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Arthritis
AUSTRALIA

*Australian Rheumatology
Association*

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What this booklet is about

This booklet has been written for anyone who wants to learn about rheumatoid arthritis, including people who have rheumatoid arthritis, their families and friends. Topics include:

- a description of rheumatoid arthritis
- how the disease affects the body
- who is at risk
- how it can be best managed, and
- the financial and social impacts of rheumatoid arthritis.

The booklet also uses the latest statistics to describe the extent of the problem in Australia.

Caution

Although this booklet provides an overview of some of the current management strategies for rheumatoid arthritis, it should not be used as a guide to self-management. Please consult a qualified health professional for treatment and management of rheumatoid arthritis.

Data in this booklet

This booklet presents a range of statistical information about rheumatoid arthritis and its impact on the Australian population. Most of the data used in generating this information were obtained from the National Health Survey (NHS) which is conducted every 3 years by the Australian Bureau of Statistics (ABS).

Information has also been derived from administrative data collections including the National Hospital Morbidity Database and the National Mortality Database.

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Key facts about rheumatoid arthritis

- Rheumatoid arthritis is an often serious joint disease that affects around 400,000 Australians and is the second most common type of arthritis, after osteoarthritis. The disease is more common among females and in older age groups.
- The main symptoms of the disease are pain, swelling, morning stiffness, fatigue and limited movement of the affected joints. Symmetrical hand (both hands) effects are a prominent feature of the disease.
- The underlying cause of rheumatoid arthritis is not well understood but genetic factors play a key role. Smoking also increases the risk of developing the disease.
- It is an autoimmune disease, meaning the immune system attacks its own body tissues. Other organs of the body can be affected as well as the joints.
- Untreated rheumatoid arthritis will often result in joint damage and deformities. In advanced cases it can lead to severe deformities, especially of the hands. Early diagnosis and medical intervention are critical to improving the outcome.
- Medication is effective in reducing joint pain and swelling, and reducing joint damage. Other therapies including physical therapy (exercise, strength training, massage and water therapy), occupational therapy and surgery are also helpful.
- Education to help people manage their disease themselves plays an important role in achieving the best outcome for the person with rheumatoid arthritis.
- Rheumatoid arthritis is a major cause of disability and psychological distress with many people requiring assistance with daily activities. It also has a serious impact on the person's family.
- The disease reduces a person's capacity to work, with only 31% of those affected in fulltime employment in 2004–05 compared with 53% of the general population.
- Around 50% of people with rheumatoid arthritis reported using pharmaceutical medication and 38% health supplements to manage their disease, while an estimated 28% used some form of exercise and 13% massage or water therapy to control pain and ease symptoms.
- Direct health expenditure on rheumatoid arthritis accounted for 4% of total expenditure on arthritis and other musculoskeletal conditions by governments, individuals and industry in Australia in 2004–05.

What is rheumatoid arthritis?

Rheumatoid arthritis is an inflammatory, autoimmune disease that causes pain, joint stiffness—especially in the morning—and loss of function. Although there are many forms of arthritis, of those commonly known, rheumatoid arthritis is the most serious and the second most common (after osteoarthritis). It can occur at any age but is more common in persons over the age of 30 years and affects women more often than men. The disease generally presents in a symmetrical (both sides of the body) pattern, most often involving the hand joints.

Rheumatoid arthritis affects the whole body, including several organs, and so is described as a systemic disease. Progressive and irreversible joint damage is caused by the immune system attacking its own body tissues, particularly those lining the joints. Joint pain and swelling lead to structural deformities and disability, causing a reduction in joint movement and muscle use. In turn, muscle size and strength decreases and the resulting abnormal forces on tendons cause deformity. The disease can also lead to problems with the heart, respiratory system, nerves and eyes. The underlying cause of the disease is not well understood.

Rheumatoid arthritis strikes people in different ways. In some cases, the disease starts suddenly over several days to weeks. For the remainder, it starts more gradually over a period of several weeks to months. In a small proportion (5%), the disease will disappear after 4 to 8 weeks. For another 10% of cases there may be periods of improvement which can last up to several years. In the majority of cases however, it becomes chronic. There may be periods of comparative remission, where symptoms decrease markedly, but in the longer term without effective treatment the disease causes much damage and disability (Koehn et al. 2002).

Autoimmune disease

The immune system is the body's means of protection against 'foreign' substances such as those carried by bacteria and viruses. It has the ability to recognise cells and tissues that are its own (self) as distinct from those that are not (non-self). The immune system generally protects rather than attack its own body tissues.

In autoimmune diseases, the body produces an immune response when the immune system can't distinguish some of its own body tissues (self) from foreign substances (non-self), attacking its own tissues as a result. The reason for this attack is not well understood, although some people may have a genetic risk of an autoimmune disease developing. In many cases this risk is passed down through families.

How are the joints affected?

A joint is where two bones meet to allow movement and flexibility of the body. The movement is controlled by muscles attached to the bone through tendons. The ends of the bones within a joint are covered by a smooth tissue called cartilage, which enables one surface to glide over the other.

Each joint is surrounded by a capsule that protects and supports it. The capsule is lined with synovium, a type of tissue that produces fluid to lubricate and nourish joint tissues (see Figure 1). In a healthy joint, this lining is very thin, has very few blood vessels in it and does not contain any white blood cells.

In rheumatoid arthritis, the immune system generally attacks the synovium first. White blood cells move from the blood stream and invade the synovium and small blood vessels infiltrate the area. Consequently, the synovial membrane becomes thick and inflamed, resulting in unwanted tissue growth. The inflammation also involves the release of various biochemical substances that cause pain, swelling and joint damage. These substances can also damage the surrounding cartilage, bone, tendons and ligaments. Also when they enter the bloodstream, these substances can cause fatigue and a general feeling of being unwell. Gradually, the joint loses its shape and alignment and undergoes changes that are mostly irreversible.

