



What is reactive arthritis?



Reactive arthritis is a condition which can develop following an infection of the bowel or genital tract, causing painful swelling of the joints. In this booklet we'll explain more about the condition, some of the possible causes and what can be done to help.

At the back of this booklet you'll find a brief glossary of medical words – we've underlined these when they're first used in the booklet.

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At a glance

Reactive arthritis

What is reactive arthritis?

Reactive arthritis is a relatively short-lived condition causing painful swelling of the joints. It develops shortly after an infection of the bowel or genital tract or, less frequently, after a throat infection.

What are the symptoms?

The most common symptoms of reactive arthritis are:

- painful and swollen joints, usually in the lower limbs (ankles or knees)
- swelling and tenderness of the tendons surrounding joints
- swelling of individual fingers or toes so that they look like sausages – sometimes called a sausage digit (dactylitis).

Other less common symptoms may include:

- inflamed, red eyes (conjunctivitis)
- scaly skin rashes over the hands or feet
- diarrhoea, which may start some time before the arthritis
- mouth ulcers
- inflammation of the genital tract (causing discharge from the penis or vagina)

Symptoms may last for up to six months but will usually disappear completely.

- in men, a sore rash over the end of the penis.

What treatments are there?

Medical treatments for reactive arthritis fall into three groups:

Treating the original infection:

- antibiotics (usually taken by mouth) to help clear up the initial infection, if it persists
- eye drops to treat eye infections.

Treating inflammation:

- non-steroidal anti-inflammatory drugs (NSAIDs) – e.g. ibuprofen – in mild to moderate cases.

Tackling persistent arthritis:

- disease-modifying anti-rheumatic drugs (DMARDs)
- injections to remove fluid from the joints (aspiration)
- injection of steroids into the joints or muscles.

Note: this isn't a definitive list, and you should always discuss any possible treatments with your doctor.

What causes it?

Unlike septic arthritis, which is caused by an active infection within a joint, reactive arthritis is a reaction to an infection elsewhere in your body. This original infection may be:

- a gut infection, such as food poisoning or dysentery, usually involving diarrhoea
- an infection of the genital tract, sometimes caused by sexually transmitted infections (STIs)
- a throat infection, usually caused by streptococcus
- ordinary viral or bacterial infections of other kinds.

How is it diagnosed?

Reactive arthritis can usually be told apart from other arthritic conditions because of the link to an earlier infection. Your doctor will therefore probably ask about your recent health and sexual activity if reactive arthritis is suspected.

What tests are there?

There's no specific test for reactive arthritis, but the following may be used to confirm a diagnosis or rule out other causes of the symptoms:

- a stool sample or swabs taken from the throat, penis or vagina, which can be tested for signs of inflammation or infection
- blood tests to check for levels of inflammation and to test for a specific gene that can make you more likely to get reactive arthritis (known as HLA-B27).

How can I help myself?

You might find the following help relieve some of the symptoms:

- plenty of bed rest may be helpful in the short term
- ice packs and heat pads
- wrist resting splints, heel and shoe pads for support and comfort
- painkillers (analgesics).

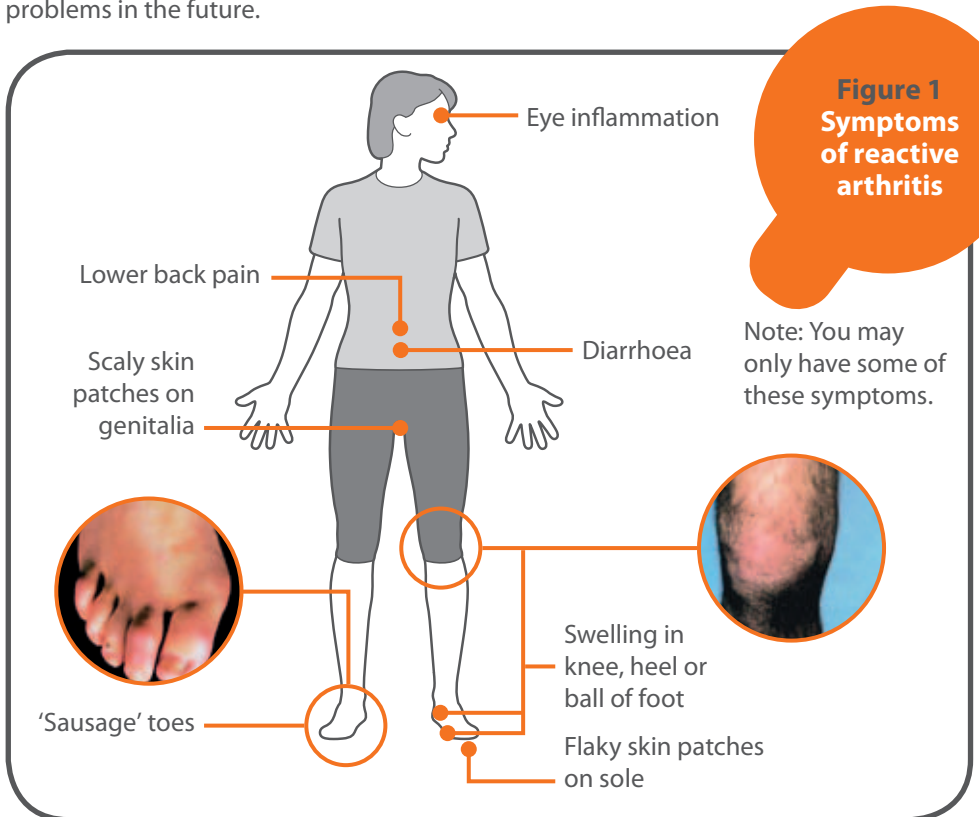
What is reactive arthritis?

