What is migraine aura?
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Migraine aura is the collective name given to the many types of neurological symptoms that may occur just before or during a migraine headache.

Migraine with aura is said to be experienced by 1 in 5 migraineurs, or in 20 - 30% of people. For some time now medical professionals have believed aura to be caused due to blood vessels in the brain constricting. However, more recent explanations point to the hyperexcitability of brain cells causing changes to the brain’s chemistry, which in turn affects peoples’ ordinary senses and perceptions.

It has also been theorised that a phenomenon known as cortical spreading depression, which is associated with migraine aura, can cause migraines. In cortical spreading depression, neurological activity is depressed over an area of the cortex of the brain. It has been suggested that this results in the release of inflammatory mediators causing irritation to the cranial nerve roots, in particular the trigeminal nerve, which conveys the sensory information for the face and much of the head. This theory is however speculative and without supporting evidence.

Aura is a fully reversible neurological syndrome which can develop over 5 minutes and last for up to 2 hours. In rare situations, certain individuals can experience aura lasting days, weeks or even months. It tends to occur before the onset of a headache, with a headache usually developing within an hour after the aura has disappeared, but it may develop a lot sooner or the aura and headache may be present at the same time. Migraineurs who experience auras tend to report them very differently, some find that in certain circumstances the headache precedes the aura, whilst for others they experience the headache alongside the aura. Reports indicate that sometimes migraineurs will experience only the aura and no headache will follow. However, it seems true that most people who have migraine with aura, also have episodes of migraine without aura.
Having a headache or aura symptoms are not normally the first sign of an impending migraine attack; some migraineurs start to feel “strange” a day or so before the attack begins. These strange feelings, known as the prodrome, are the first signs of the attack and can include:

<table>
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<tr>
<th>Cravings for certain foods, often sweet</th>
<th>Tiredness</th>
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<tr>
<td>Excitability</td>
<td>A change of mood</td>
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<td>Hyperactivity</td>
<td>Yawning</td>
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**Forms of aura**

The aura may manifest itself in a variety of ways, the most common manifestation being **visual**. When visual aura occurs without warning, a blind spot may appear in a similar location in both eyes. For example, blind spots which increase in size, or a zig-zagging or sparkling margin. It may be accompanied by apparent flashing lights, by geometric shapes, or by unusual forms. Some migraineurs may experience unusual perceptions or hallucinations and a very rare form of aura known as “Alice in Wonderland” syndrome. This syndrome is identified by the perceptions of the sufferer; their body or other peoples’ bodies look distorted, so that things appear larger or smaller than usual, or further or closer away (“macropsia / micropsia”).

When the aura is **sensory** (changes to your sense of touch), the individual may experience a sensation of “pins and needles” which move up and across the face, neck, upper back, arms or legs. This tingling sensation is usually followed by a sensation of numbness which can last for up to an hour. Some people may also experience hypersensitivity, or pain in reaction to mild stimuli (“allodynia”) particularly on the scalp or forehead; however, allodynia forms part of a migraine attack and is not classed as an aura manifestation.

**Difficulty with speech and language** can also be the symptoms of an aura; a person may have difficulty thinking logically, finding words and / or making sentences and slurring speech.

**Other types of aura can include** an odd smell, mental confusion, and individuals may experience other odd / unusual sensations including fainting.

Any one of the above auras can develop individually or they can occur simultaneously.
Who may get an aura?
Any migraineur (both children and adults) can experience aura, this could be rarely, occasionally, or frequently. Auras may be present without a headache, especially in older migraineurs, and rarely in non-migraine headache disorders.

Duration and change in experience
Although, the amount of time it takes for an aura to develop varies, the aura symptoms usually last from 5 minutes to 2 hours. Sometimes one type may follow another, extending the total time of the aura symptoms. Auras may change in frequency or type over a person’s lifetime.

Types of migraine associated with aura
Aura type symptoms have been associated with particular migraine types. For example, a retinal migraine may entail complete temporary vision loss and pain centred around one eye. A basilar artery migraine tends to cause the migraineur to feel dizzy, confused or nauseous. (This type of migraine is generally more common in young women and has been linked to hormone changes throughout the month). Ocular migraine, like retinal migraine, involves pain centred over one eye and the muscles around the eye may even become paralysed. Although an ocular migraine is not a common type of aura migraine, it is recommended to consult your GP or healthcare professional if you experience these symptoms.

A status migraine is characterised by pain which lasts for more than 72 hours. The severity of the pain may mean the afflicted person requires hospitalisation. This type of headache can be triggered by various chemical or environmental toxins or may occur as a result of medication withdrawal. An acephalgic migraine can also occur. This does not include headache pain but does include visual disturbances and other symptoms, such as digestive discomfort.
When to consult a doctor
Although frightening at the time, a migraine aura almost always comes and goes without a lasting effect. However, if you experience an aura for more than an hour, have repeated auras in a short time, have auras that begin or increase with hormonal changes (related to birth control pills or pregnancy, for example), or have auras for the first time after the age of 40 years, you should consult your doctor.

