they know a migraine is going to occur.

### Migraine aura

About a quarter of people with migraines experience auras, which occur just before the headache starts. Having these means you have **migraine with aura**. If you have this, you might get an aura during some migraine attacks, but not in others.

Auras are sometimes called 'warning signs' that indicate a migraine headache is about to start.

Typical auras include:

- **Visual auras** (the most common type of aura), which usually affect one side, such as:
    - A temporary loss, or blurring, of part of your vision.
    - A bright, flashing light, often in a C-shaped pattern, a bit like looking through an old-fashioned kaleidoscope, or zig-zag lines.
    - Objects or letters on a page may seem to rotate, shake, or boil.
- **Sensory auras** (the second most common type of aura), which cause:
    - Numbness or tingling - usually starting on one side of the body, in one area, and spreading. For example, it might start in the hand, and travel up the arm to affect the face and lips, and sometimes the leg.

- **Language auras** (less common), which can cause:
    - Difficulty finding the right word when speaking, or jumbling up words.
    - Difficulty understanding language.
    - Slurred and hard-to-understand speech.
- **Brainstem auras** (previously called basilar migraines), which cause two or more of the following:
    - Slurred speech.
    - Vertigo.
    - Unsteadiness when walking.
    - Double vision.
    - Tinnitus (ringing in the ears).
- **Motor auras** (rare). These cause weakness of one side of the body, as part of hemiplegic migraines (see below).

Weakness on one side of the body, numbness on one side of the body, slurred speech, and difficulties speaking can also be symptoms of a **stroke** or **TIA**.
Telling the difference between a stroke or TIA and a migraine aura can sometimes be difficult, even for doctors.
If you're unsure whether you are having a migraine attack, a stroke, or a TIA, seek emergency medical help.
This is particularly important if it's the first time these symptoms have happened to you.

Other types of migraine aura include an odd smell, food cravings, a feeling of well-being, and other odd sensations.

Auras typically last anywhere from a few minutes to an hour.

The headache phase, or migraine attack, usually starts within an hour of the aura ending. Sometimes, they occur at the same time.

### Migraine attack

This is also called the headache phase of a migraine, and is the part that people are most familiar with.

If you only get the headache phase, and never get migraine auras, you have **migraine without aura**. Around three-quarters of people with migraines have this.

The symptoms of this phase include:

- **The headache**, which is usually on one side of the head, typically at the front or side. Sometimes it is on both sides of the head. Sometimes it starts on one side and then spreads all over the head. The pain is moderate or severe and is often described as throbbing or pulsating. Movements of the head may make it worse. It often begins in the morning but may begin at any time of the day or night.
- Feeling sick (nausea).
- Being sick (vomiting).
- Sensitivity to light and sound. People experiencing a migraine attack often want to lie down in a dark room and sleep it off.

- Other symptoms can include:
    - Being off food.
    - Blurred vision or blind spots.
    - Poor concentration.
    - Stuffy nose.
    - Hunger.
    - Diarrhoea.
    - Tummy (abdominal) pain.
    - Passing lots of urine.
    - Going pale.
    - Sweating.
    - Scalp tenderness.
    - Sensations of heat or cold.

The main migraine attack, or headache phase, can last from a few hours to a few days.

### Migraine hangover (postdrome)

Many people go through a recovery phase after the pain of a migraine attack ends.

This is sometimes called a migraine hangover, and can feel very similar to a hangover after drinking alcohol.

Symptoms can include:

- Feeling exhausted or tired.
- Feeling nauseous.
- Having body aches.

- Brain fog or difficulty concentrating.
- Feeling lightheaded or dizzy.
- Feeling low and depressed, or feeling the opposite, full of energy and euphoric (very happy).

Migraine hangovers can last anywhere from a few hours to a few days.

## Types of migraine

There are various different types of migraine. Some people experience more than one. Different migraine types include:

### Migraine without aura

This is the most common type of migraine.

As the name suggests, this describes a migraine attack that occurs without a migraine aura.

