



## Neck Pain in Adults

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### Who gets neck pain and what are the causes?

Neck pain is common. More than half of people develop a bout of neck pain at some time in their life. One survey done in the UK found that, of adults aged 45-75 years, about 1 in 4 women and about 1 in 5 men had current neck pain. Types and causes of neck pain include:

'Mechanical' neck pain is the most common type. This is sometimes called 'simple' or 'nonspecific' neck pain. Causes include minor injuries or sprains to muscles or ligaments in the neck. Bad posture is also a common cause. For example, neck pain is more common in people who spend much of their working day at a desk with a 'bent-forward' posture. Often the exact cause or origin of the pain is not known.

A whiplash injury, most commonly due to a car crash, causes neck pain. See separate leaflet called '*Whiplash Injury*' for details.

Acute (sudden onset) primary torticollis. This is sometimes called 'wry neck'. A torticollis is when the head becomes twisted to one side and it is very painful to move the head back straight. Most cases are thought to be due to a minor injury or poor posture while sleeping which causes one or more muscles on one side of the neck to go into 'spasm'. The pain and spasm usually ease and clear away over a few days without any treatment. Occasionally, torticollis is due to more serious causes.

Degeneration ('wear and tear') of the spinal bones (vertebrae) and the 'discs' between the vertebrae is a common cause in older people. This is sometimes called cervical spondylosis.

Cervical radiculopathy is when the root of a nerve is pressed on or is injured as it comes out from the spinal cord in the neck (cervical) region. This causes symptoms such as numbness, pins and needles, and weakness in parts of an arm supplied by the nerve in addition to neck pain. The common causes are cervical spondylosis and a disc problem. (The disc is the softer tissue between the bony vertebrae. A disc may push on the nerve - similar to a 'slipped disc' which causes low back pain.) Various less common disorders can cause a cervical radiculopathy.

More serious and rarer causes include: rheumatoid arthritis, bone disorders, cancers, and serious injuries that damage the vertebrae, spinal cord or nerves in the neck.

The rest of this article deals only with the common 'mechanical' type of neck pain.

### What are the symptoms of common mechanical neck pain?

Pain develops in the neck and may spread to the base of the skull and shoulders. Movement of the neck may make the pain worse. The pain may spread down an arm to a hand or fingers. This is due to irritation of a nerve going to the arm from the spinal cord in the neck. Some numbness or pins and needles may occur in part of the arm or hand. It is best to tell a doctor if these symptoms occur as they may indicate a problem with a nerve in the neck. Acute (sudden onset) bouts of neck pain are commonly due to minor injuries or bad posture. Full recovery occurs in most cases. The usual advice is to keep the neck active. Painkillers are helpful until the pain eases. Chronic (persistent) pain develops in some cases, and further treatment may then be needed.



## **What is the outlook for a bout of mechanical neck pain?**

The outlook is usually good in most cases of acute (sudden onset) neck pain. Symptoms commonly begin to improve after a few days, and are usually gone within a few weeks. However, the time taken for symptoms to settle varies from person to person. Some people develop chronic (persistent) neck pain. If you develop chronic neck pain, the tendency is for the pain to wax and wane with 'flare-ups' from time to time.

## **How can I tell if the pain is due to a more serious cause?**

A doctor's assessment and examination can usually determine that a bout of neck pain is mechanical and not due to a more serious cause. The following are the sort of symptoms that may indicate a more serious problem.

If neck pain develops when you are ill with other problems such as rheumatoid arthritis, AIDS, or cancer.

If the pain becomes worse and worse.

If some function of an arm is affected. For example, weakness or clumsiness of a hand or arm, or persistent numbness. (As mentioned, some numbness and pins and needles may occur with mechanical neck pain. However, this is mild and usually goes within four weeks.)

- If you feel ill with other symptoms such as weight loss, fever, etc.
- If the neck bones (vertebrae) are tender (which may indicate a bone problem).

## **What are the treatments for common mechanical neck pain?**

Exercise your neck and keep active

Aim to keep your neck moving as normally as possible. At first the pain may be quite bad, and you may need to rest for a day or so. However, gently exercise the neck as soon as you are able. You should not let it 'stiffen up'. Gradually try to increase the range of the neck movements. Every few hours gently move the neck in each direction. Do this several times a day. As far as possible, continue with normal activities.

In the past, some people have worn a neck collar for long periods when a bout of neck pain developed. The problem with collars is that they prevent you from moving your neck properly.

