



# Vagus nerve stimulation (VNS)

Explains what vagus nerve stimulation (VNS) is, how it works, what are the side effects, and what to think about before having the treatment.

## What is VNS?

Vagus nerve stimulation (VNS) is a type of surgery that can treat mental health problems. Rarely, doctors may use it to treat:

- Severe [depression](#), if other treatments have not helped
- Epilepsy

Some research shows that VNS can reduce the symptoms of severe depression that hasn't been helped by other treatments. This is sometimes called 'treatment-resistant' depression.

Doctors are unlikely to suggest VNS unless you have tried at least two other types of treatment, and these treatments have not worked. This may include treatments like [talking therapy](#) or [medication](#).

The [National Institute for Health and Care Excellence \(NICE\)](#) recommends using VNS for treatment-resistant depression. But their guidelines state that it should only happen with certain conditions, including the following:

- Your doctor should talk to you about the procedure, including any risks or side effects. This is so that you can give [informed consent](#) to have the treatment.
- After having the procedure, you should have regular check-ups with your doctor to see if the treatment is working or causing any problems.

## How does VNS work?

- The VNS procedure happens using anaesthetic. This will either be general anaesthetic, which sends you to sleep. Or local anaesthetic, where you are awake but a part of your body is made numb.
- Doctors will place a small electric device under the skin of your chest, just below your collar bone. This device is a bit like a pacemaker.

- They will attach this device with some wires to a nerve in the left side of your neck. This is called the vagus nerve, which naturally sends signals to your brain.
- The VNS device sends electrical pulses to your vagus nerve to stimulate this process. This stimulation will happen automatically for 30 seconds every 5 minutes.
- The VNS device will stay in until it runs out of battery. This can take 3 to 8 years. If you need to, you can have the device turned off or removed.

VNS may help to improve your mood and reduce your symptoms of depression. Some people can feel a little better straight after surgery. Others may take 6 months or longer before noticing any improvements in their symptoms.

But VNS it will not work for everyone. And there is limited evidence on the benefits of this treatment.

## What are the side effects of VNS?

Possible side effects of VNS are:

- feeling hoarse or having other changes to your voice
- coughing
- headaches
- neck pain
- feeling prickles or tingles in your skin
- sore throat
- difficulty breathing
- difficulty swallowing

There is also a small risk of infection or other complications from the surgery. Your doctor should talk to you about the risks and side effects before you give your consent to have VNS.

If you experience side effects, your doctor may be able to reduce how intense or frequent the electrical pulses are. This might help to reduce any side effects that you experience. Side effects may also get better over time.

If you ever have an MRI scan, you should always tell them about your VNS device. It may also be help to tell staff if you need to go through airport security.

# How can I access VNS?

VNS is still a rare treatment in the UK. It can be difficult to access. You will need a psychiatrist to refer you to have the treatment. It is only available in specialist centres, and only in certain areas of the country.

# What should I think about before getting VNS?

If your doctor recommends that you have VNS, these are some questions you could ask to learn more. Or you could ask someone you trust, or an [advocate](#), to ask these questions for you:

- Why have you suggested VNS? What are its benefits?
- How likely is it that VNS will work for me?
- What are the risks and side effects?
- What does the operation involve?
- How long will I have to stay in hospital?
- What other treatment options are available to me? Have you offered me every other available treatment?
- What happens if VNS doesn't work or something goes wrong?
- How long will it take me to recover from surgery?
- When will I feel the effects?

# What if VNS doesn't work?

It might feel frustrating or disappointing if a treatment such as VNS doesn't work for you. Especially if you feel like you have tried lots of different things already.

Try to not to blame yourself. And remember that different things work for different people. You could also talk to your doctor about other options you could try. Or see our pages on [seeking help for a mental health problem](#).