

Adder bites

Facts and advice



The adder is Britain's only venomous snake. While the likelihood of being bitten by an adder is extremely small, some people and pets are bitten each year. An adder bite is very rare but when it does happen medical help should be sought immediately. Adder bites are potentially very serious but effective treatment is readily available for people and pets. People's fear of this secretive and beautiful animal contributes to its vulnerability in the UK, yet with an understanding of the facts, people and adders can co-exist happily. The information and advice below provides answers to frequently asked questions. This text is based on ARC's research and experience, published evidence, and authoritative sources. At the end we list key references used to develop this advice, should you wish to explore further.

A) General facts and figures about adder bites

How common are adder bites?

The chance of being bitten by an adder is exceedingly low. Each year there are millions of visits to areas where adders occur, yet very few bites occur. Comprehensive figures are not documented, but research indicates that there are around 50-100 adder bites to people per year in Great Britain. There are around 100 reports per year of adder bites to dogs.

How do people get bitten?

Adder bites tend to happen when the snake attempts to defend itself from perceived harm. This typically happens when an adder is picked up, or a person puts their hand or foot close to the snake. Most adder bites occur to the hand or arm, with slightly lower numbers to the foot, and much lower numbers to other parts of the body. Evidence suggests that many bites occur when a person picks up the snake. Case reports reveal that people typically do this to get a closer look at the snake, to move it, or to harm it. Genuinely "accidental" bites also occur, for instance after inadvertently treading on or close to an adder whilst walking through long grass. Almost all adder bites occur in the countryside, where people are most likely to encounter adders; although adders are occasionally found in gardens, bites very rarely occur here. A very small number of adder bites are recorded from people swimming in rivers or in the sea.

How dangerous is adder bite?

In about 70% of cases, there is a negligible reaction or only local effects. These effects are very unpleasant but easily treated. However, adder bites are potentially very serious and should not be under-estimated. In a small proportion of cases, adder bite can lead to severe effects requiring extensive hospital treatment. Although exceedingly unlikely, adder bite can be fatal.

What time of year do adder bites occur?

The majority of bites occur between April and September, with a marked peak in July-August. This pattern probably reflects the outdoor activity of people, combined with the seasonal behaviour patterns of adders.

How many people die from adder bites?

Human fatalities are exceptionally rare in Great Britain. There have been 14 recorded human deaths from adder bite since 1876, the last being in 1975. In recent decades there have been a number of life-threatening adder bites – i.e. those where the patient has suffered effects of such severity that the bite almost resulted in death. Across Europe, around 4 people die from venomous snakebite each year, though this includes bites from species with more potent venom than adders.

Where are adders found, and where do bites happen?

Adders are found in Scotland, Wales and England, yet in many areas they are locally rare. The adder is in decline in many parts of Britain. The species is thought to have gone extinct in some counties, such as Nottinghamshire and Oxfordshire. The largest remaining populations are found in extensive areas of habitat, which includes heathland, moorland, peatland, coastal dunes and cliffs, and chalk downland. Adder bites have been recorded in all regions of Great Britain.

Why do adders have a venomous bite?

Venom seems to be an evolutionary adaptation to help snakes subdue their prey, and in some cases start to digest it. Adders feed mainly on lizards and small mammals, and like many members of the viper family their venom has primarily local and haemotoxic effects, causing the demise of prey via effects on blood, cells and tissues. Medical researchers have produced drugs for people based on snake venoms, for example to help manage high blood pressure. Researchers are using snake venoms to develop medicine for a range of conditions including cancer, heart conditions and neurological disorders.

B) What to do if a person or a pet has been bitten by an adder

What should I do if a person is bitten by an adder?

The following advice is from the NHS website (www.nhs.uk/conditions/snake-bites, accessed 24 July 2019):

“Immediately after being bitten by a snake you should:

- remain calm and don't panic – snake bites, particularly those that occur in the UK, usually aren't serious and are only very rarely deadly
- try to remember the shape, size and colour of the snake
- keep the part of your body that's been bitten as still as possible to prevent the venom spreading around your body
- remove jewellery and watches from the bitten limb as they could cut into your skin if the limb swells
- do not attempt to remove any clothing, but loosen clothing if possible
- seek immediate medical attention.