### Migraine with aura

Around one quarter of people with migraines get migraines with aura. These are migraine attacks where auras occur before the headache starts. Examples of auras are discussed above.

### Menstrual migraine

Some women get migraine attacks around the beginning of their menstrual period. These usually occur in the two days before a period starts, or in the first three days of menstrual bleeding.

This includes women who only get migraines around the start of their period, as well as women who get migraines at other times too, but get particularly bad migraines around the start of their period.

It's thought that these are triggered by the natural drop in oestrogen levels which occurs before a period.

It can also happen in women taking the combined contraceptive pill during the pill-free week, due to the drop in oestrogen that happens then.

### Silent migraine

Sometimes, people can get migraine symptoms without a headache. For example, they might get aura symptoms, such as flashing lights or blurred vision, and other migraine symptoms such as feeling sick and being sensitive to light, but without developing a headache.

These are sometimes called silent migraines. The medical term for these is 'acephalgic migraine', which literally means 'migraine without head pain'.

Depending on the symptoms, it can sometimes be difficult to tell these apart from other conditions, such as a transient ischaemic attack (TIA), stroke, or some forms of epilepsy.

### Abdominal migraine

This mainly occurs in children. Instead of headaches, the child has attacks of tummy (abdominal) pain which last several hours. Typically, during each attack there is no headache, or only a mild headache.

These may be associated with feeling sick (nausea), being sick (vomiting) or aura symptoms.

Children with abdominal migraines usually stop getting them as they grow up, but many of them develop migraine headaches at some point.

They can also occur in adults, although this seems to be rare.

### Ocular migraine

This is sometimes also called retinal migraine, ophthalmic migraine or eye migraine.

They causes temporary loss of all or part of the vision in one eye. This may be with or without a headache.

Each attack usually occurs in the same eye. There are no abnormalities in the eye itself and vision returns to normal.

In ocular migraine, the visual symptoms affect only one eye. In migraine with visual aura, the aura usually affects vision in both eyes.

**Important note**: consult a doctor urgently if you have a sudden loss of vision (particularly if it occurs for the first time). There are various causes of this and these need to be ruled out before ocular migraine can be diagnosed.

### Hemiplegic migraine

This is a rare type of migraine with aura.

Hemiplegia is a medical term for weakness or paralysis of one side of the body. So, hemiplegic migraines cause weakness of one side of the body. This may last up to several hours, or even days, before resolving.

Other possible symptoms include:

- Severe dizziness (vertigo).
- Double vision.
- Visual problems.
- Hearing problems.
- Difficulty speaking or swallowing.

**Important note**: consult a doctor urgently if you get sudden weakness (particularly if it occurs for the first time). There are other causes of this (such as a stroke) and these need to be ruled out before hemiplegic migraine can be diagnosed.

Hemiplegic migraine can be inherited (familial hemiplegic migraine), which runs in families, or occur for the first time in people with no family history (sporadic hemiplegic migraine).

### Vestibular migraine

This is a type of migraine which causes vertigo (a feeling of motion, or like the room is spinning) and severe dizziness. Typical migraine symptoms, such as a headache, usually occur at the same time, although in some episodes the vertigo can occur without any other migraine symptoms.

Vestibular migraine symptoms can last anywhere from a few minutes, up to 72 hours.

### Migraine with brainstem aura

This is a rare type of migraine with aura. It used to be called a basilar or basilar-type migraine.

Symptoms typically include headache at the back of the head (rather than one-sided as in common migraine). They also tend to include strange aura symptoms such as:

- Temporary loss of vision.
- Double vision.
- Dizziness.
- Ringing in the ears.
- Jerky eye movements.
- Trouble hearing.
- Slurred speech.

Unlike hemiplegic migraine, basilar-type migraine does not cause weakness.

**Important note**: consult a doctor urgently if you develop the symptoms described for basilar-type migraine (particularly if they occur for the first time). There are other causes of these symptoms (such as a stroke) and these need to be ruled out before basilar-type migraine can be diagnosed.

### Status migranosus

Migraine attacks typically last a maximum of 72 hours, and often much less than this (especially with effective treatment).

