

PAIN IN THE NECK



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CONTENTS

- 2 What is in this booklet?
- 2 What is inside the neck?
- 4 What causes neck pain?
- 6 What are the symptoms of neck problems?
- 8 Why does neck pain become persistent?
- 8 How can I help myself?
- 11 What if the pain won't go away?
- 13 What treatments are available?
- 14 What other help is available?
- 15 What research is going on?
- 15 Glossary
- 16 Useful addresses

What is in this booklet?

In this booklet we explain how the neck works and the common causes of neck pain and related conditions. We describe simple ways of dealing with neck pain as well as the main medical and complementary treatments. If you want to find out more after reading this booklet, the organizations in the 'Useful addresses' section may be helpful. Terms that appear in *italics* when they are first used are explained in the glossary at the back of the booklet.

What is inside the neck?

The neck contains the top end of the spinal column or spine, which supports the head and also protects the spinal cord. The spinal cord is the main nerve which runs from the brain, through the neck and down the back, and connects with nerves to the rest of the body. This is shown in Figure 1.

The spine is made up of 33 bones called vertebrae (singular: 'vertebra') stacked one on top of another to form a column. The 7 bones in the neck are known as cervical vertebrae. Between the bones are discs of gristle (*cartilage*) known as *intervertebral discs*. The sides of the bones are linked by *facet joints*. Many *ligaments* and muscles are attached to the spine and fan out from the neck to the shoulder blades and back. The muscles control movements of your head. The spine protects the spinal cord from outside damage while still allowing you to move your head in any direction.

At the level of each disc, nerve roots branch out from the spinal cord (see Figure 1), passing through an opening in the side of the spine. The nerve roots in the neck join to form the nerve trunks that run into the arms. Impulses travel along these nerves, sending sensations

such as touch and pain to the brain and messages from the brain to the muscles.

The vertebral artery carries blood from the heart to the brain. It runs inside the bones of the spine and supplies the part of the brain that controls your balance.

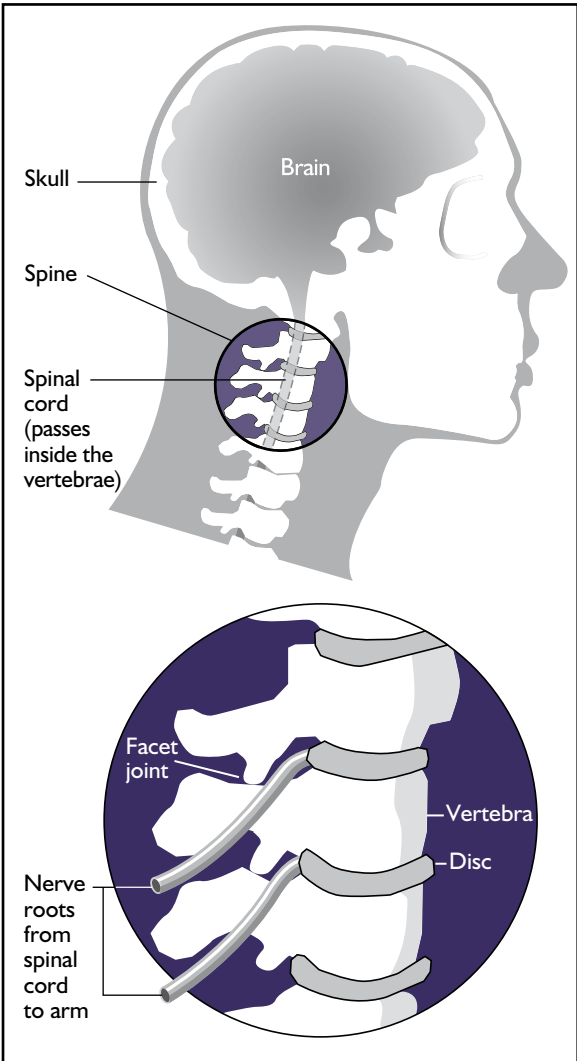


Figure 1. Cross-section of the head and neck with part of the spine shown magnified

What causes neck pain?

Non-specific neck pain

Many people develop a stiff and painful neck for no obvious reason. It may happen after sitting in a draught or after a minor twisting injury, for example while gardening. The underlying cause for this type of neck pain is not fully understood, so it is called 'non-specific neck pain'. Having non-specific neck pain does not mean that your neck is damaged and often it happens in people whose necks would appear completely normal under an x-ray. It is the most common type of neck pain and often disappears after a few days.