Studies have shown that you are more likely to make a quicker recovery if you do regular neck exercises, and keep your neck active rather than resting it for long periods in a collar. Also, if you keep the neck active during a bout of neck pain, it is thought to help prevent chronic (persistent) neck pain from developing.

Medicines

Painkillers are often helpful. It is best to take painkillers regularly until the pain eases. This is better than taking them now and again just when the pain is very bad. If you take them regularly, it may prevent the pain from getting severe, and enable you to exercise and keep your neck active.

Paracetamol at full strength is often sufficient. For an adult this is two 500 mg tablets, four times a day.



Anti-inflammatory painkillers. Some people find that these work better than paracetamol. They include ibuprofen which you can buy at pharmacies or get on prescription. Other types such as diclofenac or naproxen need a prescription. Some people with asthma, high blood pressure, kidney failure, or heart failure may not be able to take anti-inflammatory painkillers.

A stronger painkiller such as codeine is an option if anti-inflammatories do not suit or do not work well. Codeine is often taken in addition to paracetamol. Constipation is a common side-effect from codeine. To prevent constipation, have lots to drink and eat foods with plenty of fibre.

A muscle relaxant such as diazepam is sometimes prescribed for a few days if your neck muscles become tense and make the pain worse.

#### Other advice

Some other advice which is commonly given includes:

- A good posture may help. Brace your shoulders slightly backwards, and walk 'like a model'. Try not to stoop when you sit at a desk. Sit upright.
- A firm supporting pillow seems to help some people when sleeping.
- Physiotherapy. It is not clear whether this makes much difference to the outcome of mechanical neck pain. Therapies such as traction, heat, cold, manipulation, etc, may be tried, but the evidence that these help is not strong. However, what is often helpful is the advice a physiotherapist can give on neck exercises to do at home. A common situation is for a doctor to advise on painkillers and gentle neck exercises. If symptoms do not begin to settle over a week or so, you may then be referred to a physiotherapist to help with pain relief and for advice on specific neck exercises.

*Treatment may vary and you should go back to see a doctor*

1. if the pain becomes worse.
2. if the pain persists beyond 4-6 weeks.
3. if other symptoms develop such as numbness, weakness, or pins and needles in an arm or hand.

Other pain relieving techniques may be tried if the pain becomes chronic (persistent). Chronic neck pain is also sometimes associated with anxiety and depression which may also need to be treated.

#### What about driving?

To drive safely you must be able to turn your head quickly. It is best not to drive until any bad pain or stiffness has settled.



## Whiplash Neck Sprain

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### What is a whiplash neck sprain?

A whiplash neck sprain occurs when your head is suddenly jolted backwards and forwards in a whip-like movement. This can cause some neck muscles and ligaments to stretch more than normal (a sprain). The common cause is when you are in a car that is hit from behind by another car. Being in a car hit from the side or front can also cause whiplash sprains. (Damage to the spine or spinal cord sometimes occurs from a severe whiplash injury. This is uncommon and is not dealt with in this article. Only the common whiplash sprain to neck muscles is discussed in this article.)

### Who gets whiplash neck sprains?

Whiplash neck sprains are common. About 2 in 3 people involved in car crashes develop neck pain (with or without other injuries). Some people are surprised at having symptoms when the car crash was minor. Even slow car bumps may cause enough whipping of the neck to cause symptoms. Less commonly, whiplash neck sprains can occur with everyday activities such as jolting the neck when you trip or fall.

### What are the symptoms of a whiplash neck sprain?

- Pain and stiffness in the neck. It may take several hours after the injury for symptoms to appear. The pain and stiffness often become worse on the day after an injury. In about half of cases, the pain first develops the day after the injury. This may be because the inflammation or bruising around a sprained muscle can take a while to build up.
- Turning or bending the neck may be difficult.
- You may also feel pain or stiffness in the shoulders or down the arms.
- Dizziness, headache, blurred vision, or pain on swallowing may occur for a short while, but soon go. Tell a doctor if any of these persist.
- Some people become irritable for a few days and find it difficult to concentrate.

### What is the outlook (prognosis) after a whiplash neck sprain?

The outlook is good in most cases. In most cases, symptoms begin to improve after a few days. In about 6 in 10 cases, the symptoms are much better or gone within 1-4 weeks. However, it is not unusual to take a few months for symptoms to go completely. In about 1 in 4 cases there is still some pain or stiffness after six months. In a small number of cases, some stiffness or pain may come and go for a long time after the injury.