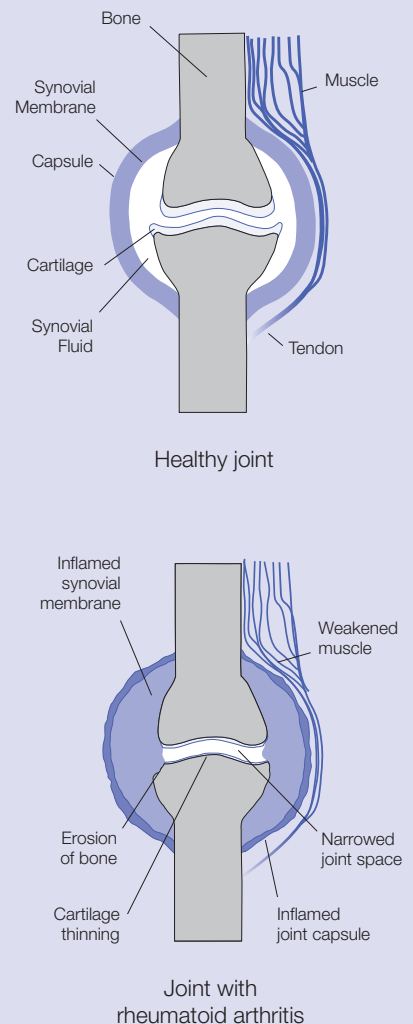


Figure 1: Effects of rheumatoid arthritis on a joint.

Which joints are affected?

Rheumatoid arthritis affects most of the joints of the body but certain joints, particularly those of the wrists, hands and feet, are more likely to be affected. These include:

- the metacarpophalangeal (MCP) joints—the row of knuckles on the hand closest to the wrist (Figure 2)
- the proximal interphalangeal (PIP) joints—the second (or middle) row of knuckles on the hand
- the wrist joints
- the metatarsophalangeal (MTP) joints—the row of joints at the base of the toes.

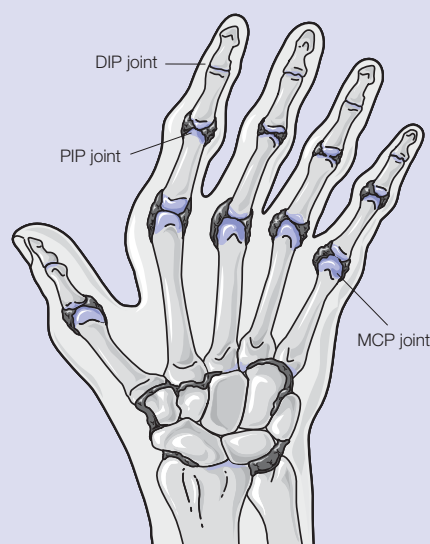
However, the distal interphalangeal (DIP) joints, which are the joints at the tips of the fingers, are generally not involved—as distinct from osteoarthritis, where they are the most commonly affected hand joints.

At initial diagnosis, the joints (excluding the DIP) on both hands and feet are found to be affected in almost half the cases. Both shoulders or knees are also involved initially in about one-quarter of cases, and both ankles or both elbows in about 1 in 6 cases. As the disease progresses, all these joints are likely to be affected.

Diagnosing rheumatoid arthritis

There is no single test for diagnosing rheumatoid arthritis. The disease is difficult to diagnose with certainty in its early stages because symptoms vary considerably and overlap with other forms of arthritis. (The symptoms of pain and stiffness, often with fatigue and general malaise, also occur with some other forms of arthritis.)

Diagnosis is generally based on clinical assessment, laboratory tests and X-rays. The initial clinical assessment will be based on the symptoms, the pattern of joints involved and the person's medical history. The doctor will also check for the presence of rheumatoid nodules—lumps under the skin that occur near affected joints.



Source: Image was produced using Servier Medical Art.

Figure 2: Joints of the hand

Laboratory tests include measuring the level of an antibody called rheumatoid factor (RF) in the blood. However the presence of RF does not establish a firm diagnosis, as only about 80% of people with rheumatoid arthritis test positive, while about 5% of people without the disease test positive.

More recently, the anti-CCP (anti-cyclic citrullinated peptide antibody) test has been added. The two tests (RF and anti-CCP) when combined are better able to diagnose rheumatoid arthritis in its early stages (Tedesco et al. 2009).

X-rays to check if joints show any damage caused by inflammation may also be used, although magnetic resonance imaging (MRI) scans are more sensitive than X-rays and may show signs of joint damage earlier.

Rheumatologists, who are specialists in dealing with diseases of the bones and joints, will often be called upon to help confirm the diagnosis.

General criteria for diagnosing and managing rheumatoid arthritis have been drafted by the Royal Australian College of General Practitioners (RACGP), as shown on the right.

The outlook for people newly diagnosed with the disease is now much more positive because it is recognised that early diagnosis and treatment are critical to good long-term control and outcomes. Early aggressive treatment aimed at controlling the disease process can limit joint damage and minimise pain and disability. Recent research indicates that most people presenting with rheumatoid arthritis today can expect to avoid or largely delay joint damage and maintain a good quality of life (Roberts et al. 2006).

RACGP draft clinical guidelines for the diagnosis of rheumatoid arthritis

Rheumatoid arthritis is suspected if the following signs and symptoms are present:

1. *Morning stiffness in and around the joints, lasting for longer than 30 minutes.*
2. *Tenderness and swelling of 3 or more joints including the elbows, wrists, hands, knees, ankles or feet, present for at least 6 weeks.*
3. *Symmetrical involvement of MCP or MTP joints, that is, both hands or both feet.*
4. *Positive blood test for rheumatoid factor and/or anti-CCP (anti-cyclic citrullinated peptide) antibodies.*
5. *Other causes ruled out (for example, infection).*

Source: RACGP 2008.