The term reactive arthritis is used to describe inflammation (heat, pain and swelling) in the joints that can develop after an infection of the bowel or genital tract. Often reactive arthritis only causes joint inflammation, but sometimes this may be accompanied by other symptoms.

Reactive arthritis is usually a relatively short-lived condition that may last for up to 6 months and in most cases disappears completely, causing no problems in the future.

What are the symptoms of reactive arthritis?

Pain and swelling, usually in the lower limbs (knees, ankles or toes), are often the first signs of reactive arthritis. Swelling may happen suddenly or develop over a few days after an initial stiffness in the affected joints. Other joints, including the fingers, wrists, elbows and the joints at the base of the spine (sacroiliac joints), can also become inflamed.



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Reactive arthritis

Reactive arthritis can also cause inflammation of the tendons around the joints, such as the Achilles tendon at the back of the ankle. If both the tendons and joints of one finger or toe are affected at the same time it can cause that finger or toe to become swollen like a sausage. This is called a sausage digit or dactylitis (see Figure 2).

Often joint pain and swelling are the only symptoms of reactive arthritis; however, as Figure 1 shows, other possible symptoms include:

- inflamed, red eyes (conjunctivitis)
- scaly skin rashes over the hands or feet (known as keratoderma blenorrhagica)
- diarrhoea, which may start some time before the arthritis
- mouth ulcers
- inflammation of the genital tract which produces a discharge from the vagina or penis
- in men, a sore rash over the end of the penis
- weight loss and fever.

Who gets reactive arthritis?

People of all ages, including children, can get reactive arthritis. For this reason reactive arthritis generally affects a younger average age group than rheumatoid arthritis or osteoarthritis.

The most common cause in the UK is an infection of the gut, such as food poisoning or dysentery. Between 1 and 2% of people involved in any outbreak of food poisoning may suffer joint inflammation afterwards. Reactive arthritis is often reported following a stomach upset or diarrhoea. Less commonly, reactive arthritis may follow a sexually transmitted infection (STI). Sometimes it can follow a throat infection (usually caused by a bacteria called streptococcus). However, it's important to remember that most throat infections are caused by viruses and don't cause reactive arthritis.



Although there isn't a family tendency to develop reactive arthritis, if you have a particular gene, HLA-B27, you may be more likely to develop the condition. This gene is carried by about 1 in 14 (7%) of the general population.

Whether you've got this gene or not can be checked with a simple blood test. Having the HLA-B27 gene may also make you more likely to have further episodes of reactive arthritis in the future.

i See Arthritis Research UK booklets
*Osteoarthritis; Rheumatoid arthritis;
What is arthritis?*

Figure 3 Infections which can trigger reactive arthritis

Gut infections

Salmonella
Food poisoning
Dysentery

Sexually acquired infections

Gonorrhoea
Chlamydia
Non-specific urethritis (NSU)

Viruses

Influenza
Parvovirus
Hepatitis

Bacteria

Streptococcus
Sore throat/tonsillitis



What causes reactive arthritis?

Unlike septic arthritis, reactive arthritis isn't caused by an active infection within the joints. With reactive arthritis the inflammation of the joints is a reaction to an infection elsewhere in your body.

It isn't known exactly why this happens. One theory is that once your immune system has dealt with the original infection, fragments of bacteria may be carried through your bloodstream and deposited in the lining of your joints. This could trigger an inflammatory reaction. Figure 3 shows some of the infections that can trigger reactive arthritis.