Status migranosus is a particularly severe type of migraine attack. It describes a migraine attack that is persistent and has lasted more than 72 hours without relief, or with brief episodes of relief (from medication or sleep) only.

There are various different treatments for status migranosus. Sometimes, it needs treatment in hospital.

## Migraine triggers

Most migraine attacks occur for no apparent reason. However, something may trigger migraine attacks in some people. Triggers can be all sorts of things. For example:

- **Diet**. Missing meals, becoming dehydrated, drinking alcohol, and drinking lots of caffeine can all trigger migraines.
    - Caffeine withdrawal can also be a trigger, eg, people who drink lots of coffee during the week but none at the weekend can get caffeine withdrawal migraines at the weekend.
    - Various foods - such as cheese and chocolate - are possible migraine triggers, but it's also possible that people get cravings for these as part of a migraine prodrome, meaning that they eat them before a migraine attack, but that they aren't actually causing it.

- **Environmental**. Smoking and smoky rooms, glaring light, VDU screens or flickering TV sets, loud noises, strong smells.
- **Psychological**. Depression, anxiety, anger, tiredness, stress, etc. Many people with migraine cope well with stress but have attacks when they relax, leading to so-called weekend migraine.
- **Medicines**. For example, hormone replacement therapy (HRT), some sleeping tablets, and the contraceptive pill. See the separate leaflet called Migraine and combined hormonal contraception for more details.
- **Other**. Periods (menstruation), shift work, different sleep patterns, and the menopause.

It may help to keep a migraine diary. Note down when and where each migraine attack started, what you were doing, and what you had eaten that day. A pattern may emerge, and it may be possible to avoid one or more things that may trigger your migraine attacks. See the leaflet called Migraine trigger diary. This gives more details and includes a diary that you can print out and fill in.

## How long do migraines last?

Typically the headache of a migraine without aura lasts from 4 hours to as long as 72 hours.

A migraine aura usually takes a few minutes to develop then lasts for five minutes to an hour before the headache comes. The headache usually starts within an hour of the aura ending and lasts the same as the headache of a migraine without aura.

Migraines can have up to four phases (see above), although not everyone experiences all of these.

## Migraine treatment

There are various treatments for a migraine attack, from simple painkillers to migraine medication which is specifically for migraine, such as triptans.

If you take painkillers too often for any kind of headache you may develop **medication-overuse headache** (also called medication-induced headache and sometimes also called an analgesic headache). You can read more about this type of headache in the separate leaflet called Migraine treatment.

There is also evidence which suggests that a whole food plant-based diet may offer a safe, effective and permanent treatment for reversing chronic migraine.

There are also various treatments you can take to *prevent* migraine attacks, if you have frequent or severe attacks. It may not stop all attacks, but their number and severity are often reduced. Medicines for preventing migraines are taken every day. They are not painkillers and are different to those used to treat each migraine attack.

## Migraine and children

Some points to note about migraine in children include the following:

- Migraine is common in children. It affects about 1 in 10 children of school age.
- Symptoms can be similar to those experienced by adults. However, sometimes symptoms are not typical. For example, compared with adults, attacks are often shorter, and pain may be on both sides of the head. Also, associated symptoms such as feeling sick (nausea) and being sick (vomiting) may not occur.
- Abdominal migraine (described above) mainly affects children.
- Common triggers in children include missing meals, lack of fluid in the body (dehydration), and irregular routines. So, if a child is troubled with migraine attacks, it is important to try to have regular routines, with set meals and bedtimes. Also, encourage children to have plenty to drink.

- Many of the medicines used by adults are not licensed for children. Find out more about migraine medication for children in the separate leaflet called Migraine treatment.

## Migraine when pregnant or breastfeeding

The good news is that about 2 in 3 women with migraine have an improvement whilst pregnant or breastfeeding. However, about 1 in 20 women with migraine find that their migraine gets worse whilst pregnant. The bad news is that some of the medicines used to treat migraine should not be taken by pregnant or breastfeeding women . Learn more about migraine medication when pregnant or breastfeeding in the separate leaflet called Migraine treatment.