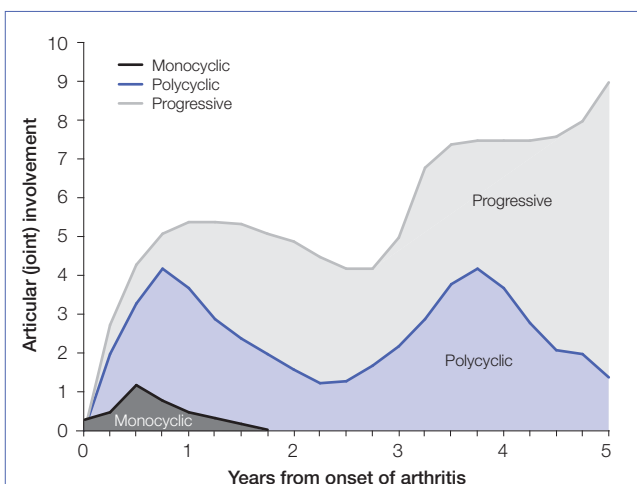
Clinical course

The clinical course of rheumatoid arthritis (the way the disease progresses) varies from person to person, but there appears to be three basic courses, as outlined on the right and illustrated in Figure 3. The polycyclic pattern of remission and relapse is the most common clinical course of rheumatoid arthritis.

Although rheumatoid arthritis cannot be cured, the symptoms of the disease may come and go. When body tissues are inflamed, the disease is active and symptoms may be severe. However, it may go into remission for weeks, months or even years either because of treatment or spontaneously. During remission, symptoms of the disease disappear and patients generally feel well.

Effects on other parts of the body

As stated earlier, rheumatoid arthritis is a systemic disease, meaning that many parts of the body are affected. The disease can affect the skin, eyes, nerves and mouth. In more severe cases rheumatoid arthritis affects the lungs, heart and blood. These effects are described below.



Source: Adapted from Hadler & Gillings 1985.

Figure 3: Clinical course patterns in rheumatoid arthritis

Clinical courses of rheumatoid arthritis

Course I: Monocyclic

About one-third of those who get rheumatoid arthritis will have complete remission within 2 years of the disease onset.

Course II: Polycyclic

This most common course, affecting around 40% of persons with rheumatoid arthritis, is slowly progressive punctuated by flare-ups (acute activity) and remissions. Flare-up periods last longer over time.

Course III: Progressive

This aggressive course occurs in almost 20% of cases. It is a constant and destructive form of the disease which causes deformity, disfigurement and even premature death.

Skin

Rheumatoid nodules are lumps located in the tissues just under the skin and appear in around one-quarter of cases. Their cause is unknown, although research suggests they may be due to inflammation of the small blood vessels under the skin. They can range in size—from as small as a pea to as large as a walnut—but are usually not painful.

Eyes and mouth

The eyes and mouth can become dry due to a decrease in tear and saliva production. This can also occur with other types of arthritis but is more common in rheumatoid arthritis.

The nervous system

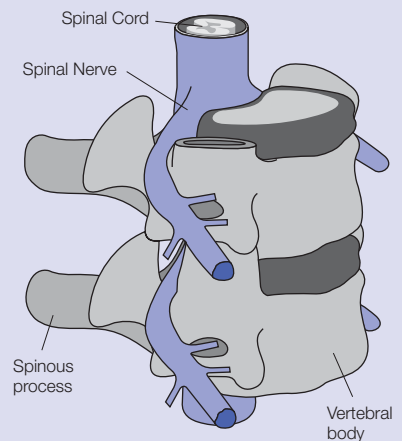
The most common nerve problem is the compression of nerves as a result of inflammation. Several nerves pass through tunnels in the tissues, and when the tunnels are near joints and tendons, inflammation of the joint or the tendon sheath can compress the nerve in its tunnel. This can result in a pins-and-needles sensation and weakness.

The parts of the body most commonly affected by these nerve problems are the hands, wrists and ankles, resulting in numbness in some of the fingers and the soles of the feet. Less commonly, serious compression of the spinal cord can arise in the neck (Figure 4).

Inflammation in the neck can lead to excessive movement between the first and second vertebrae making the latter press on the spinal cord. In rare cases, neck surgery may be needed.

Lung

There are many types of lung involvement in rheumatoid arthritis but fortunately these are generally mild and may cause no symptoms at all. The most common conditions are inflammation of the outer covering of the lung (the pleura) and scarring and thickening of the lung tissue (pulmonary fibrosis). Other more serious types of lung effects include thickening of the tissue around the air sacs, causing shortness of breath, and nodules in the lungs, but these are uncommon.



Source: Wikimedia Foundation, Inc

Figure 4: Neck vertebrae

Heart

The outer lining of the heart (pericardium) and the heart muscle (myocardium) may also become inflamed (Figure 5). This occurs in up to 30% of people with rheumatoid arthritis at some point in their life, but for most of them it does not cause any symptoms. The inflammation may however cause damage to the heart's pumping power and lead to congestive heart failure.

Blood supply

The inflammatory substances associated with rheumatoid arthritis are carried from the joints to the bone marrow, where they reduce the marrow's ability to produce red blood cells, resulting in anaemia. The anaemia is usually mild and does not require treatment.

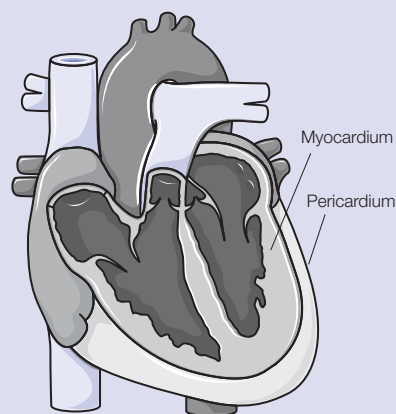
Secondary effects

There can also be secondary effects from treating the disease with drugs. Treatment with corticosteroid drugs can cause more generalised bone loss, leading to osteoporosis and an increase in the risk of bone fractures. There is also a higher risk of peptic ulcers due to chronic inflammation and medication use associated with the disease.

Another effect of the drugs used to treat rheumatoid arthritis is suppression of the immune system, increasing the risk of infections and certain cancers. There is also a greater risk of developing heart disease and stroke as a result of high blood pressure, caused by some of the drugs used to treat the disease, coupled with a lack of exercise.