! **Chlamydia**, the most common sexually transmitted infection in the UK, can trigger bouts of reactive arthritis. It often doesn't have any symptoms (especially in women), but it may cause pain on passing urine or discharge from the vagina or penis. If you experience these symptoms, or have had unprotected sex and are worried, see your GP or visit a sexual health clinic.

What is the outlook?

For most people, reactive arthritis disappears completely within 6 months. During this time you may have good and bad days. Gradually, as the arthritis subsides, you'll find there are more good days than bad. In 10–20% of people the symptoms last for longer than 6 months,

but only a small number of people go on to develop a persistent arthritis that requires longer term treatment.

Some people, especially those who have the HLA-B27 gene, may have bouts of reactive arthritis which come back at intervals of months or years in response to further infections. When this happens it's described as recurrent. If you're affected in this way you should be especially careful to avoid exposure to food poisoning and to avoid the risk of sexually transmitted infections.

How is reactive arthritis diagnosed?

There are several other conditions which can cause similar inflammation of the joints.

Usually when reactive arthritis disappears the joints make a full recovery and there are no long-term problems as a result.

A short course of antibiotics will help to clear up your original infection.

These include rheumatoid arthritis, psoriatic arthritis, Behçet's syndrome and gout.

i See Arthritis Research UK booklets

Behçet's syndrome; Gout; Psoriatic arthritis.

There's no specific blood test, x-ray or scan that can tell for certain that you have reactive arthritis. Doctors usually diagnose reactive arthritis on the basis of their clinical judgement if one or more of the following are true:

- you suddenly develop arthritis, especially in the knees or ankles, just after suffering an infection – but the infection may have been so mild that you didn't notice it, so sometimes doctors diagnose reactive arthritis even when there's no definite history of infection
- all tests for other forms of arthritis (such as rheumatoid arthritis) are negative
- the arthritis is accompanied by symptoms very typical of reactive arthritis, such as rash over the palms or soles or red painful eyes.

What tests are there?

There isn't a specific test for reactive arthritis, and it may be difficult to link your symptoms to a previous infection. Tests may therefore be used to either confirm a diagnosis of reactive arthritis or to rule out other possible conditions. Tests may include:

- a stool sample or swabs taken from the throat, penis or vagina, which can be tested for signs of inflammation or infection
- blood tests to check for levels of inflammation and to test for the HLA-B27 gene.

Blood tests can also be used to test for antibodies associated with other forms of arthritis (including rheumatoid factor and anti-nuclear antibody (ANA)).

If your eyes are sore and red you may be examined by an eye specialist in order to check that it isn't a serious inflammation of the eye, known as iritis. This is different from conjunctivitis, which is the most common cause of a painful red eye. Iritis is inflammation of the coloured part of the eye (the iris), whereas conjunctivitis is inflammation of the white of the eye.

What treatments are there for reactive arthritis?

Treatments for reactive arthritis fall into three groups:

- antibiotics to treat the initial infection if it persists

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Reactive arthritis

- treatments to help the joint pain and swelling
- drugs to tackle persistent arthritis.

Treating the infection

If you're found to have a bowel or genital tract infection you'll probably be given antibiotics by mouth. These will help to get rid of the organism that is causing the infection. But antibiotics aren't generally given over a long period of time because research has shown that this doesn't help to clear up the joint inflammation in reactive arthritis. Conjunctivitis is often treated with eye drops or ointment. More severe eye inflammation, such as iritis, may need steroid eye drops.

Treating the joint pain and swelling

Joint inflammation is treated according to severity. Mild to moderate arthritis may be relieved with non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, indometacin or diclofenac. Like all drugs, NSAIDs can sometimes have side-effects, but your doctor will take precautions to reduce the risk of these side-effects – for example, by prescribing the lowest effective dose for the shortest possible period of time.

NSAIDs can cause digestive problems (stomach upsets, indigestion, or damage to the lining of the stomach) so in most cases NSAIDs will be prescribed along with a drug called a proton pump inhibitor (PPI), which will help to protect the stomach.

NSAIDs also carry an increased risk of heart attack or stroke. Although the increased risk is small, your doctor will be cautious about prescribing NSAIDs if there are other factors that may increase your overall risk – for example, smoking, circulation problems, high blood pressure, high cholesterol or diabetes.

i See Arthritis Research UK drug leaflets *Drugs and arthritis; Non-steroidal anti-inflammatory drugs.*



As well as drug treatments, you might find wrist resting splints, heel and shoe pads, and sometimes bed rest helpful in the short term. Ice packs and heat pads can also help to relieve joint pain and swelling. A pack of frozen peas or hot-water bottle can be used, but should be wrapped in a towel to protect your skin.

i See Arthritis Research UK booklets
Looking after your joints when you have arthritis; Splints for arthritis of the wrist and hand.

