

# Strongyloides

## WHAT IS STRONGYLOIDES?

*Strongyloides stercoralis* is a nematode (roundworm) which occurs in many tropical (and a few temperate) countries. Strongyloidiasis is the name given to the disease process, which results from infection with Strongyloides.

## WHY IS STRONGYLOIDES IMPORTANT?

Strongyloidiasis can affect people years after the original exposure, because the worm can reproduce itself inside the human body. Usually the immune system keeps parasite numbers relatively low, and there may be few or no symptoms. If the immune system is suppressed due to disease or medication, worms can multiply unchecked, leading to life-threatening disseminated Strongyloidiasis.

## HOW IS IT TRANSMITTED?

It is acquired through contact with soil contaminated by faeces containing infective larval (immature) stages of the parasite.

It is therefore more common in situations where hygiene and sanitation is poor.

Strongyloides has a relatively complex life-cycle. The larvae penetrate the skin and migrate through the tissues to the lungs, from where they are coughed up into the back of the mouth, swallowed and pass through the gut to the lining of the small intestine. Here they mature into adults. The adult worms in the gut lining are all females. These have the unique capacity to reproduce asexually (without male worms). The new larvae so produced migrate through the gut wall, pass through the tissues to the lungs, and are coughed up, swallowed and pass to the small intestine to repeat the cycle. This cycle of auto (self) infection is what allows Strongyloides to persist in the body for long periods, even decades, without further exposure.

# Key points

Strongyloides can persist for decades after exposure

Veterans who have seen active service in South East Asia form a significant risk group

**See your GP if you feel that you may have been at risk**



Australian Government  
Department of Veterans' Affairs

To call DVA, ring 133 254  
From regional Australia, ring 1800 555 254

## Strongyloides and veterans' health



Am I likely to be affected?



# What are the symptoms?

Uncomplicated chronic strongyloidiasis is the commonest presentation. Symptoms occur intermittently, often over years or even decades, and may include:

- Rash, either a characteristic itchy rapidly-moving curved linear rash on the buttocks called larva currens (from the Latin “to run”) or non-specific itchy urticaria (“hives”).
- Intermittent diarrhoea and/or abdominal pain.
- Chest symptoms including cough have been described much less frequently in the medical literature.

There may be no symptoms at all.

## If I am infected with Strongyloides, can family members catch it from me?

Australian experts consider this very unlikely, and person-to-person transmission has not been reported in the medical literature in uncomplicated strongyloidiasis.

## Who “catches” Strongyloides?

World-wide, it occurs in over 30 million people in 70 countries. Strongyloidiasis was first described in French soldiers returning from service in Indo-China, and to this day veterans who have seen active service in South-East Asia form a significant, and sometimes unrecognised, risk group. Returned World War Two prisoners of war, especially those that have worked on the Burma-Thailand railway, are at greatest risk. Studies of Australian veterans have shown up to 27% of ex-POWs and 1.6% of Vietnam veterans have tested positive to the parasite.

Other risk groups in Australia include Indochinese refugees and migrants, as well as rural Aboriginal communities from the Northern Territory and northern Queensland.



Black/white images from the Australian War Memorial collection: AWM P00406.034, AWM P00761.011, AWM CUN/66/0525/VN

Complicated, disseminated strongyloidiasis occurs when the immune system is suppressed, due to:

- Medication—most commonly steroids like prednisolone, but also anti-cancer chemotherapy and medication used to prevent graft rejection in transplant patients.
- Cancers like lymphoma and leukaemia.

This is a very serious, life-threatening medical condition. Parasites multiply unchecked. Large numbers may be found in lungs, bowel, and even in the central nervous system. Patients are very unwell, with severe pneumonia-like chest disease, a wide range of gut problems, and even possibly meningitis and/or brain abscesses. Bacteria carried by the parasites may cause local or generalised infection.

## How is Strongyloides detected?

Strongyloides can be detected either by looking for larvae in the bowel motions or by blood tests. Neither way is perfect.

It is relatively easy to diagnose disseminated Strongyloidiasis, as long as someone thinks about the possibility in the first place. This is because of the large numbers of larvae in the body in this condition.

Mostly however, doctors are trying to detect uncomplicated Strongyloidiasis in people who may have been exposed to the parasite. These people carry relatively small numbers of parasites, which may only intermittently pass out the faeces (bowel motions) and can therefore easily be missed in tests which look at larvae in faeces. This can lead to false negative results, where although the test result shows no evidence of infection, the person does in fact carry Strongyloides. The number of false negative results can be reduced by testing multiple specimens. It is very important to test faecal samples even though this may be inconvenient and unpleasant, because this is the only way to definitely confirm Strongyloidiasis.

### BLOOD TESTS

Current blood tests do not accurately distinguish between past and current infection. Tests may remain positive, though slowly declining in value, for years after treatment. Blood tests are therefore of limited use in checking whether treatment has worked.

## Who should be tested for Strongyloides?

A practical approach may be to test:

- All at-risk veterans before treatment with drugs that suppress immune function, including prednisolone and other corticosteroids, chemotherapy agents, and drugs used to prevent rejection in transplant patients. Also test people with leukaemia or lymphoma. Up to seven faeces samples may be required in addition to blood tests, because it is very important to be sure there is no Strongyloides present because of the risk of disseminated Strongyloidiasis.
- At-risk veterans with unusual itchy skin conditions, stomach pain or diarrhoea.
- At-risk veterans who request testing, even if they do not fall into either of the above groups.

These last two groups should be tested with a combination of blood and faeces tests (usually three samples).

## TREATMENT

In Australia, the first line drug usually used is Ivermectin (Stromectol). It is given as a single dose, which depends upon body weight. A 45 kg person will require three tablets, a 60 kg person four tablets, a 75 kg person five tablets. Stromectol is available on the RPBS as an authority prescription for the treatment of strongyloidiasis. Another dose may also be given two weeks after the first dose. Side-effects are generally much milder than older drugs. They include mild nausea, dizziness, and diarrhoea, which usually only last for a short time. Albendazole (Eskazole, Zentel) is an alternative, second line treatment, which may need to be taken for as long as three weeks in order to be effective. Thiabendazole is no longer used.

## FOLLOW-UP

Follow-up is difficult, as blood tests often do not return to normal values in the weeks to months following treatment. Despite the inconvenience, samples of faeces may be necessary, although false negatives can occur.