## How is migraine diagnosed?

Migraine is diagnosed based on your symptoms.

A doctor should ask about the symptoms in detail, including the features of the headaches and how they are affecting you. They should also ask about other symptoms that might suggest a different cause for your headaches. They should also perform a physical neurological examination. In migraine, the neurological examination should be normal.

There is no test that confirms migraine as the diagnosis. Similarly, tests such as brain scans are not required to make a diagnosis of migraine.

Instead, tests are only useful to rule out other causes of headaches. So, tests might be done if someone has symptoms that are not typical for migraine, or if they have symptoms that suggest another cause of headaches.

Tests are often done in some of the rarer types of migraines, such as hemiplegic migraine and ocular migraine, because the symptoms can be very similar to a TIA, stroke, or another serious problem, and it can be very difficult to tell them apart sometimes.

Remember, if you have migraine, you do not have symptoms between attacks. It is the episodic nature of the symptoms (that is, they come and then go) that is typical of migraine. A headache that does not go, or other symptoms that do not go, are not due to migraine.

## Can you prevent migraines?

There are various different things that can help to prevent migraines. These can make migraines happen less often, although it's difficult to completely prevent all migraines.

Everyone has different triggers for migraines. Identifying your own migraine triggers can help you to minimise or avoid them. Keeping a headache diary is really useful for working out what triggers a migraine for you.

General things that can help to prevent migraines include:

- Sticking to a daily routine for eating and sleeping. Try to have regular meal times and avoid skipping meals if you can. Changes in sleeping patterns can also trigger migraine - try to get into a consistent sleep routine where you go to sleep and wake up at the same times every day.
- Staying hydrated. Dehydration can trigger migraines. Try sipping on water throughout the day. Aim to drink about 1.5 to 2 litres of water a day.
- Minimising, or avoiding, alcohol. Any type of alcohol can trigger migraines, although some drinks can be more of a trigger than others - red wine is a common culprit.

- Controlling caffeine intake. The links between caffeine and migraines are complicated. Caffeine is actually one of the treatments for a migraine attack. Some people, though, find that caffeine can trigger migraines for them. There is also some evidence that people who consume high amounts of caffeine regularly are more likely to get migraines. Caffeine withdrawal can also trigger migraines. So, whilst you don't need to cut out caffeine completely, it's a good idea to limit your consumption (a maximum of 200mg a day - about two cups of coffee - is sensible).
- Managing stress. Stress can be a major trigger for migraines. Try to minimise stress - where possible - and consider relaxation techniques or meditation to cope with stressful situations.
- Exercising regularly. Getting regular exercise can reduce the frequency of migraines, as well as making them less severe if they do happen. Strenuous exercise, particularly if you're not used to it, can be a migraine trigger - so aiming for regular, short sessions of moderate intensity exercise is best, at least to start with.
- Controlling computer use. Many people find that computer screens can trigger migraines. Take regular breaks when using screens. Consider fitting an anti-glare screen to your monitor. Ensure your screen is neither too bright nor too dim - it should ideally be of a similar brightness to the area around the screen.

It's also possible to take regular preventative medicines to reduce the number of migraines you get.

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## Further reading

- Headaches in over 12s: diagnosis and management; NICE Clinical Guideline (September 2012, last updated December 2021)

- The International Classification of Headache Disorders, 3rd edition (beta version).; The International Classification of Headache Disorders, 3rd edition (beta version). Cephalalgia. 2013 Jul;33(9):629-808. doi: 10.1177/0333102413485658.
- Pescador Ruschel MA, De Jesus O; Migraine Headache
- Migraine; NICE CKS, November 2024 (UK access only)
- Santos-Lasaosa S, Belvis R, Cuadrado ML, et al; Calcitonin gene-related peptide in migraine: from pathophysiology to treatment. Neurologia (Engl Ed). 2022 Jun;37(5):390-402. doi: 10.1016/j.nrleng.2019.03.025. Epub 2021 May 26.




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