Treating severe or persistent arthritis

More severe symptoms may need a joint injection to remove fluid (this is called aspiration) and to put steroid into the inflamed joint. This is often used to relieve knee pain. Where a tendon is painful, it's sometimes possible to inject steroid near to that tendon to reduce the inflammation. Occasionally, severe arthritis may need treatment with injections of steroids into a muscle (so that it spreads through the body) or short courses of low-dose steroid tablets. Steroid treatments given in these ways are often very effective in the short term.

If the treatments described above don't quickly allow good control of the disease, disease-modifying anti-rheumatic drugs (DMARDs) may be introduced, such as sulfasalazine and, occasionally, methotrexate or azathioprine.

i See Arthritis Research UK drug leaflets *Azathioprine; Local steroid injections; Methotrexate; Steroid tablets; Sulfasalazine.*

Self-help and daily living

Rest and exercise

If your joints are inflamed, you may feel tired and generally unwell. Plenty of rest and sleep can play an important role in recovery during the early stages of reactive arthritis, but it's also important that you try to keep your joints moving and maintain muscle strength. You may be advised by a [physiotherapist](#) or [occupational therapist](#) to do particular exercises, but you should avoid activities that might put too much strain on inflamed joints.

i See Arthritis Research UK booklets
Fatigue and arthritis; Keep moving; Occupational therapy and arthritis; Physiotherapy and arthritis; Sleep and arthritis.

Diet

There are no diets that are proven to help reactive arthritis, although certain dietary supplements may help to reduce the inflammation. A well-balanced diet is important for your general health and well-being.

i See Arthritis Research UK booklet
Diet and arthritis.



Complementary medicine

Complementary and alternative medicine may have a role to play in the control of individual joint symptoms. These may include acupuncture, herbal medicine, massage and dietary supplements.

i See Arthritis Research UK booklet
Complementary and alternative medicine for arthritis.

Research and new developments

Arthritis Research UK continues to support research into reactive arthritis. As a result, we now have a better understanding of how infections can trigger reactive arthritis by overstimulating the immune system. Many

studies have shown the presence of particles of bacteria and viruses within the inflamed joints. Further work is being done to find out whether these germs are present in a live or dead form in the joints. Learning more about the causes of reactive arthritis gives cause for optimism that even more effective treatments can be developed in the future.

Is reactive arthritis the same as viral-associated arthritis?

No, viral-associated or post-viral arthritis is different to reactive arthritis. In this condition joint pains develop at the same time that a person is suffering from a virus infection or following vaccination against a virus. Viral-associated arthritis usually clears up within a few weeks, whereas reactive arthritis can last for several months. One of the common causes of viral-associated arthritis is parvovirus infection. In children, parvovirus may cause an outbreak of slapped cheek syndrome (fever and rash on the cheeks) that can be easily spread through a school and doesn't usually cause joint problems in the children. Adults who've been in contact with the children suffering from parvovirus, such as teachers, may develop parvovirus arthritis.

The most important thing to remember about viral-associated arthritis is that it usually only lasts a few days or weeks and doesn't return or cause long-term problems.



Glossary

Analgesics – painkillers. As well as dulling pain they lower raised body temperature, and most of them reduce inflammation.

Antibodies – blood proteins which are formed in response to germs, viruses or any other substances which the body sees as foreign or dangerous. The role of antibodies is to attack foreign substances and make them harmless.

Anti-nuclear antibodies (ANA) – antibodies which are often found in the blood of people with forms of arthritis other than reactive arthritis. A test for anti-nuclear antibodies is sometimes carried out to exclude other conditions which can mimic reactive arthritis.

Chlamydia – the most common sexually transmitted infection (STI) in the UK. It is on the increase especially in young people. It is a bacterium that can remain dormant for years and is a major cause of infertility. It may have no symptoms.

Disease-modifying anti-rheumatoid drugs (DMARDs) – drugs used in rheumatoid arthritis and some other rheumatic diseases to suppress the disease and reduce inflammation. Unlike painkillers and non-steroidal anti-inflammatory drugs (NSAIDs), DMARDs treat the disease itself rather than just reducing the pain and stiffness caused by the disease. Examples of DMARDs are methotrexate, sulfasalazine, gold, infliximab, etanercept and adalimumab.