Treatment options
Generally, the aura itself cannot be stopped when it is occurring but you can take medication once the headache has started to eliminate or improve the pain. Also, when migraine headaches with aura or migraine auras without headache are frequent or interfere with your daily routines, your doctor may prescribe a preventative treatment hoping to reduce the frequency of attacks. Propranolol, timolol, divalproex sodium and topiramate are some of the medicines which may be prescribed for migraine and aura prevention. Some experts have reported good results with medications that are not approved for migraine with aura prevention. These include verapamil, amitriptyline and riboflavin (vitamin B2). Unfortunately, preventative treatments will not stop your migraine symptoms from coming as there is no specific treatment for aura but they do aim to reduce the frequency and severity of symptoms when you do get an attack.

Aura, heart disease and stroke
Migraine with aura does not result in strokes in most people. It is still frightening and unpleasant but usually it’s not life threatening. There are rare exceptions where people do go on to develop a stroke, but that’s an exception rather than a rule. For example, if the average stroke risk in a woman is 9 out of 100,000 and migraine doubles the risk, the chance of stroke becomes 18 out of 100,000. This is still a very low absolute risk.

There is concern about certain medications that may make problems worse. This may mean that some of the most popular migraine medications, such as the triptans, should be avoided especially if your aura last beyond an hour. Young women who experience bouts of prolonged aura (more than an hour) should also consider alternative birth control to the contraceptive pill containing oestrogen. This pill is contra-indicated, however, the progestogen-only pill is considered safe. Oestrogen-containing drugs are thought to be safe in older women (i.e. women over the age of 50 years).

Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, will help to relieve pain and reduce inflammation if taken at the onset of the headache. [4].
Case study

One of Migraine Action’s members Simon Drew shares with us his experience of coping with migraine aura....

“From the age of 10 years, I suffered from the occasional migraine with aura; experiencing visual disturbances, such as zig-zag patterns and blinds spots, lasting up to an hour, approximately every six months. Fortunately, these auras were never followed by the severe headache that most migraineurs report.

Things changed considerably four years ago after I had a heart valve replacement operation, at the age of 34 years. Within two weeks of the operation I started experiencing auras on a daily basis. In addition to the visual auras, I also experienced other types of aura, including bouts of double vision, extreme vertigo and an uncomfortable tingling sensation down the left side of my body (including inside my mouth). I would also experience high pitched noises in my ears and my left leg would feel weak. On many days I would experience these symptoms more than once.

The effect on my life was devastating. There were so many times that I felt I couldn’t function properly as I would be either experiencing an aura, or dreading the next one. I was also extremely worried that I wouldn’t be able to hold down my job as the symptoms were interfering with my work. (I’m sure that many people who have visual auras are familiar with the experience of trying to act normally with others when a large chunk of their field of vision is missing!).

After seeing various neurologists I was diagnosed with “persistent migraine aura” and placed on the anti-convulsant drug sodium valproate (called Depakine in Belgium, where I live). This reduced the frequency of the symptoms considerably. After a while, the symptoms returned so my neurologist put me on topiramate (Topamax). This seemed to make things much worse so I am now taking sodium valproate again, but at a higher dose than before. Although, this undoubtedly reduces the frequency of the symptoms, they do still occur at least once a week and sometimes every day.
There seems to be no “silver bullet” when it comes to fixing migraine auras, but I have found a few useful strategies that help me to manage them.

I try to exercise on a regular basis and although this can sometimes be a trigger for an aura, I find that it does seem to reduce the frequency of the auras over time.

When I was at my worst and suffering greatly from these auras, I saw a psychologist who helped me put the auras into perspective and encouraged a more pragmatic approach towards them. This has helped me to realise that it is possible to carry on functioning, whilst suffering from them. The psychologist helped me see that my own negative reaction to the auras was a large part of my problem. I was probably spending more time worrying about them than actually experiencing them!

I have also started to meditate, which has been very beneficial. By focusing on my breathing for periods of thirty minutes, several times a week, I have found that I am considerably calmer and more accepting of the auras when they do arrive. Meditating frequently has helped me to reduce my stress levels, which I know can be a key trigger for auras.

I don’t know what the future holds and I panic at the thought that the medication might stop working one day. For the moment though, I think I have the upper hand.”
Tips to help cope with aura

• **Speak to your doctor about suitable preventative treatments**, such as topiramate, verapamil and amitriptyline, which can help to reduce your aura symptoms.

• **Try and improve your nerve health** by taking herbal remedies, such as Omega 3 fish oil capsules, cod liver supplements, magnesium (400mg), vitamin B2 (150mg – 400mg) and Co-enzyme Q10 (150mg) daily.

• **Exercise regularly and get plenty of fresh air**: this can help prevent attacks and is beneficial to your overall well being.

• **Try de-stressing**: practise deep breathing exercises and try to make your life less complicated by taking simple steps, such as doing things one at a time or planning ahead. For more suggestions on how to relieve stress, please visit [www.migraine.org.uk/48 suggestions](http://www.migraine.org.uk/48 suggestions) or call 0116 275 8317.