Who is affected?

Rheumatoid arthritis is the second most common form of arthritis and the most common autoimmune disease in Australia (AIHW 2005). Based on self-reports from the 2004–05 National Health Survey (NHS), an estimated 384,000 Australians (2% of the population) had been diagnosed with rheumatoid arthritis by a doctor and still had the disease. Approximately 1% of the world's population are believed to have rheumatoid arthritis.



Source: Image was produced using Servier Medical Art.

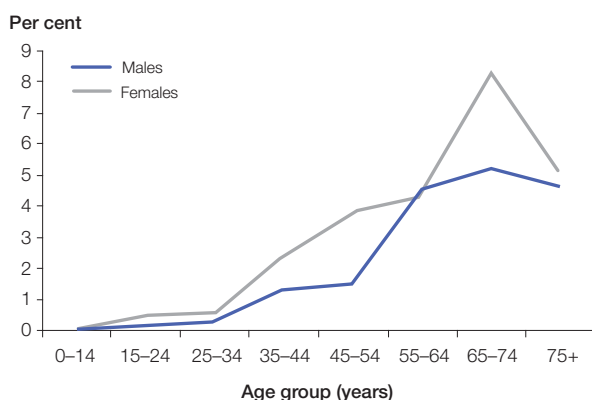
Figure 5: Heart structure

The disease is more common in females (2.4% affected) than males (1.5%) and this applies across almost all age groups (see Figure 6). Females also tend to develop the disease at an earlier age than males. The disease onset occurs most often in the age groups between 35 to 64 years (see Table 1).

Rheumatoid arthritis is relatively rare in Indigenous Australians compared to non-Indigenous Australians. Part of the reason for this may be a lack of genetic factors that predispose a person to this autoimmune disease (Roberts-Thomson & Roberts-Thomson 1999).

**Table 1: Age when first diagnosed, 2004–05
(per cent of people with rheumatoid arthritis)**

Age group	Males	Females
0–14	1.3	3.2
15–24	6.1	8.4
25–34	8.9	14.1
35–44	22.4	22.8
45–54	21.8	22.3
55–64	24.3	20.1
65–74	11.4	7.0
75 and over	3.4	2.2



Source: AIHW analysis of ABS 2004–05 National Health Survey.

Figure 6: Age-specific prevalence of rheumatoid arthritis, 2004–05¹

The National Health Survey

The ABS National Health Survey (NHS) is a nationally representative source of health information. It covers around 20,000 Australian households from which self-reported data are collected; that is, individuals are asked questions about their health. The survey does not include a physical examination or medical tests.

The NHS data presented in this booklet are the most recent available, collected in 2004–05. Individuals were asked if they had ever had rheumatoid arthritis, if they still had it, and if it was diagnosed by a doctor or a nurse. If people answered 'yes' to these three questions, we say that they have self-reported, doctor-diagnosed, rheumatoid arthritis. **The NHS data in this booklet are about people who have doctor-diagnosed rheumatoid arthritis.**

The NHS does not include people who live in institutions, such as hostels and residential care units. As rheumatoid arthritis is more common among older Australians, the lack of information on people in these institutions might cause us to underestimate the number of Australians with the disease.

Who is at risk?

The exact cause of rheumatoid arthritis is not well understood. However, it is recognised that rheumatoid arthritis is triggered by an autoimmune process. There may be a genetic tendency to autoimmunity but it is also believed to be brought on by certain types of infections or factors in the environment. Lifestyle factors such as tobacco smoking may also contribute to the development of the disease, especially in at-risk individuals.

Genetic susceptibility

Persons with rheumatoid arthritis often have family members or close relatives with the disease. If one member of a family has rheumatoid arthritis, then other family members are three or four times as likely to develop the disease as the general population.

Family studies have long indicated that identifiable genes play an important role in the development of rheumatoid arthritis. While there are no known specific genes for the disease itself, there are gene markers that identify the increased susceptibility for rheumatoid arthritis.

For example, people with rheumatoid arthritis are more likely to have certain types of HLA (human leukocyte antigens) genes, which are associated with a variety of autoimmune processes. Several other genes are also known to contribute to the development of the disease.

Since the distribution of these genes varies between populations, members of certain populations are more at risk of developing rheumatoid arthritis (Silman & Pearson 2002, Abdel-Nasser et al. 1997).

Environmental agents

The presence of genetic susceptibility alone is not sufficient to develop rheumatoid arthritis—something else also occurs to trigger the disease. It may be an infectious agent such as a virus or bacteria, or some other factor in the environment that induces the immune system to

Analysis of the NHS data supports this interpopulation variation in the prevalence of rheumatoid arthritis. Whereas nearly 2% of the Australian population overall has reported being diagnosed with rheumatoid arthritis, people born in North-East Asia (including China) have much lower prevalence (0.4%). The occurrence of rheumatoid arthritis in Indigenous Australians is also very low.

People born in southern and eastern Europe (including Italy and Greece), on the other hand, have a higher prevalence of rheumatoid arthritis than the general population (4.7%).

Some of this variation could be explained by the distribution of HLA genes in these populations.

become autoimmune—that is, to attack the body's own tissues. However, even if an infectious agent plays a role in the development of the disease, rheumatoid arthritis is not transmissible from person to person by contact.

Lifestyle

Recent studies suggest that cigarette smoking is associated with an increased risk of developing rheumatoid arthritis, especially in those with a particular genetic makeup. People who smoke are more likely to test positive for rheumatoid factor and display higher levels of it than non-smokers (Goodson et al. 2008, Matthey et al. 2002). Smoking has also been shown to significantly worsen the disease progression, with severity increasing with smoking duration. While the effect of smoking on the disease is not fully understood, its effect on the immune system can result in abnormalities in the body's white blood cells.

Health and social outcomes

Rheumatoid arthritis is a highly disabling disease which causes pain, reduced mobility, fatigue and depression. Deterioration in physical functioning can occur rapidly in the first few years after diagnosis, with increasing joint damage and disability occurring over time. The activity limitations imposed by rheumatoid arthritis and associated chronic pain can alter an individual's perception of health (self-assessed health) considerably.

