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Patient information

# Strongyloides infection

Review date: November 2022



## What is Strongyloidiasis

Strongyloidiasis is an infection caused by the intestinal round worm or nematode *Strongyloides stercoralis*. Infection occurs through larvae penetrating the skin. Strongyloides larvae migrate from subcutaneous tissues into the veins, then to the lungs. Larvae migrate up the airways, are swallowed, and establish chronic infection in the adult gut. New larvae continue this cycle within the infected person, creating indefinite self-infection, meaning that, without treatment, infection is lifelong.

## Where does Strongyloidiasis occur

Strongyloides occurs in tropical and subtropical regions worldwide. Estimates of the total number of infections exceed 100 million. Migrants and refugees from developing countries are at greatest risk with rates of 5% to 10% in newly arriving migrants to the US. The highest rates are in Southeast Asians. Initial human infection is via larvae (immature form of the adult worm) living in infected soil penetrating the skin, typically the feet. Those with soil contact, such as subsistence farmers and agricultural workers, are at greatest risk. Therefore, men are at an approximately 2- to 3-fold higher risk than women. Short-term international travelers are generally at low risk, unless they have barefoot exposure to infected soil or sand.

## What causes Strongyloidiasis

Strongyloidiasis is caused by the intestinal round worm or nematode *Strongyloides stercoralis*. Humans become infected with *S stercoralis* after skin contact with soil contaminated with human faeces. Person-to-person transmission is rare, but has been documented. Cases in solid-organ donor transplant transmission has also been reported.

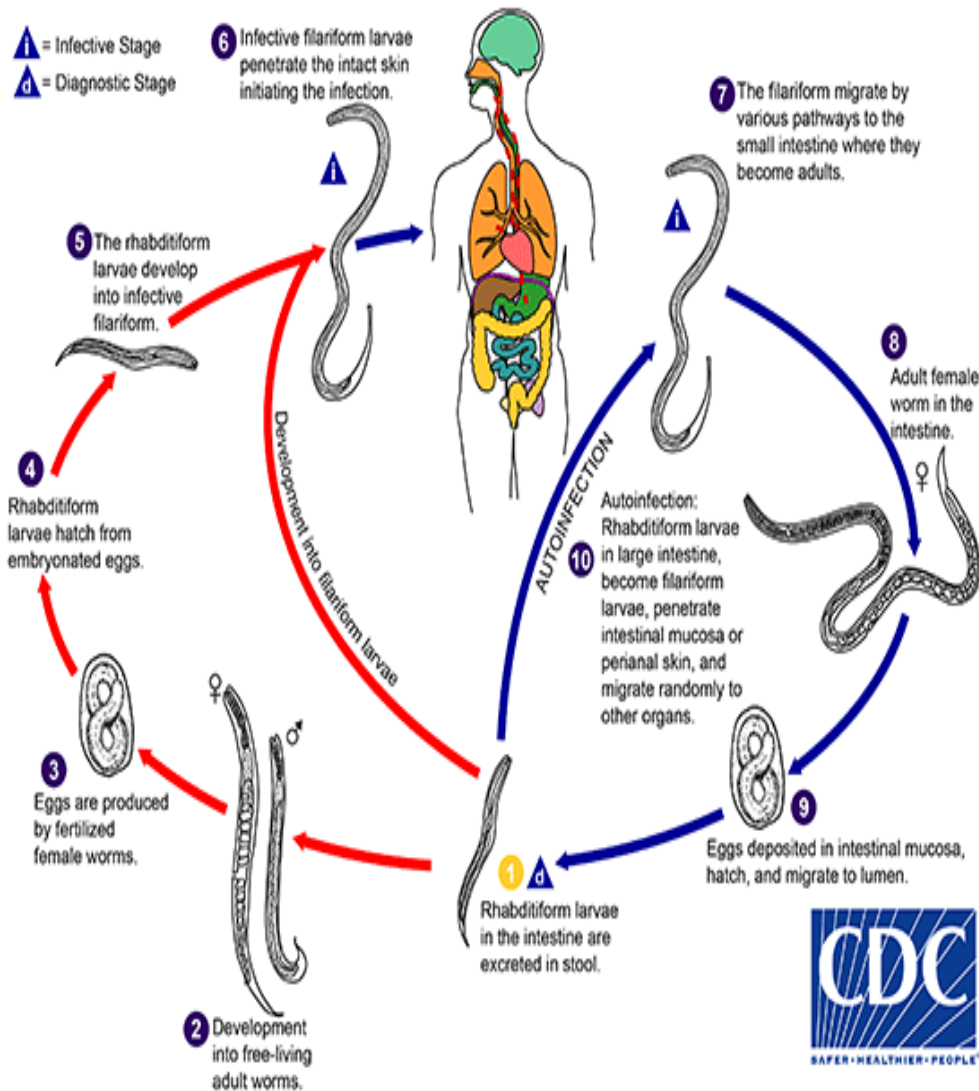
## What are the symptoms and signs

The incubation period is 14 to 30 days. The larvae penetrate the skin and then travel through the veins to the lungs. The larvae are coughed up and subsequently swallowed, unknown to the person. The female adults start the infection in the small intestine and shed eggs that hatch into non-infective rhabditiform larvae. These can be detected in the stool. At times, the larvae may mature into infective filariform larvae while still in the host. These infective larvae can penetrate the gut wall, migrate to the lungs and re-establish infection in approximately 2 weeks.

This process happens to a low degree all the time with no particular triggers and may be symptomless or may be associated with chronic gut and skin complaints and asthma-like symptoms. The process is termed auto-infection (self-infection). Unlike virtually all other gut round worms, Strongyloides can auto-infect, spreading itself without the need for re-exposure. Untreated, the infection is lifelong.

Hyperinfection, or overwhelming infection, occurs when a person's immune system is partially or completely suppressed, particularly after treatment with a steroid (an anti-inflammatory drug) or infection caused by human T-cell lymphotropic virus type-1 (HTLV-1). The process of auto-infection is the same as a chronic infection but the suppression of the immune system leads to a much greater burden of worms, resulting in far more serious consequences.

## Preventing Infection



Typically, infection is transmitted from human faeces (or stool) to the environment back to humans via skin contact with contaminated soil. Direct human-to-human infection could occur but only with direct contact with human faeces containing infectious filariform larvae. **Prevention of infection includes wearing shoes** and having adequate sewage and sanitation systems to dispose of infected human faeces.

## Screening

The US Centres for Disease Control and Prevention (CDC) recommends screening (or looking for) *Strongyloides* in the following: patients on, or about to start, steroid or other immune suppressing drugs, patients with human T-cell lymphotropic virus type-1 (HTLV-1) infection, blood cancers, or **persistent or unexplained eosinophilia (raised number of a type of white blood cell (eosinophil) in the blood)**, patients who have had or are being considered for organ transplant and patients with a recent or remote travel history to an area where *Strongyloides* is present.

Looking for intestinal parasites is recommended for people migrating from these areas and long-term expatriates. *Strongyloides* blood testing is recommended in unexplained eosinophilia.

## Secondary prevention



Screening or empirical treatment of family members with similar risk exposure is warranted. Please ask your GP to screen for Strongyloides by blood testing in family members.

For children, the preference would be screening to exclude both eosinophilia and stool parasites. Children have greater eosinophil levels than adults when infected with Strongyloides, thus detection is easier.

## References:

Please refer to:

BMJ Best Practice Strongyloides infection

<https://bestpractice.bmj.com/topics/en-us/907>