If you or someone you're with is bitten by a snake, you should NOT:

- try to suck the venom out of the bite
- try to cut the venom out of the bite or make it bleed
- rub anything into the wound or apply ice, heat or chemicals
- leave someone who's been bitten on their own
- put anything around the bitten limb to stop the spread of venom (such as a tight pressure band, tourniquet or ligature) as it won't help, and can cause swelling or make it worse; it could also damage the limb, leading to the need for amputation
- try to catch or kill the snake.

Dial 999 immediately after being bitten by a snake to ask for an ambulance, or go straight to your nearest accident and emergency (A&E) department.

You should give healthcare professionals a description of the snake to help identify it.

You may be admitted to hospital so the bite can be assessed and your condition closely monitored.”

How can I tell if I've been bitten by an adder?

Aside from seeing a bite occur, without specific laboratory tests or expert medical examination it can be difficult to say for sure if an adder has bitten a person (see “Further sources of information” section, below, for scientific papers explaining the clinical signs and diagnosis of adder bite). The person bitten occasionally does not witness the actual bite as it takes place. The effects of adder bites can be confused with other causes. There are cases of people assuming they have been bitten by an adder, after feeling a stinging sensation, finding marks on the skin, or feeling unwell following a walk in an area likely to support snakes. Whilst adder bite is one possibility in such cases, it is worth noting that there could be another cause, e.g. scratches from sharp debris or thorns, stings or bites from other animals including wasps, horseflies or spiders, or allergic reactions to plants. Conversely, there are cases in which people assume they have been scratched by a thorn or similar, and it turns out to be an adder bite. Importantly, if there is any reason to believe that you may have been bitten by an adder you should seek medical attention urgently.

Should I take a photo of the snake that bit me or my pet?

A photo should only be taken if there would be no appreciable delay to treatment, no risk of further bites, and no harm to the snake. Do not hold your camera or phone close to the snake, or attempt to catch or corner the snake. Photos can help with confirming the identity of the snake, which in turn can help with treatment. Show any photos to the medical or veterinary team attending to the bite.

What should I do if my dog is bitten?

The aim should be to get your dog to the nearest vet as soon as possible, ringing ahead to make them aware. Do not wait for symptoms to appear. Try to calm your dog and reduce its movement, and if you can, carry it rather than let it walk. Although it is a stressful situation, try to remain calm and bear in mind that your dog is highly likely to make a full recovery. Download our leaflets

C) The effects of an adder bite, and its treatment

What are the effects of an adder bite in people?

Effects may include: shock; severe pain at the location of the bite; swelling, redness and bruising at the location of the bite; nausea and vomiting; diarrhoea; itchy lumps on the skin; swelling of the lips, tongue, gums and throat; breathing difficulties; mental confusion, dizziness or fainting; irregular heartbeat. Not all of these will be seen in all cases, and the severity of symptoms varies substantially. In around 70% of cases there is no or very little envenomation, leading to only local symptoms such as pain and swelling. The first symptoms may take from a few minutes to hours to become evident. It is estimated that in around one third of all adder bites, the snake does not actually inject any venom (a “dry bite”). In this case the patient may experience mild pain from the wound caused by the snake’s teeth, a risk of infection, and anxiety. Note that adder bites do not always leave two puncture wounds in the skin; such marks typically vary from one to three, and they are not always obvious. In rare cases there can be a range of more serious effects from adder bite, including kidney failure, anaphylaxis, heavy blood loss, coma and cardiac arrest.

What is the treatment for an adder bite in people?

Hospitals have access to excellent advice on how to treat adder bites (for instance via the [National Poisons Information Service](#)), and treatment has improved substantially in recent decades. Initial treatment may include reassurance, pain killers and control of anaphylaxis. Other treatment will depend on investigations. It is increasingly common to treat patients with antivenom (sometimes referred to as antivenin), a specially developed medicine that reduces the severity of symptoms and shortens recovery time. Adverse reactions to modern types of antivenom are uncommon. Treatment for adder bites typically helps patients make a full recovery, with the duration of recovery depending on the severity of envenoming and other factors. In the most common cases, where there is little envenoming, there is full recovery within a month. In some cases, aching and swelling can recur for weeks after the bite. In cases of severe envenoming there may be even longer term effects, though such cases appear to be rare.