Cervical spondylosis

With everyday use over many years the discs and the facet joints become worn. This wear varies from person to person. The discs become thinner and this causes the spaces between the vertebrae to become narrower. Also, 'spurs' of bone, known as *osteophytes*, form at the edges of the vertebrae and the facet joints. In a way this is a particular form of *osteoarthritis* (see **arc** booklet 'Osteoarthritis') but it is known as 'cervical *spondylosis*'. These changes may also occur at the bottom of the spine where they are known as 'lumbar spondylosis'. These conditions should not be confused with ankylosing spondylitis, where inflammation in the spine can cause the bones of the spine to fuse together (see **arc** booklet 'Ankylosing Spondylitis'). The abnormalities found in cervical and lumbar spondylosis can be seen on x-rays (see Figure 2) and are present in almost everyone by the age of 65. However, many people have no neck pain even though quite significant changes can be seen on their x-rays.

When these changes do cause pain it may come either from the linings of worn joints or from stretched ligaments. Occasionally bulging discs or osteophytes pinch the nerve roots and this causes pain or numbness that



Figure 2. X-ray of the neck (side view) showing cervical spondylosis

travels into the arm. If the vertebral artery is pinched, this reduces the blood supply to the area of the brain that controls balance and this may lead to dizziness. Rarely an extra rib (cervical rib) can cause partial blockage of the blood supply to the arms, resulting in pain and numbness in the hands. Very rarely, in severe spondylosis, the spinal cord can be squeezed, which causes weakness and numbness in the arms and legs.

‘Whiplash’

This type of injury often follows a rear-end collision in a car. In this type of collision, first the body is carried forward and the head flips backwards. Then, as the body stops, the head is thrown forwards (see Figure 3). Following a whiplash injury there is often a delay before the pain and stiffness start.

Although whiplash can badly damage your neck, the majority of people who suffer these shunt accidents do not have major damage. In most cases injuries feel better within a few weeks or months. Seat belts and properly



adjusted headrests in cars have significantly reduced the damage from whiplash injuries.

Tension

Most muscles of the body relax completely when they are not being used but some muscles (known as 'anti-gravity muscles') have to work all the time in order to keep your body upright. Muscles at the back of your neck must always be tensed, otherwise your head would fall forwards when you are sitting or standing. When these muscles work too hard it can cause neck pain and tension headaches. People who are worried or under stress often tighten their muscles more than is necessary to hold their head upright – in other words, they are literally 'tense'. Tension headaches are very common and are often wrongly called migraines.

What are the symptoms of neck problems?

Pain

You may feel pain in the middle of your neck or on one side or the other. The pain may travel to the shoulder and shoulder blade or to the upper chest. In tension headaches the pain often travels to the back of the head

and sometimes to the side of the head and behind the eye or even into the ear. If a nerve root is pinched, then as well as the pain you may have numbness or tingling that can be felt down the arm right to the fingers.

Stiffness

This is common. You may find it painful to move and your muscles feel tight. Stiffness is often worse after long periods of rest or after sitting in one position for a long time. You may also have muscle spasm or, in cervical spondylosis, you may lose movement because of the changes to the bones and discs.

Noisy joints

You may hear or feel clicking or grating (called ‘crepitus’) as you move your head. This is caused by roughened bony surfaces moving against each other or by ligaments rubbing against bone. The noises are often loudest at the top of the neck. This is a common symptom and can be upsetting.

Dizziness and blackouts

These can sometimes happen when bony changes in cervical spondylosis cause pinching of the vertebral artery. You may feel dizzy when looking up, or you may occasionally have blackouts.

Torticollis

Sometimes if you have neck pain you may also have muscle spasms that turn the head to one side. This is called torticollis. Although not very common, it is an unpleasant side-effect of neck pain. It usually lasts only a few hours or days, although rarely it may continue for several weeks.

Other symptoms

If you have long-lasting neck pain and stiffness, particularly if your sleep is disturbed, then you may feel excessively tired and this can cause depression.

Why does neck pain become persistent?

In some cases of persistent pain the cause of the pain (such as a facet joint or a disc) can be identified. However, it is important to realise that pain can sometimes continue even after the original cause (whiplash, facet or disc) has long since settled down.