Disruptions to family life, reduced earning capacity and restriction in social interaction are more pervasive and could be more devastating than joint pain and limitations. Rheumatoid arthritis also takes its toll on society, affecting industrial productivity, increasing disability levels in the community and impacting on the capacity of the health care system to manage disease.

According to the 2004–05 NHS, 31% of people with rheumatoid arthritis currently smoked, compared to 22% without the disease. The association was stronger in males than in females. However, these associations do not imply that smoking is a cause of the disease.

In the NHS, people were asked to self-assess their health status. In 2004–05, those with rheumatoid arthritis were much less likely to rate their health as excellent or very good (25%) compared to the rest of the population (45%). A large proportion of people with rheumatoid arthritis (44%) rated their health as fair or poor, nearly 4 times that of people without the disease (12%).

Persons with rheumatoid arthritis are more likely to have days of reduced activity, apart from days off work or study, compared to persons without the condition. According to the NHS, these proportions were 27% and 18% respectively, in 2004–05.

Chronic pain

When the inflammation is poorly controlled, it may present as a sharp stabbing pain in the affected joints or a dull ache that can last all day and be severe enough to disturb sleep at night. Even though people may tend to rest their painful joints, prolonged resting may increase the pain.

Painkillers may do little to help, which is why the main aim of treatment is to reduce inflammation and damage to the joints, and as a consequence lessen the associated pain. The pain may also reduce a little when the joints are moved.

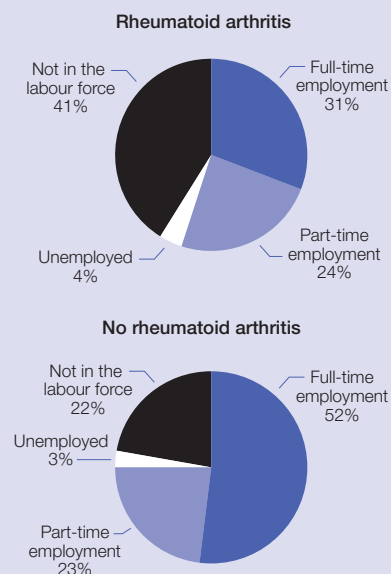
Activities of daily living

Disability caused by rheumatoid arthritis can make daily living activities difficult. Physical limitations and a lack of energy may affect normal household chores, caring for a family or even oneself. Mobility can be particularly limited and may restrict participation in social activities and employment. Social interactions may become difficult soon after initial diagnosis because of the rapid, early deterioration in physical functioning.

Complications resulting from the disease that further reduce a person's ability to undertake day-to-day activities may include carpal tunnel syndrome (wrist nerve compressions causing pain and numbness), tendon ruptures (especially those of the fingers) and an increased risk of infections.

For persons aged 15–64 years, being unable to work is one of the most common problems associated with rheumatoid arthritis. The inability to work causes major financial and psychological issues for the person with the disease and their family. There is also the social and economic burden placed on the community resulting from a person's incapacity to maintain employment.

Based on answers to the NHS question whether they were employed full time or part time, or if they were looking for work, working age people (15–64 years) with rheumatoid arthritis were almost twice as likely as the rest of the population to not be in the labour force. (People who were neither working nor looking for work were classed as not being in the labour force.) Only 31% of persons with rheumatoid arthritis were employed full time, compared to 52% in the general population, while the proportions were evenly spread (24% and 23%, respectively) for persons in part-time employment (Figure 7).



Source: AIHW analysis of ABS 2004–05 National Health Survey.

Figure 7: Employment status of people with rheumatoid arthritis, 2004–05^{1,2}

Mental wellbeing

The mental health of people with rheumatoid arthritis can be severely affected by the chronic pain and ongoing physical disability. The limitations imposed can be detrimental to a person's self-esteem and self-image. People with the disease can suffer from depression, anxiety and feelings of helplessness. The higher level of psychological distress in people with rheumatoid arthritis is shown by the 2004–05 NHS. More than twice as many people with the disease reported a very high level of psychological distress compared with other respondents (Figure 8).

The unpredictability of the disease course and possible adverse reactions to drugs also contribute to poor mental health. While new drug treatments offer hope, many may only be effective for a short period of time or have severe side effects. These inconsistent patterns cause anxiety and uncertainty in planning for the future.

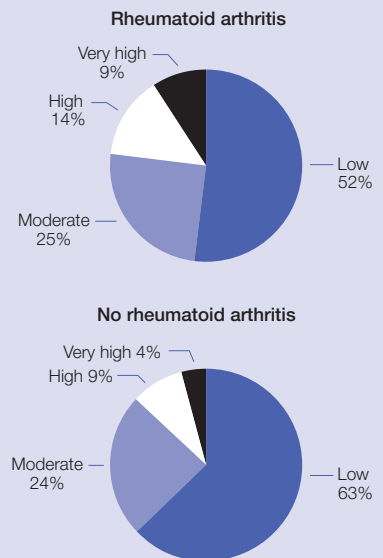
Mortality

Rheumatoid arthritis and its treatment significantly increase the risk of premature death. The disease itself is not commonly listed as the underlying (main) cause of death on death certificates. However, it contributes indirectly to a few hundred deaths in Australia each year.

Rheumatoid arthritis was cited as the underlying cause for 169 deaths (123 females and 46 males) in Australia in 2006. It was also listed as an associated (contributory) cause for 652 deaths in that year.

People with rheumatoid arthritis are more likely to have cardiovascular disease than those without rheumatoid arthritis. Evidence suggests that this may be due to the chronic systemic inflammation associated with the disease and some of the medications used to manage it (Van Doornum et al. 2006).

Cardiovascular disease was the underlying cause of 277 deaths in 2006 among persons with rheumatoid arthritis. Cancer (124) and respiratory disease (71) were the other major underlying causes of death in persons with rheumatoid arthritis.



Source: AIHW analysis of ABS 2004–05 National Health Survey.