Are children more likely to suffer serious effects from an adder bite?

The effects of adder bites are likely to be more serious in children. However, other factors aside from age will also have influence the outcome of a bite, such as the general health of the bitten person, the amount of venom injected, and the location of the bite. Bites to children are frequently treated, making up around a quarter of cases in Great Britain, and it is usual for children to recover completely.

Should I bring the snake to hospital/veterinary surgery?

No. Do not attempt to catch or kill the snake, as this may put you further at risk and harming native snakes is illegal. Please leave it alone. If it is safe to do so, you may wish to take a photograph of the snake.

A vet suggested an adder bit my dog, but I didn’t see the bite happen and adders aren’t known locally – what happened?

Sometimes adder bites are suggested as the cause for a sudden unexplained illness in dogs. There are several possibilities in such a case. Firstly, it could genuinely be an adder bite that was simply not observed. That could occur where a dog was off the lead in areas of habitat supporting adders but where the species is not recorded. Secondly, it could be that the dog’s illness is from a cause other than snake bite, such as an insect sting, an infected wound, or accidental poisoning. Thirdly, it could be a bite from another species of venomous snake that has escaped or been released into the wild, but this is exceedingly unlikely (see below). Understanding what actually caused your dog’s illness is clearly important, as this

will ensure it receives appropriate care. Knowing that an adder bite was the cause will help with the dog's recovery and will help you take steps to reduce the risk of bites in future (see below). If there was in fact no adder bite, it is important that adders are not incorrectly highlighted as the cause, especially in the media. Such incorrect assumptions can prompt unwarranted fears among dog owners, and can reinforce negative attitudes toward snakes.

How can I be sure an adder bit my dog?

It can be difficult to diagnose adder bite in dogs because often the bite is not observed by a person, the signs may be similar to those resulting from other causes of illness, and the owner may not notice the dog is ill until some time after the bite. An experienced vet will consider differential diagnoses, assessing which of a range of possible causes is most likely by systematically reviewing the dog's condition and information provided by the owner. The appropriate ways to diagnose an adder bite are (a) a report of the bite itself occurring, (b) specific laboratory tests, for example detecting adder venom in the blood, or (c) clinical signs associated with the effects of adder bite. Other information can help suggest whether an adder bite is more or less likely. In particular it can be very useful to know where the dog was bitten, since in large areas of Britain adders are absent or scarce, making a bite less likely. The NBN Atlas shows maps of the recorded distribution of adders (<https://species.nbnatlas.org/species/NBNSYS0000005075>), though note that this is not definitive. If you are worried that your pet has an unexplained poisoning, potentially including adder bite, you may wish to use the Animal Poison Line service, which is run by veterinary poison specialists (www.animalpoisonline.co.uk; tel 01202 509000; note that there is a charge.)

What should I do if livestock (sheep, horses, etc.) are bitten?

Adder bites to livestock are known to occur, but there are no authoritative incidence figures, and very few published case reports in Great Britain. Taken together this suggests it is a rare event, though it may simply be under-reported. If you suspect your animal has been bitten, seek veterinary advice urgently.

D) How to reduce the risk of being bitten

How do I avoid being bitten by an adder?

The risk of being bitten is very low, but it can be reduced even further with simple precautions. When walking in areas where adders occur, it is best to keep to well-used paths or other open areas, wear shoes or boots (rather than sandals or bare feet), walk slowly, and look closely where you are walking. Bites to walkers are very rare, but when they do occur it is usually when people walk through long vegetation with little protection on their feet. If picking up objects from the ground, watch where you put your hands. Adders are typically resting underground between November and February, often longer in northern parts of Britain, and most sightings of adders tend to be in spring or summer. Do not attempt to handle adders. If you see one on a path, do not attempt to shoo it off – simply walk around it leaving plenty of space, or if that's not possible to do safely, seek another route. Adders will normally retreat into the vegetation when they sense people approaching. Make sure that children under your supervision know not to catch snakes. You are less likely to see adders in heavily shaded places such as dense woodland, or in extensive areas of very short vegetation such as parks.