Pain may at first cause you to avoid normal activities and movement. If your initial spell of neck pain lasts a long time, lack of activity can cause the neck muscles to become weak, and this reduces the ability of the cervical spine to take further knocks. You may also lose confidence in your ability to resume your normal activities. This may affect your work, your social life and your personal relationships. Naturally, you may feel depressed and anxious in this situation and this could lead to further loss of confidence, frustration and anger, particularly if family members and the medical profession appear unhelpful or unsympathetic. If you are anxious or depressed as a result of the pain, you may not feel like exercising, so your muscles become weaker still, and so it goes on.

This can happen to anyone, and the longer it continues the harder it will be for you to recover your movement and confidence. The sections that follow explain what can be done to prevent or break this cycle of pain.

How can I help myself?

Most attacks of neck pain settle down within a few days and do not need medical treatment. Resting for a few days is often all you need.

Painkillers

You can take simple painkillers such as paracetamol. Non-steroidal anti-inflammatory drugs (NSAIDs) such

as ibuprofen, available at chemists, often help but can sometimes cause indigestion, so be careful if you have a history of stomach upsets. As an alternative you can rub anti-inflammatory gels or creams onto tender areas with less risk to the digestion.

Massage

Gentle massage of the neck muscles, particularly with aromatic oils, often helps. Please note, however, that some oils can be poisonous (toxic) in large quantities and can be harmful during pregnancy or with conditions such as epilepsy (see **arc** booklet ‘Complementary Therapies and Arthritis’). Rubbing the area with liniments can also help – these produce a feeling of warmth and reduce pain. Some liniments available over the counter contain capsaicin (an extract of the capsicum, or pepper, plant), and a similar but stronger preparation is available on prescription.

Exercises

Simple exercises can help to restore your range of movement, promote strength, ease localised stiffness and help get your neck back to normal. You should start by exercising very gently and gradually build up. You can expect to feel some slight discomfort at first.

Figure 4 shows some simple stretching and strengthening exercises. Gently tense your neck muscles for a few seconds in each position. If you do this every day, the neck movements will increase your muscle strength.

Relaxation

Stress can make neck pain worse (see ‘Tension’ above). One way of reducing the effects of stress is to learn how to relax the neck muscles. Relaxation and exercises are not mutually exclusive – they complement each other. You can sometimes get audiotapes to help with relaxation from your doctor or a physiotherapist. They can

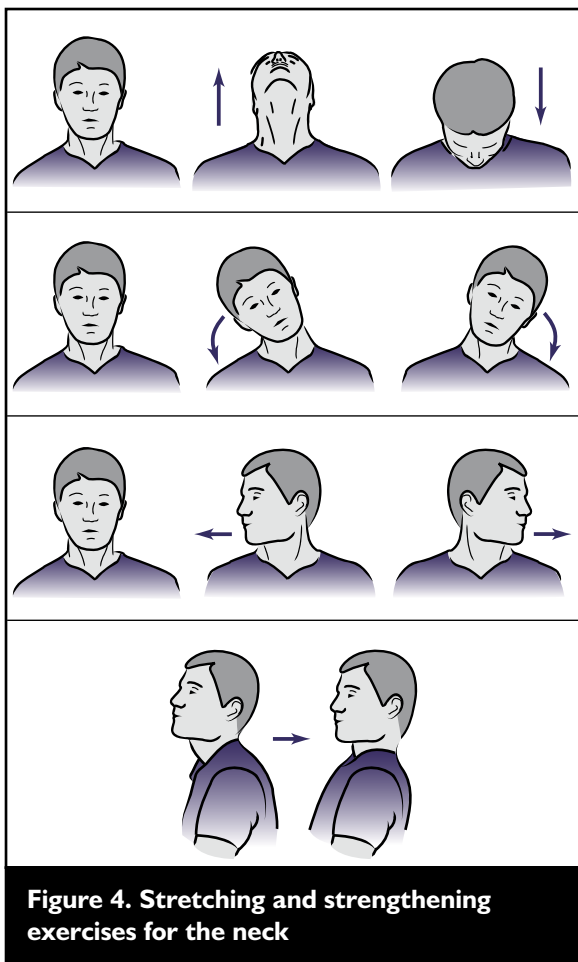
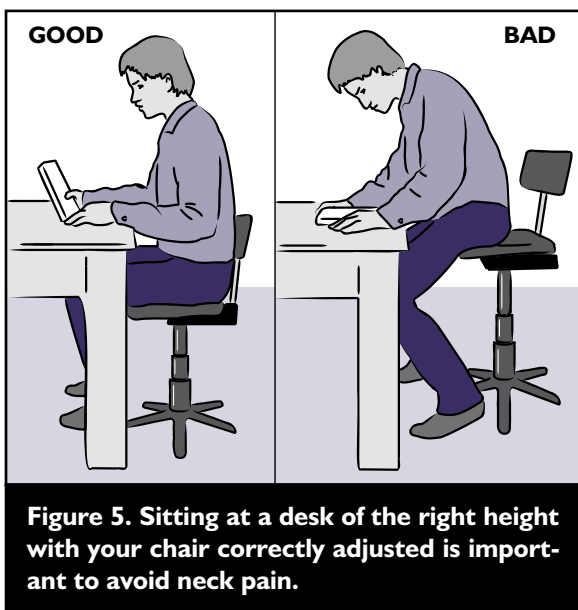