• **Take some time out to relax**: try using various complementary therapies that can help aid relaxation, such as yoga, acupuncture, physiotherapy and biofeedback. For an information booklet on migraine and relaxation, please visit [www.migraine.org.uk/relaxation](http://www.migraine.org.uk/relaxation) or call 0116 275 8317.
FAQs

Just before a migraine attack I experience a sensation of floating away from my body, whereby I am looking down on what I am actually doing at the time. This can happen during and after the attack and can last up to five days or more, I also become very disorientated. I find maintaining a conversation difficult and I cannot remember anything as my brain seems to stop functioning. I also suffer from facial paralysis and pins and needles. Is this normal?

Migraine aura is not fully understood. Although textbooks say that the aura will occur before the onset of headache and last for 5 - 60 minutes, individual experience is often different. The symptoms you describe could be attributed to migraine. Some of them do sound a little unusual however, and I would certainly recommend that you consult your GP. When loss of power or paralysis of some part of the body occurs during a migraine aura, this raises the question of further investigations, such as a brain scan or a review with a neurologist.

I seem to be experiencing various aura symptoms, such as numbness, tingling and slurred speech but do not get a headache. I went to see my GP who asked me if I had been taking drugs, I was so offended that I did not go back. Can you get aura without the headache?

Many people mistakenly believe that migraine aura is only visual disturbances when in fact it can be many other neurological symptoms, including those you have described. Migraine aura symptoms without a headache developing afterwards are quite common. Many people do not recognise these symptoms as migraine or consult their doctor and therefore remain undiagnosed. If your GP has been unsupportive you can request to see another GP or politely insist on a referral to a specialist.
FAQs

Just lately, my headache precedes aura by 4 to 5 hours and it usually consists of distorted vision and flashing lights. Is this unusual?

For most people the aura comes before the headache. But for some people, like yourself, the headache can start before the aura.

I get the “flashing lights” for 15 - 20 minutes prior to the pain and usually take Imigran or Naramig as soon as possible during the aura. I have heard, however, it is more effective to delay taking the tablets until after the aura when the pain begins. Please could you tell me the best time to take medication or whether this makes any difference?

Research suggests that for the majority of people triptans (e.g. Imigran and Naramig) are most effective if taken at the onset of the headache phase of the attack.

I have suffered from migraines in which the headache precedes the aura. My aura consists of mobility difficulties and I also get skin sensitivity, which can be quite painful, vertigo, tingling in the limbs, especially the legs and very slight phonophobia (sensitivity to sound). Occasionally, I get strange smell sensations. I never lose consciousness and only on extremely rare occasions do I suffer verbal difficulties, should I be concerned?

Although for most people aura usually comes before the headache, in some people aura starts at the same time as the headache or after the headache. Some people experience an aura and get very little in the way of a headache or no headache at all. Verbal difficulties, such as struggling to get words out are also relatively common in migraine. The unusual feature of your auras however, is the mobility problem. Loss of power or paralysis can happen during migraine auras, but it is relatively unusual. It is generally accepted as a reason to have a brain scan to check for abnormalities, such as an extra collection of blood vessels. Therefore discussing this with your doctor is recommended.
FAQs

What causes migraine aura? I understood that it was the production of excess serotonin which caused the aura by constricting the blood vessels, but now I’ve been told that in fact serotonin dilates rather than constricts. Is this correct?

Part of the migraine process involves a release of serotonin from its storage sites in the body into the bloodstream. This causes changes to the neurotransmitters (chemicals) and blood vessels. Serotonin is just one of the chemicals involved in the migraine process. The mechanisms of how this causes the symptoms of migraine and why the symptoms can differ from person to person are not fully understood. Some research suggests that it is the changes in the brain chemicals that cause the aura not the blood vessel changes, but this is a matter of much debate. It seems likely that something is temporarily malfunctioning in the brain during the aura and that the constriction of the blood vessels happens because of this (rather than the constriction of the blood vessels being the cause of it). Research continues to better understand the migraine process.

The frequency of my migraine with aura seems to have increased from only getting two or three a year to now getting them weekly. Are these kind of migraines usually associated with menopause approaching as they seemed to coincide with a shortening of my menstrual cycle?

Migraine often evolves throughout a person’s lifetime and many women notice a change (usually an increase in frequency and severity) as they approach the menopause. As people get older they often report that aura symptoms become more prevalent. A change in the pattern of your migraines is a good reason to seek medical advice, it is best to speak to your doctor when you notice a change in your headache pattern.
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For further information, advice on migraine management and for updates on the latest migraine research, please contact Migraine Action by calling 0116 275 8317, emailing info@migraine.org.uk, or visiting the charity’s website at www.migraine.org.uk. All of our information resources and more are only made possible through donations and by people becoming members of Migraine Action. Visit www.migraine.org.uk/donate to support one of our projects or visit www.migraine.org.uk/join to become a member.