



Parasitic Worms: Life Cycles, Transmission Patterns, and Effects on Human Health

Dorian Elmsworth*

Department of Medical Parasitology, Clearwater University, Christchurch, New Zealand

DESCRIPTION

Parasitic worms are multicellular organisms that depend on a host for nutrients, shelter, or other biological requirements during one or more stages of their lives. In humans, the major groups include nematodes, cestodes, and trematodes. These organisms differ in appearance, reproductive systems, life cycles, preferred tissues, and routes of transmission. Some remain within the intestinal tract, while others migrate through tissues or live in blood vessels and organs. Their infections can range from mild gastrointestinal problems to long-lasting conditions involving anemia, nutritional deficiencies, inflammation, and organ damage.

Nematodes are commonly referred to as roundworms because of their cylindrical body shape. They include several species that infect humans through contaminated soil, food, water, or direct contact with infectious stages. Some nematodes have simple life cycles involving humans and the environment, while others require intermediate hosts or undergo migration through different parts of the body. The eggs or larvae produced by adult worms can leave the host and enter the environment, where they may develop into stages capable of infecting another person.

Ascaris lumbricoides is one of the best-known intestinal roundworms. Infection occurs when a person swallows mature eggs that have contaminated soil, vegetables, water, or hands. After the eggs reach the small intestine, larvae emerge and enter the circulation. They travel to the lungs, pass into the airways, and are eventually swallowed. Once they return to the intestine, they develop into adult worms. A large number of worms can cause abdominal discomfort, poor nutritional status, and, in severe cases, blockage of the intestine.

Hookworms have a different route of entry. Their larvae develop in soil containing human fecal contamination and can penetrate the skin. After entering the body, the larvae migrate through the circulation and lungs before reaching the digestive tract. Adult hookworms attach to the intestinal lining and consume blood. Persistent infection can therefore result in blood loss and iron

deficiency. Children with heavy infections may experience fatigue and reduced physical development when nutritional deficiencies accompany the infection.

Enterobius vermicularis, commonly called pinworm, is another intestinal roundworm. It is especially common among children and spreads easily in households and group settings. Infection begins when eggs are swallowed. Adult worms develop in the intestine, and females later move to the skin around the anus to deposit eggs. The resulting itching can cause scratching, allowing eggs to become attached to the fingers and underneath the fingernails. Transfer to clothing, bedding, toys, food, and household surfaces can result in repeated exposure.

Strongyloides stercoralis has a complex biological cycle that allows infection to persist for long periods. Infective larvae in contaminated soil can penetrate human skin. They migrate through the body and eventually reach the intestine, where adult female worms produce offspring. Some larvae can develop into new infective forms within the host, allowing continued infection without a recent environmental exposure. This feature is particularly important in individuals with weakened immune defenses, in whom severe disease can develop.

Cestodes are flatworms commonly known as tapeworms. Their bodies are divided into segments, and adult worms generally possess structures that allow them to remain attached to the intestinal wall. Many tapeworm species require an intermediate host during their development. Humans may acquire infection by consuming undercooked meat or fish containing larval stages. Once inside the intestine, the larva can mature into an adult worm and produce reproductive segments containing eggs.

CONCLUSION

Schistosoma species are unusual among parasitic worms because adult worms live within blood vessels rather than the intestinal lumen. Their infective larvae are released from freshwater snails and can penetrate human skin when a person enters contaminated water. Adult worms produce eggs that travel

Correspondence to: Dorian Elmsworth, Department of Medical Parasitology, Clearwater University, Christchurch, New Zealand, E-mail: dorian.elmsworth@clearwater.edu

Received: 17-Nov-2025, Manuscript No. JBP-25-32378; **Editor assigned:** 19-Nov-2025, Pre QC No. JBP-25-32378 (PQ); **Reviewed:** 03-Dec-2025, QC No JBP-25-32378; **Revised:** 10-Dec-2025, Manuscript No. JBP-25-32378 (R); **Published:** 17-Dec-2025, DOI: 10.35248/2155-9597.25.16.583

Citation: Elmsworth D (2025). Parasitic Worms: Life Cycles, Transmission Patterns, and Effects on Human Health. J Bacteriol Parasitol. 16:583.

Copyright: © 2025 Elmsworth D. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

through tissues and eventually leave the body through urine or feces, depending on the species. Trematodes, or flukes, are another category of parasitic worms. They are usually flattened and have specialized structures for attachment to host tissues.

Many trematode life cycles involve freshwater snails as intermediate hosts. Humans can acquire different species through contaminated freshwater plants, undercooked fish, or direct contact with water containing infective larvae.