### What are the treatments for a whiplash neck sprain?

Exercise your neck and keep active

Aim to keep your neck moving as normally as possible. At first the pain may be bad, and you may need to rest the neck for a day or so. However, gently exercise the neck as soon as you are able. You should not let it 'stiffen up'. Gradually try to increase the range of neck movements. Every few hours gently move the neck in each direction. Do this several times a day. As far as possible, continue with normal activities. Whiplash neck sprains are common after car crashes. Symptoms usually ease and go without any specific treatment. It is best to keep the neck active and moving. If required, painkillers will ease pain.



In the past, some people have worn a neck collar for long periods after a whiplash sprain, and have been reluctant to move their neck. Studies have shown that you are more likely to make a quicker recovery if you do regular neck exercises, and keep your neck active rather than resting it for long periods in a collar.

#### Medicines

Painkillers are often helpful. It is best to take painkillers regularly until the pain eases. This is better than taking them now and again just when the pain is very bad. If you take them regularly, it may prevent the pain from getting severe, and enable you to exercise and keep your neck active.

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#### Other advice

Some other advice which is commonly given includes:

A good posture may help. Brace your shoulders slightly backwards, and walk 'like a model'. Try not to stoop when you sit at a desk. Sit upright.

A firm supporting pillow seems to help some people when sleeping.

Physiotherapy. It is not clear whether physiotherapy makes much difference to the outcome. What may be helpful is the advice a physiotherapist can give on neck exercises to do at home. A common situation is for a doctor to advise on painkillers and gentle neck exercises. If symptoms do not begin to settle over a week or so, you may then be referred to a physiotherapist to help with pain relief and for advice on specific neck exercises.

Driving. To drive safely you must be able to turn your head quickly. It is best not to drive until any bad pain or stiffness has settled.

*Treatment may vary and you should go back to see a doctor*

- if the pain becomes worse.
- if the pain persists beyond 4-6 weeks.
- if any numbness, weakness, or pins and needles develop in an arm or hand.

Other pain relieving techniques may be tried if the pain becomes chronic (persistent).

Can whiplash injuries be prevented?



Head restraints on car seats may prevent some whiplash injuries. They may stop the head from jolting backwards in a car crash. However, up to 3 in 4 head restraints are not correctly adjusted. Head restraints may make a journey less comfortable when they are correctly adjusted as they will not allow your head to lie back. However, if you have had a whiplash injury, you may be more particular about correctly adjusting the head restraint for yourself and for other passengers.



## Cervical Discectomy and Fusion

### Overview

Anterior cervical discectomy and fusion (ACDF) is a surgical procedure performed to remove a herniated or degenerative disc in the cervical (neck) spine. The surgeon approaches the spine from the front, through the throat area. After the disc is removed, the vertebrae above and below the disc space are fused together. Your doctor may recommend a discectomy if physiotherapy or medication fails to relieve your neck or arm pain caused by inflamed and compressed spinal nerves. Patients typically go home the same day; recovery time takes 4 to 6 weeks.

Discectomy literally means "cutting out the disc." A discectomy can be performed anywhere along the spine from the neck (cervical) to the low back (lumbar). The surgeon reaches the damaged disc from the front (anterior) of the spine — through the throat area. By moving aside the neck muscles, trachea, and oesophagus, the disc and bony vertebrae are accessed. In the neck area of the spine, an anterior approach is more convenient than a posterior (back) because the disc can be reached without disturbing the spinal cord, spinal nerves, and the strong neck muscles of the back. Depending on your particular case, one disc (single-level) or more (multi-level) may be removed.

After the disc is removed, the space between the bony vertebrae is empty. To prevent the vertebrae from collapsing and rubbing together, the surgeon fills the open disc space with a plastic cage. The cage serves as a bridge between the two vertebrae to create a spinal fusion. Following surgery the body begins its natural healing process and new bone cells are formed around the cage. After 3 to 6 months, the cage should join the vertebrae above and below to form one solid piece of bone.

After fusion you may notice some range of motion loss, but this varies according to neck mobility before surgery and the number of levels fused. If only one level is fused, you may have similar or even better range of motion than before surgery. If more than two levels are fused, you may notice limits in turning your head and looking up and down.

### What are the indications?

You may be a candidate for discectomy if you have:

- diagnostic tests (MRI, CT) show that you have a herniated or degenerative disc
- significant weakness in your hand or arm
- arm pain worse than neck pain
- symptoms that have not improved with physiotherapy or medication

ACDF may be helpful in treating the following conditions:

- **Bulging or herniated (slipped) disc:** The gel-like material within the disc can bulge or rupture through a weak area in the surrounding wall (annulus). Irritation and swelling occurs when this material squeezes out and painfully presses on a nerve.
- **Degenerative disc changes:** As discs naturally wear out, bone spurs form and the facet joints inflame. The discs dry out and shrink, losing their flexibility and cushioning properties. The disc spaces get smaller. These changes lead to foraminal or central stenosis or disc herniation.