Figure 4. Stretching and strengthening exercises for the neck

also be bought from the Pain Relief Foundation (see ‘Useful addresses’).

Posture

Pain and stiffness can be caused by poor standing posture or by too soft a bed or the wrong thickness of pillow. If your desk is too low, so that your head is bent forward for long periods, then the neck may be stretched and you may develop muscle pain. Check your desk height and chair design at work and in the home – this is important to prevent problems (see Figure 5). Simi-



larly, if you work at a computer screen it is important to have screen, desk and chair set at the correct heights. Many firms employ people to check that their employees are sitting properly – check with your line manager or occupational health nurse.

The **Alexander Technique** is a method of teaching bodily awareness and reducing unwanted muscle tension. Lessons are given by qualified teachers who will assess you and advise you on things such as your standing and sitting posture and your patterns of movement (see ‘Useful addresses’).

What if the pain won't go away?

If pain lasts for more than a few days, or if pain spreads into the arm, then you should see your doctor (GP). S/he will examine your neck and may arrange physical treatments.

Most cases of neck pain can be confidently diagnosed and treated without any special tests. Very occasionally your GP may ask for an x-ray to rule out other important causes of neck pain, such as ankylosing spondylitis or an infection.

If your pain is very bad, or if it spreads into your arm or you have dizzy spells, your GP may send you to see a specialist. The specialist may be a rheumatologist, orthopaedic surgeon or neurosurgeon, depending on the problem. Further tests may be needed, such as x-rays, blood tests, or *magnetic resonance imaging* (MRI) scans (see Figure 6). An MRI scan will only be done if there is a suggestion that there is a nerve (or nerves) being

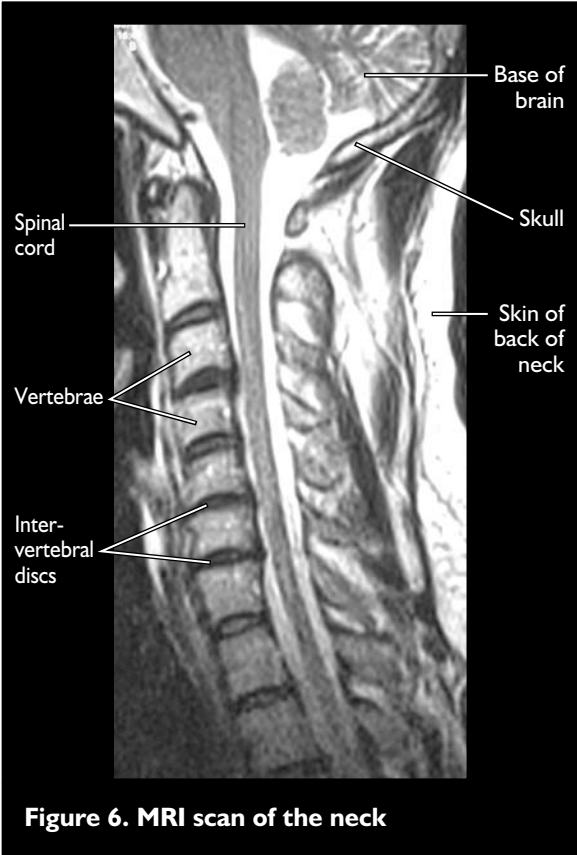


Figure 6. MRI scan of the neck

pinched in the neck, and if further treatment is being considered. A specialist may recommend injections into certain parts of the neck (see ‘Injections’), but only once it is clear exactly where the pain is coming from. Surgery is very rarely needed – only in severe cases of nerve or spinal cord involvement.

What treatments are available?

