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## Rheumatic fever

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### Summary

- Rheumatic fever is a disease that can occur following an untreated *Streptococcus* bacterial infection.
  - Without treatment, rheumatic fever can lead to serious complications such as rheumatic heart disease.
  - The disease is rare in Australia, except for remote parts of northern Australia, where Aboriginal and Torres Strait Islander people, especially children, are at increased risk.
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Rheumatic fever is a disease that can occur following an infection caused by the *Group A streptococcus* bacterium. If untreated, an infection such as 'strep throat' may lead to a delayed complication featuring widespread inflammation in other parts of the body, particularly the joints, heart, skin and brain.

Rheumatic fever is classed as an autoimmune disease because the inflammation is probably caused by the immune system's reaction to the bacteria. While rheumatic fever can develop at any age, children between five and 14 years are at increased risk. Without treatment, the disease can lead to serious complications such as rheumatic heart disease.

Only a small percentage of people who have a streptococcal infection will develop rheumatic fever. The disease is rare in Australia except for remote parts of central and northern Australia where Aboriginal and Torres Strait Islander people, especially children, are at increased risk. About 250 to 350 Aboriginal and Torres Strait Islander children out of every 100,000 develop rheumatic fever. This rate is among the highest in the world.

### Symptoms of rheumatic fever

Most symptoms resolve with medical treatment. The symptoms of rheumatic fever can include:

- Sudden onset of symptoms
- Fever
- Painful and inflamed joints
- Fatigue
- Skin problems such as a raised rash (erythema marginatum) or lumps under the skin around the affected joints
- Unexplained weight loss
- Nervous system problems, such as involuntary movements and twitches (Sydenham's chorea, also known as Saint Vitus' dance)
- Heart problems such as inflammation (carditis), enlarged heart (cardiomegaly), rapid heartbeat (tachycardia) or heart murmur
- Breathlessness
- Chest pain.

### Rheumatic heart disease

Usually, rheumatic heart disease develops after recurring or lengthy bouts of rheumatic fever during a person's childhood. However, it can also develop after a single 'bout' of rheumatic fever. Rheumatic heart disease may be a permanent complication of rheumatic fever.

Various structures of the heart can be damaged by inflammation, including the muscle, lining or valves. In some cases, rheumatic heart disease does not cause any symptoms. In other cases, the person may have a range of symptoms, including breathlessness, chest pain and heart palpitations.

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Many Aboriginal and Torres Strait Islander children who have rheumatic fever are not diagnosed or treated. This is why the incidence of rheumatic heart disease is high in Australian Indigenous communities.

### **Socioeconomic risk factors**

Rheumatic fever is a complication of untreated streptococcal infection. Certain living conditions make streptococcal infections more likely. Known risk factors include poverty, overcrowding and limited access to medical care.

It is thought that streptococcal bacteria may also enter the body through skin cuts and abrasions. The high incidence of scabies in remote Australian communities may help to explain why rheumatic fever is prevalent.

### **Diagnosis of rheumatic fever**

There is no specific test available to diagnose rheumatic fever. The range of tests may include:

- Medical history, including evidence of a prior streptococcal infection
- Physical examination
- Throat swabs to test for the presence of *Group A streptococcus* bacteria
- Blood tests to look for 'markers' that suggest inflammation is present
- Electrocardiogram (ECG) to monitor the electrical activity of the heart
- Chest x-rays to look at the heart for signs of enlargement and the lungs for congestion.

### **Treatment of rheumatic fever**

Treatment may include:

- Hospital admission
- Penicillin, usually given as an intramuscular injection
- Course of aspirin
- Corticosteroids (cortisone) if the arthritis is severe or there is carditis (inflammation of the heart)
- Long-term antibiotic treatment, which may include monthly penicillin injections for up to five years – this helps to reduce the risk of rheumatic heart disease
- In the case of rheumatic heart disease, cardiac catheter treatment or surgery may be needed to repair damaged heart valves.

### **Long-term outlook**

With appropriate and prompt medical care, the long-term outlook for a person with rheumatic fever is excellent. However, having rheumatic fever once does not offer immunity against getting it again. It is important that the person seeks prompt medical attention for any future throat infections.

There is currently no vaccine for rheumatic fever, but Australian medical scientists are working to develop a *Streptococcus* vaccine. A vaccine that prevents streptococcal infections would also be expected to prevent rheumatic fever and rheumatic heart disease.

### **Where to get help**

- Your doctor

### **Things to remember**

- Rheumatic fever is a disease that can occur following an untreated *Streptococcus* bacterial infection.
- Without treatment, rheumatic fever can lead to serious complications such as rheumatic heart disease.
- The disease is rare in Australia, except for remote parts of northern Australia, where Aboriginal and Torres Strait Islander people, especially children, are at increased risk.

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