HLA-B27 – human leukocyte antigen B27. People who have this gene are more likely to have conditions such as reactive arthritis, psoriatic arthritis or ankylosing spondylitis.

Non-steroidal anti-inflammatory drugs (NSAIDs) – a large family of drugs prescribed for different kinds of arthritis that reduce inflammation and control pain, swelling and stiffness. Common examples include ibuprofen, naproxen and diclofenac.

Occupational therapist – a therapist who helps you to get on with your daily activities (e.g. dressing, eating, bathing) by giving practical advice on aids, appliances and altering your technique.

Osteoarthritis – the most common form of arthritis (mainly affecting the joints in the fingers, knees, hips), causing cartilage thinning and bony overgrowths (osteophytes) and resulting in pain, swelling and stiffness.

Parvovirus – the cause of a common childhood illness known as fifth disease or slapped cheek syndrome. Adults in contact with children who have this infection may pick up a mild infection without realizing it. This virus can also trigger reactive arthritis.

Physiotherapist – a therapist who helps to keep your joints and muscles moving, helps ease pain and keeps you mobile.

Proton pump inhibitor (PPI) – a drug that acts on an enzyme in the cells of the stomach to reduce the secretion of gastric acid. They're often prescribed along with non-steroidal anti-inflammatory drugs (NSAIDs) to reduce side-effects from the NSAIDs.

Rheumatoid arthritis – an inflammatory disease affecting the joints, particularly the lining of the joint. It most commonly starts in the smaller joints in a symmetrical pattern – that is, for example, in both hands or both wrists at once.

Rheumatoid factor – a blood protein produced by a reaction in the immune system. About 80% of people with rheumatoid arthritis test positive for this protein. However the presence of rheumatoid factor cannot definitely confirm the diagnosis.

Septic arthritis – also known as infective arthritis, this is very different from reactive arthritis. It occurs when there is an active infection within a joint or joints, usually only one joint initially. It can happen as a complication of an artificial joint replacement or arthritis. Septic arthritis is a medical emergency requiring hospital treatment.

Tendon – a strong, fibrous band or cord that anchors muscle to bone.

Where can I find out more?

If you've found this information useful you might be interested in these other titles from our range:

Conditions

- *Behçet's syndrome*
- *Gout*
- *Osteoarthritis*
- *Psoriatic arthritis*
- *Rheumatoid arthritis*
- *What is arthritis?*

Therapies

- *Occupational therapy and arthritis*
- *Physiotherapy and arthritis*

Self-help and daily living

- *Complementary and alternative medicine for arthritis*
- *Diet and arthritis*
- *Fatigue and arthritis*
- *Keep moving*
- *Looking after your joints when you have arthritis*
- *Pain and arthritis*
- *Sleep and arthritis*
- *Splints for arthritis of the wrist and hand*

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Drug leaflets

- *Azathioprine*
- *Drugs and arthritis*
- *Local steroid injections*
- *Methotrexate*
- *Non-steroidal anti-inflammatory drugs*
- *Steroid tablets*
- *Sulfasalazine*

You can download all of our booklets and leaflets from our website or order them by contacting:

Arthritis Research UK

PO Box 177
Chesterfield
Derbyshire S41 7TQ
Phone: 0300 790 0400
www.arthritisresearchuk.org

Related organisations

The following organisations may be able to provide additional advice and information:

Arthritis Care

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

Offers self-help support, a helpline service (on both numbers above), and a range of leaflets on arthritis.

NHS Sexual Health Helplines

Sexual Health Line (freephone):
0800 567123
Sexwise (freephone helpline for under-18s): 0800 282930
www.playingsafely.co.uk

Provides information and helpline services on sexually transmitted infections and sexual health in general. The website includes a search facility to help you find local sexual health clinics.

Arthritis Research UK

Providing answers today and tomorrow



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ΙΩΑΝΝΗΣ Γ. ΡΟΥΤΣΙΑΣ

ΜΙΚΡΟΒΙΟΛΟΓΙΚΟ
ΔΙΑΓΝΩΣΤΙΚΟ
& ΕΡΕΥΝΗΤΙΚΟ
ΕΡΓΑΣΤΗΡΙΟ



ΜΙΚΡΟΒΙΟΛΟΓΙΚΟ
ΔΙΑΓΝΩΣΤΙΚΟ
ΙΑΤΡΕΙΟ



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ΠΑΡΑΛΑΒΗ ΑΠΟΤΕΛΕΣΜΑΤΩΝ

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