Figure 8: Psychological distress in people with rheumatoid arthritis, 2004–05^{1,3}

The National Mortality Database

The AIHW National Mortality Database contains information about all deaths registered in Australia. Registration of deaths in Australia is the responsibility of the state and territory Registrars of Births, Deaths and Marriages. The Registrars provide deaths data to the ABS for coding and compilation into national statistics. The AIHW also holds these data.

The database contains two types of information about the cause of death, or the involvement of a disease or injury in death.

*The **underlying** cause of death is the main factor that initiates the sequence of events leading directly to death, while an **associated** cause contributes to the series of events leading up to death.*

Treatment and management

Treatment of rheumatoid arthritis should start as early as possible to:

- reduce pain and stiffness in affected joints
- prevent joint damage
- minimise disability caused by pain, joint damage or deformity
- encourage disease remission, and
- improve quality of life.

Treatment is generally based around medications with the assistance of physical therapy including joint strengthening exercises, rest and occasionally surgery. Patient education is an important ingredient underlying these elements. Treatment is generally customised according to disease activity, types of joints involved, the general health and age of the person.

Combination therapy consisting of two or more disease modifying anti-rheumatic drugs (DMARDs) has been successful in inducing remission of the disease and reducing joint damage (Klareskog et al. 2004).

How important is early diagnosis?

It is now recognised that early diagnosis, followed by aggressive treatment directed at controlling the disease process, is critical for the best outcome. Anyone experiencing symptoms that suggest rheumatoid arthritis—joint stiffness, painful and swollen joints, and fatigue—should consult their GP at an early stage. Studies have shown that people who receive early treatment are more likely to be able to lead an active life, and are less likely to experience the type of damage that requires joint replacement.

The pain controllers

Nonsteroidal anti-inflammatory drugs (NSAIDs) reduce pain and inflammation. Examples are ibuprofen and naproxen. Possible side effects include stomach upset, ulcers and bleeding.

COX-2 inhibitors are a form of NSAIDs that are less likely to cause serious stomach problems. An example is celecoxib. However, some drugs in this class have been shown to increase the risk of cardiovascular events such as heart attack and stroke.

Corticosteroids or glucocorticoids (steroids) alleviate joint pain, swelling and other symptoms of rheumatoid arthritis. An example is prednisolone. Steroids can have many side effects, some of them serious, and need to be used with care. Possible side effects include weight gain, brittle bones, glaucoma, cataract, reduced immunity, high blood pressure, fragile skin and onset or worsening of diabetes.

The disease modifiers

Disease-modifying anti-rheumatic drugs (DMARDs) help prevent joint and cartilage damage and may produce major improvement in many patients. Examples are methotrexate and sulfasalazine. These drugs may be used in combination, but they are potent and side effects may include skin rashes, mouth sores, upset stomach, liver and kidney problems, and severe anaemia.

(continued next page)

Specialist management

Rheumatoid arthritis is a complex disease and specialist involvement at an early stage is highly desirable. When it first appears, the disease can be difficult to diagnose because joint inflammation can have many underlying causes. Expertise is needed to establish a diagnosis early on and to rule out other diseases with similar symptoms.

There have been rapid advances in the treatment of rheumatoid arthritis in recent years. Rheumatologists, who are specialists in arthritis and other musculoskeletal disorders, are best placed to keep abreast of the latest developments.

The RACGP draft clinical guidelines may be used by specialists, working with the GP and other health care providers, to develop and carry out an appropriate treatment plan for the person.

Medication

Prescription medication

Two general classes of drugs are commonly prescribed for the treatment of rheumatoid arthritis. The first aims to control pain and inflammation (nonsteroidal anti-inflammatory drugs—NSAIDs), while the second works to alter the course of the disease and promote disease remission (disease modifying anti-rheumatic drugs—DMARDs). These medications are potent, with serious side effects and should be used with care.

There is also debate about the use of tetracycline antibiotics in some cases to reduce disease activity (Stone et al. 2003). However, further studies are required to establish their potential (Gompels et al. 2006).

Over-the-counter medication

Non-prescription pain relievers such as paracetamol are often the first port of call for people with arthritis. These can help with mild to moderate pain but do not reduce inflammation.

Biologic DMARDs (anti-TNF agents, B cell therapy, T cell therapy and IL6 blockade) help to reduce the symptoms of the disease by targeting the body's own immune system, to slow down the inflammation process. They also slow the progression of joint damage. Examples include etanercept and infliximab. Such medications are injected or given intra-venously. Possible side effects include injection or infusion site reactions, infections, cough, headache and stomach discomfort.

More information about rheumatoid arthritis medication is available on the Arthritis Australia and Australian Rheumatology Association websites (www.arthritisaustralia.com.au and www.rheumatology.org.au). It is important to discuss all medication use with your doctor or pharmacist.

Complementary medicines and dietary supplements

In general, evidence for the effectiveness of complementary medicines (also known as alternative medicines) in rheumatoid arthritis is inconclusive as studies are often too small and are of short duration. Nevertheless, there is some evidence that certain supplements and natural therapies could have a role in managing the disease (Vitetta et al. 2008).

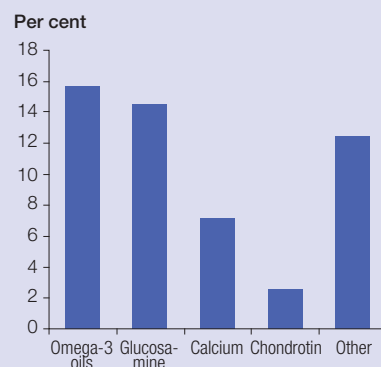
Many people with rheumatoid arthritis take dietary supplements or complementary medicines along with their prescription medication. One supplement commonly used is fish oil containing omega-3 fatty acids. GPs are advised to recommend these oils as an adjunct for managing pain and stiffness in rheumatoid arthritis patients (RACGP 2008). Studies of such patients showed they had less inflammation and were able to reduce their NSAID medication (Goldberg & Katz 2007). In addition, the consumption of fish oils may help safeguard against cardiovascular disease, a condition commonly associated with rheumatoid arthritis.