Physical treatments

Physiotherapists, chiropractors and osteopaths are all trained to treat neck problems. Manual treatments carried out by one of these therapists are often all that is needed. Sometimes manipulation is uncomfortable at the time, so it is important that you understand what is involved. Make sure you talk to your therapist about the treatments before they start.

Collars

There is no evidence that these are any help for short-lived or long-lived neck pain. Some people find they help at night to keep the neck in a good position while they are asleep. An alternative for use at night is a ‘neck pillow’, which is a specially shaped piece of moulded foam. These are available from good department stores.

Injections

In some cases an injection may help. The injection may be a long-acting local anaesthetic or a steroid preparation, and may be given into the small facet joints of the neck or sometimes into the narrow spaces where the nerves emerge from the spine. These injections are usually given by a specialist (a radiologist or anaesthetist) and are performed in an x-ray department so that the specialist can see exactly where the injection is going.

Surgery

Only rarely is surgery necessary. Surgery may help if a nerve is pinched and it is causing weakness or severe pain which won't go away. The surgeon will ask for a scan to look at the nerves and bones before discussing with you the need for the operation and the pros and cons of surgery.

Other treatments

Acupuncture can help relieve neck pain. At the moment there is no evidence that reflexology or a change in diet are effective.

What other help is available?

If your neck pain lasts for many months you may need help to cope. The answer may be a **pain management programme** (see below) which aims to teach you how to control, and live with, your pain. Understandably, people avoid situations which make their neck pain worse, such as certain positions and activities (see 'Why does neck pain become persistent?'). Education, therefore, plays an important part in the pain management approach, and will include a full explanation of the physical and psychological factors contributing to your pain. Most people will be able to exercise and become fitter, although it will take longer for some than for others. In this way people regain their physical confidence and are able to do more in spite of their pain. Specific exercises also help to strengthen the neck muscles that have become weak with lack of use.

Pain management programmes vary from outpatient group sessions, usually led by physiotherapists, to residential in-patient programmes lasting 2–3 weeks. There are only a few residential centres in the UK but there are many non-residential centres. These programmes include education, exercise, coping strategies and the

use of medication. They are led by a team including doctors, nurses and physiotherapists. Psychologists are also usually part of the team as they can explain why you might suffer psychological distress and how you can cope with this.

Your doctor may be able to refer you if s/he thinks you would benefit from a pain management programme.

What research is going on?

Many research teams throughout the world are studying neck pain. In the UK there have been advances in our understanding of the composition and biochemistry of the discs. Research has also shown that a large part of the normal wear of the spine is genetically determined (that is, there are inherited factors).

Discoveries about the effects of pain on the functioning of the back and neck muscles, the effect of stress and workplace conditions, and the importance of exercises are changing the ways in which neck pain is perceived.

Imaging techniques such as MRI allow a clearer understanding of the structure of the spine and can guide treatment, such as injections into the facet joints.

Glossary

Cartilage – strong material mainly found on bone ends that acts as a cushion and allows the bones to move smoothly on one another. A special type of cartilage is found in the intervertebral discs in the spine.

Facet joint – side joint connecting two vertebral bones.

Intervertebral disc – a circle of fibrocartilage (a tough, fibrous type of cartilage with a pulpy centre) which is found between spinal vertebrae.

Ligaments – tough, fibrous bands anchoring the bones on either side of a joint and holding the joint together.

Magnetic resonance imaging (MRI) scan – a scan that shows up the soft-tissue structures in the neck as well as the bones. Often used in cases of arm pain. During an MRI scan you have to lie in a tube and it may be unpleasant for those who suffer from claustrophobia.

Osteoarthritis – a condition which can affect any joints in the body, in which the cartilage becomes damaged and the bones deform. Often referred to as ‘wear-and-tear’ or ‘degenerative changes’.

Osteophytes – outgrowth of new bone around the sides of osteoarthritic joints, also known as ‘spurs’.

Spondylosis – osteoarthritis of the small joints in the neck and back.

Useful addresses

The Arthritis Research Campaign (arc)

PO Box 177
Chesterfield
Derbyshire S41 7TQ
Phone: 0870 850 5000
www.arc.org.uk

As well as funding research, we produce a range of free information booklets and leaflets. Please contact the address above for a list of titles.

Arthritis Care

18 Stephenson Way
London NW1 2HD
Phone: 020 7380 6500
Helpline (freephone): 0808 800 4050
www.arthritiscare.org.uk

Offers self-help support, a helpline service, and a range of leaflets on arthritis.