## The surgical decision

Most herniated discs heal after a few months of nonsurgical treatment. Your doctor may recommend treatment options, but only you can decide whether surgery is right for you. Be sure to consider all the risks and benefits before making your decision. Only 10% of people with herniated disc problems have enough pain after 6 weeks of

## Procedure

The procedure is performed under general anaesthetic. A small incision about 4cm is made across the right hand side of the neck. A space is then created between the food pipe (oesophagus), and windpipe (trachea), and the large blood vessels in the neck. The gap between these structures leads down to the vertebra and disc.

Once the disc or discs to be operated on have been exposed, the whole disc is removed using a microscope for improved vision, and special instruments. The disc or bone pressing on the nerves is then removed completing the decompression part of the operation.

The space then created is filled with the cage implant which is made of a medical grade plastic material called PEEK.

The wound is then sewn up with dissolvable sutures, and a dressing applied.

A collar may be used in the first few days and weeks to aid recovery.

## After the surgery

### Restrictions

- If you had a fusion, do **not** use non-steroidal anti-inflammatory drugs (NSAIDs) (e.g., aspirin; ibuprofen, naproxen, or diclofenac) for 6 months after surgery. NSAIDs may cause bleeding and interfere with bone healing.
- Do **not** smoke. Smoking delays healing by increasing the risk of complications (e.g., infection) and inhibits the bones' ability to fuse.
- Do not drive for 2 to 4 weeks after surgery or until discussed with your surgeon.
- Avoid sitting for long periods of time.
- Avoid excessively bending your head forward or backward.

### Activity

- You may need help with daily activities (e.g., dressing, bathing), but most patients are able to care for themselves right away.
- Gradually return to your normal activities. Walking is encouraged; start with a short distance and gradually increase to 1 to 2 miles daily. A physiotherapy program may be recommended.
- If applicable, know how to wear a cervical collar before leaving the hospital. Wear it when walking or riding in a car.

### Bathing/Incision Care

- You may shower 1 to 4 days after surgery. Follow your surgeon's specific instructions.



## What are the results?

Anterior cervical discectomy is successful in relieving arm pain in 92 to 100% of patients. However, arm weakness and numbness may persist for weeks to months. Neck pain is relieved in 73 to 83% of patients. In general, people with arm pain benefit more from ACDF than those with neck pain. Aim to keep a positive attitude and diligently perform your physiotherapy exercises.

## What are the risks?

No surgery is without risks. General complications of any surgery include bleeding, infection, blood clots (deep vein thrombosis), and reactions to anaesthesia. If spinal fusion is done at the same time as a discectomy, there is a greater risk of complications. Specific complications related to ACDF may include:

**Hoarseness and swallowing difficulties.** In some cases, temporary hoarseness can occur. The recurrent laryngeal nerve, which innervates the vocal cords, is affected during surgery. It may take several months for this nerve to recover. In rare cases (less than 1/250) hoarseness and swallowing problems may persist and need further treatment with an ear, nose and throat specialist.

**Vertebrae failing to fuse.** Among many reasons why vertebrae fail to fuse, common ones include smoking, osteoporosis, obesity, and malnutrition. Smoking is by far the greatest factor that can prevent fusion. Nicotine is a toxin that inhibits bone-growing cells. If you continue to smoke after your spinal surgery, you could undermine the fusion process.

**Cage migration.** In rare cases (1 to 2%), the cage can move from the correct position between the vertebrae soon after surgery. It's more likely to occur if multiple vertebral levels are fused. If this occurs, a second surgery may be necessary.

**Transitional syndrome** (adjacent-segment disease). This syndrome occurs when the vertebrae above or below a fusion take on extra stress. The added stress can eventually degenerate the adjacent vertebrae and cause pain.

**Nerve damage or persistent pain.** Any operation on the spine comes with the risk of damaging the nerves or spinal cord. Damage can cause numbness or even paralysis. However, the most common cause of persistent pain is nerve damage from the disc herniation itself. Some disc herniations may permanently damage a nerve making it unresponsive to decompressive surgery. Be sure to go into surgery with realistic expectations about your pain. Discuss your expectations with your doctor.