The 2008 RACGP clinical guidelines also recommend the use of gamma-linolenic acid (GLA), an essential omega-6 fatty acid found in vegetable oils such as evening primrose, blackcurrant or borage seed oils, for relief of pain, morning stiffness and joint tenderness in rheumatoid arthritis patients (RACGP 2008).

Glucosamine is the second most commonly used supplement by persons with rheumatoid arthritis (see Figure 9). While it may be helpful in managing osteoarthritis, it cannot be assumed that glucosamine will provide a similar anti-inflammatory benefit in rheumatoid arthritis.

In Australia, an estimated 65% of people diagnosed with rheumatoid arthritis take medication (including complementary medicines) for their disease. The prescription medications most commonly used are celecoxib (used by 20.7% of persons with rheumatoid arthritis), diclofenac (14.3%), naproxen (6.6%) and meloxicam (6.3%) (all NSAIDs), methotrexate (15.7%) and other DMARDs (6%). Data about biologic DMARDs was not available from the 2004–05 NHS.

The use of supplements by people with rheumatoid arthritis is reflected in the 2004–05 NHS. Omega-3 oils (used by 16% of those with rheumatoid arthritis) and glucosamine (14%) were the most commonly used supplements (Figure 9). Overall, 38% of survey respondents with the disease reported taking complementary medicines such as vitamins, minerals or herbal medications.



Source: AIHW analysis of ABS 2004–05 National Health Survey.

Figure 9: Supplements taken for rheumatoid arthritis, 2004–05^{1,4}

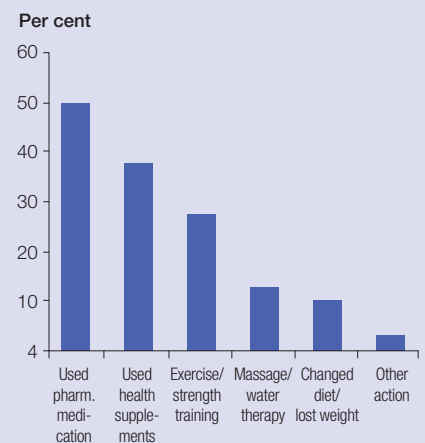
Education and self-management

It is important that people with rheumatoid arthritis are strong partners with their doctors in managing their disease. By asking questions of their management team, patients can get suitable information and are better able to understand the disease process. With support and advice, patients can do many things for themselves and research shows this is an effective part of disease management.

As well as using their medication as advised, patients can also improve outcomes by applying the following:

- *Mental health management strategies.* Maintaining a positive attitude in self-managing the disease. Research has shown that people who take control of their treatment and are active in managing their disease experience less pain and make fewer visits to the doctor.
- *Weight control.* Excess weight puts added stress on joints in the body and can also make joint surgery, if required, more difficult.
- *Dietary variation.* Although research has not identified a specific diet to treat rheumatoid arthritis, there is discussion surrounding various types of diets. Some people may benefit from following a vegetarian or Mediterranean diet, or by avoiding foods that make their condition worse (Rayman & Pattison 2008).
- *Heat application.* The application of heat can help ease pain, relax tense, painful muscles and increase blood flow. Heat is particularly helpful if used before exercise, but should not be used on joints that are already hot and swollen.
- *Cold application.* Applying cold treatments to joints that are hot and swollen can help manage acute symptoms.
- *Use of assistive devices.* Many devices are available to help people with rheumatoid arthritis manage their everyday activities. For example, walking canes, braces for painful joints and jar grippers can assist with daily living.
- *Exercise.* Exercise is crucial in maintaining joint movement and muscle strength.
- *Rest.* Sufficient rest is an important component of disease management that can help improve symptoms when joints are inflamed and painful.

In the 2004–05 NHS, when asked what actions they had taken to help manage their disease during the last 2 weeks, more than one-third of respondents with rheumatoid arthritis reported using health supplements, while more than one-fifth (21%) said they exercised most days. Another 8% reported having had a massage (see Figure 10).



Source: AIHW analysis of ABS 2004–05 National Health Survey

Figure 10: Remedial actions taken for rheumatoid arthritis, 2004–05^{1,5}

Physical therapy

Physical therapy for people with rheumatoid arthritis is aimed at maintaining muscle strength and joint mobility without making the inflammation worse. Bed rest was often prescribed for people with the disease but current research shows that careful exercise can improve fitness levels without causing joint damage or worsening symptoms. Including exercise in the daily routine can help control pain, inflammation and stiffness. Muscle weakness can be prevented and possibly reversed through strength training such as using hand or leg weights. The type and intensity of exercise needs to be regulated, depending on disease activity, and guided by a physiotherapist or occupational therapist.

Water therapy is preferred by many as the buoyancy of the water reduces the stress on painful joints and its warmth provides a soothing environment for movement.

Surgical support

Surgery is an option to improve functioning and reduce pain associated with the disease when other treatments are not enough. A range of surgical techniques is available, as shown on the right. Unlike other forms of arthritis, it is uncommon for surgery to be required for rheumatoid arthritis. However, 5,435 procedures for rheumatoid arthritis were carried out in Australian hospitals during 2006–07 alone; the most common of these are shown in Table 2.

Table 2: Most common surgical procedures carried out for rheumatoid arthritis, 2006–07

Type of procedure	Number	Per cent
Arthroplasty of knee	326	6.0
Excision of lesion of soft tissue, not elsewhere classified	245	4.5
Injection into joint or other synovial cavity	225	4.1
Arthrodesis of first metatarsophalangeal (big toe) joint	177	3.3
Aspiration (draining fluid) of joint or other synovial cavity, not elsewhere classified	173	3.2
Other procedures	4,289	78.9
Total	5,435	100.0

Source: AIHW National Hospital Morbidity Database

Surgical procedures

Arthroplasty (joint replacement): a procedure carried out by the orthopaedic surgeon to rebuild or replace joints that cannot be corrected by any other type of surgery.