British Acupuncture Council

63 Jeddo Road
London W12 9HQ
Phone: 020 8735 0400
www.acupuncture.org.uk

Publishes a full list of qualified practitioners and general information on acupuncture.

British Chiropractic Association (BCA)

59 Castle Street
Reading
Berks RG1 7SN
Phone: 0118 950 5950
www.chiropractic-uk.co.uk

Can supply details of chiropractors in your area.

British Medical Acupuncture Society (BMAS)

BMAS House
3 Winnington Court
Northwich
Cheshire CW8 1AQ
Phone: 01606 786782
www.medical-acupuncture.co.uk

Provides patient information and a list of practitioners who are medical doctors.

Chartered Society of Physiotherapy

14 Bedford Row
London WC1R 4ED
Phone: 020 7306 6666
www.csp.org.uk

General Chiropractic Council (GCC)

44 Wicklow Street
London WC1X 9HL
Phone: 020 7713 5155
www.gcc-uk.org

The regulatory body for chiropractors in the UK; can also supply details of chiropractors in your area.

General Osteopathic Council

176 Tower Bridge Road
London SE1 3LU
Phone: 020 7357 6655
www.osteopathy.org.uk

Can supply details of osteopaths in your area.

Institute for Complementary Medicine (ICM)

PO Box 194
London SE16 7QZ
Phone: 020 7237 5165
www.i-c-m.org.uk

Publishes a register of complementary practitioners.

Pain Relief Foundation

Clinical Sciences Centre
University Hospital Aintree, Lower Lane
Liverpool L9 7AL
Phone: 0151 529 5820
www.painrelieffoundation.org.uk

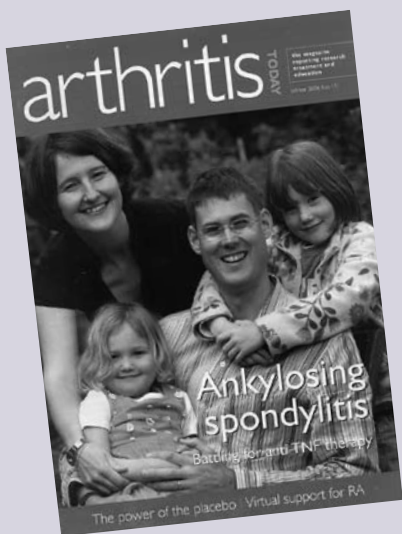
Produces information leaflets and audiotapes. Visit the website or send a 50p-stamped, self-addressed envelope to the address above, specifying your particular pain problem.

Society of Teachers of the Alexander Technique (STAT)

1st Floor, Linton House
39–51 Highgate Rd
London NW5 1RS
Phone: 0845 230 7828
www.stat.org.uk

Can supply a free list of practitioners of the technique.

Arthritis Research Campaign



The Arthritis Research Campaign (**arc**) is the only major UK charity funding research in universities, hospitals and medical schools to investigate the cause and cure of arthritis and other rheumatic diseases. We also produce a comprehensive range of over 80 free information booklets and leaflets covering different types of arthritis and offering practical advice to help in everyday life.

arc receives no government or NHS grants and relies entirely on its own fundraising efforts and the generosity of the public to support its research and education programmes.

Arthritis Today is the quarterly magazine of **arc**. This will keep you informed of the latest treatments and self-help techniques, with articles on research, human interest stories and fundraising news. If you would like to find out how you can receive this magazine regularly, please write to: Arthritis Research Campaign, Ref AT, PO Box 177, Chesterfield S41 7TQ.

Please add any comments on how this booklet could be improved.

Feedback is very valuable to **arc**. However, due to the volume of correspondence received, we regret that we cannot respond to individual enquiries made on this form.

Please return this form to: Arthritis Research Campaign, PO Box 177, Chesterfield S41 7TQ

The Arthritis Research Campaign was formerly known as the Arthritis and Rheumatism Council for Research. Registered Charity No. 207711.



Information on drugs

Separate **arc** leaflets are available on many of the drugs used for arthritis and related conditions. We would recommend that you read the relevant leaflets for more detailed information about your medication.

A team of people contributed to this booklet. The original text was written by a doctor with expertise in the subject. It was assessed at draft stage by doctors, allied health professionals, an education specialist and people with arthritis. A non-medical editor rewrote the text to make it easy to understand and an **arc** medical editor is responsible for the content overall.



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