Are my pets at risk from adders?

Dogs are typically bitten when they investigate an adder encountered on a walk. Bites to dogs in gardens are exceptionally rare. Around 100 reports per year of adder bite are typically made to vets specialising in poisoning; it is likely that many more bites go unrecorded. The signs of adder bite in dogs include: oedema (swelling due to a build-up of fluid), especially on the snout, lethargy, depression, and apparent pain. It may take several hours for signs of a bite to become evident. Dogs make a full recovery in the vast majority of cases, but occasionally the bite can have long-lasting effects or even be fatal. In one British study, just under 5% of bites led to the death of the bitten dog. Vets in areas where adders occur are typically well prepared for treating bites. Adder bites to other pets and to farm animals are rarely reported. Download our leaflet [Dogs 'n' adders](#)

How can I avoid my dog being bitten by an adder?

If possible keep your dog on the lead in areas where adders occur. When off the lead, discourage it from exploring areas that adders may take refuge in. These areas are typically sheltered and receive plenty of sunlight, and include patches of long grass, deep heather, and the edges of bramble, gorse patches or stone walls. If you see your dog examining something you suspect may be an adder, call it off immediately. Bites to dogs are rare, but tend to occur when dogs sniff or paw at an adder. Download our leaflet [Dogs 'n' adders](#)

I am worried about the risk of an adder biting me or my dog. Can you remove adders from my local common/nature reserve?

No. Whilst we understand that people have concerns about adder bites, the solution is not to remove adders from the wild. The best approach is to be aware of the snakes and to take steps to avoid being bitten. Of the numerous visits by people to the countryside, a vanishingly small number result in an adder bite. Any visit to the countryside carries similarly small risks of unpleasant or dangerous events, and most people view such risks in perspective. As the adder is becoming rarer, it makes sense to help the species rather than subject it to further disturbance.

I have seen an adder in my garden or house. Will you remove it?

We receive many accounts of adders in gardens, yet because of difficulties with identification, the majority in fact turn out to be grass snakes or slow-worms, which pose no threat to people or pets. In some areas, though, adders do visit gardens – typically where there is a large area of adder habitat next to the garden. Normally the risk can be reduced significantly by, for instance, managing the garden so that adders are dissuaded from staying, or from visiting in the first place. It is usually not appropriate to attempt to remove adders from gardens, though very occasionally this is warranted where there is an imminent risk to vulnerable people. Very rarely, adders enter houses or are brought in by cats, and in such cases it is best to have an experienced person remove the snake to a safe place. For more advice, see our advice note [Snakes in gardens: frequently asked questions](#).

What is the risk of bites from exotic venomous snakes in the UK?

There are increasing reports of escaped or released pet snakes in the wild in Britain. A wide range of foreign species (sometimes termed exotic, alien, non-native or introduced species) have been reported, but the overwhelming majority of pet snakes are non-venomous. There are strict legal controls on keeping venomous snakes, and escapes or releases to the wild are almost unheard of. Whilst there has been an increase in the number of snake enthusiasts who have been bitten by venomous snakes whilst handling their pets, this does

not mean that the public is at a greater risk. There is a risk of venomous snakes being accidentally imported into the UK with materials shipped from abroad. However, this seems to happen very rarely, and these stowaway snakes are likely to perish either en route or shortly after arrival. The risk from a venomous exotic snake in the wild in Britain is therefore extremely low. If you see what you think is an escaped pet, [you can read our advice here](#). Seek expert advice urgently if the snake appears to be an exotic venomous species

E) Further sources of information

Where can I find further reliable advice on adder bites?

The [NHS website](#) has excellent advice. Note that you may encounter misleading information about adder bites on the internet, in books and in the media. Unfortunately there are many cases where incorrect advice leads to poor outcomes for people or for snakes, so it is best to use only authoritative sources.

What scientific research is there on adder bites?

There is considerable research on adder bites, the effects on people and dogs, and treatment. Here we list some notable studies. Where possible we provide a link to the article on the publisher's website. In some cases this will give you access to the full article. If not, you may be able to locate the article via a library, the author, the author's institution, or a website such as [ResearchGate](#).

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