Arthrodesis: the fusing together of two bones that meet to form a joint. The goal is to eliminate joint movement and thus reduce pain.

Synovectomy: removal of diseased synovial tissue to prevent cartilage and bone destruction.

Osteotomy: removal of bone. This may be an option if deformity of the bones adjacent to the joint becomes a problem.

Excision: includes removal of all or part of diseased tissue or organ.

Health-care services and other support

A range of support and health care services is required to manage rheumatoid arthritis effectively. Because the course of the disease varies so much, the need for support changes over time. Managing the disease requires a team approach, involving the person and their carer, along with a variety of health professionals. The latter may include a general practitioner (GP), rheumatologist, and allied health professionals such as a physiotherapist, occupational therapist, podiatrist and so forth.

GP, specialist and allied health professional services

GPs are usually the first source of health care for people with rheumatoid arthritis. They conduct the initial assessment of symptoms and provide referrals to rheumatologists and other specialists. GPs also have an ongoing role in providing prescriptions and advice on self-management. Allied health professionals assist with physical therapies to maintain fitness and joint functioning, and provide advice and support to help patients manage the disease between visits to their GP or specialist.

Hospital services

Much of the treatment for the disease occurs in specialist clinics and as outpatient care. However, during 2006–07, there were 6,920 admissions to hospitals in Australia where the principal diagnosis was rheumatoid arthritis and 16,140 procedures (surgical and non-surgical) were carried out, amounting to over two procedures per admission. The main non-surgical service provided was physiotherapy.

Support at home

People with rheumatoid arthritis often need assistance with daily living activities. Assistance can be provided by family, friends, volunteers, paid care workers or service

BEACH (Bettering the Evaluation And Care of Health) survey

The BEACH survey conducted by the Australian General Practice Statistics and Classification Centre (a collaborating unit of the AIHW) collects data from around 1,000 randomly selected GPs each year. Information is provided on around 100,000 GP–patient encounters, which represent more than one hundred million encounters across Australia each year. Patients are not identified in the collection.

According to BEACH, around one out of every four patients presenting with their first symptoms representing rheumatoid arthritis were referred by GPs to a rheumatologist in 2007–08.

Around 14% of people who said they had rheumatoid arthritis in the 2004–05 NHS reported that they had visited a GP or a specialist for their disease in the previous 2 weeks. In addition, 3% reported that they had visited an allied health professional such as a physiotherapist, chiropractor or occupational therapist.

National Hospital Morbidity Database

The National Hospital Morbidity Database is an electronic collection of data from nearly every hospital in Australia. It covers information such as the reason for a patient's admission and the treatment they received. The data are collated and housed at the AIHW after being forwarded by the state and territory health authorities.

providers. The frequency and duration of assistance needed depends on the severity of pain, and the type and extent of functional limitations or disability.

Carers often find that they need advice, support or assistance with caring and its impact on their own life. The National Respite for Carers Program provides information, counselling and support for carers, and assistance to help carers take a break from caring.

The national network of Commonwealth Respite and Carelink Centres provides a single point of contact for information about community care, disability and other support services available locally. Centres also assist carers with options for short-term and emergency respite. For information, phone 1800 052 222, or visit the Commonwealth Carelink website <www.commcarelink.health.gov.au>.

For information and support, carers can contact their local state or territory carers association on 1800 242636, or visit the Carers Australia website <www.carersaustralia.com.au>.

Health spending on rheumatoid arthritis

There is a real financial burden on people with rheumatoid arthritis and their families. Apart from the cost of GP and specialist visits, there are expenses for diagnostic tests, pharmaceuticals, dietary supplements or natural therapies, consultations with physiotherapists and other allied health professionals, special exercise programs and so forth. In severe cases, people may require high level residential aged care services and hospital services.

There can also be substantial indirect costs. The disease may force people to reduce the number of hours worked, or leave the workforce entirely. They may need to have their home modified so they can continue living there. There may also be a financial impact on family members, as people often require the daily assistance of a carer.

In 2004–05, rheumatoid arthritis accounted for 4% (\$175 million) of total expenditure on arthritis and other musculoskeletal conditions. Of this, 53% was spent on prescribed pharmaceuticals and the remainder mostly on out-of-hospital services (25%) and hospital services for admitted patients (20%).

Where to get more information

More information about managing rheumatoid arthritis can be obtained from:

- your general practitioner or Aboriginal and Torres Strait Islander health worker
- your local community health centre or Aboriginal Medical Service
- Australian Rheumatology Association at <www.rheumatology.org.au>
- Arthritis Australia:
 - <www.arthritisaustralia.com.au>
 - freecall 1800 011 041, or
 - visit your local state or territory Arthritis office.

Arthritis ACT

27 Mulley St
Holder ACT 2611

Arthritis NT

6 Caryota St
Coconut Grove NT 0810

Arthritis South Australia

1/202 Glen Osmond Rd
Fullarton SA 5063

Arthritis Victoria

263-265 Kooyong Rd
Elsternwick VIC 3185

Arthritis Queensland

Cartwright St (cnr Lutwyche Rd)
Windsor QLD 4030

Arthritis NSW

13 Harold St
North Parramatta NSW 2151

Arthritis Tasmania

127 Argyle St
Hobart TAS 7000

Arthritis Western Australia

17 Lemnos St
Shenton Park WA 6008

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Figure notes

1. Based on self-reports of ever having a doctor's diagnosis of rheumatoid arthritis and currently having the disease.
2. Population of working aged people 15 to 64 years.
3. In the NHS, mental wellbeing is measured using the Kessler Psychological Distress Scale-10 (K10) which involves 10 questions about negative emotional states experienced in the 4 weeks before the survey. The scores are grouped into low (indicating little or no psychological distress), moderate, high and very high (indicating very high levels of psychological distress).
4. Supplements taken in the 2 weeks before the survey. A person could report taking more than one supplement.
5. Actions taken in the 2 weeks before the survey. A person could report more than one action.