ISSN: 2155-9597
Journal of Bacteriology & Parasitology

OPEN ACCESS Freely available online

Commentary

Helminths: Biology, Life Cycles, Transmission, and Effects on Human Health

Cedric Valemont*

Department of Tropical Parasitology, Kingsmere University, Brisbane, Australia

DESCRIPTION

Helminths are multicellular parasitic organisms that infect humans and many other animals. They include several major groups of worms, with nematodes, cestodes, and trematodes being particularly important in human health. These organisms differ in body structure, reproductive biology, life cycle, host requirements, and methods of transmission. Some helminths live primarily within the intestinal tract, whereas others migrate through tissues or establish themselves in organs such as the liver, lungs, blood vessels, or lymphatic system. Helminth infections remain common in many parts of the world and can produce effects ranging from mild discomfort to chronic disease.

Nematodes, commonly called roundworms, have elongated cylindrical bodies and are among the most widespread human helminths. Their life cycles vary considerably. Some species are transmitted when humans ingest eggs from contaminated food, water, soil, or hands. Others have larvae that can penetrate human skin. After entering the body, nematode larvae may migrate through tissues before reaching their preferred adult location. Mature worms can produce large numbers of eggs or larvae, allowing the infection to continue through environmental contamination or transmission to another host.

Ascaris lumbricoides is an intestinal nematode that infects humans after ingestion of embryonated eggs. The eggs can persist in contaminated soil and may reach food or hands when sanitation is inadequate. After ingestion, larvae emerge in the intestine and travel through the bloodstream to the lungs. They then move through the airways before being swallowed and returning to the intestine, where adult worms develop. Heavy infections may cause abdominal discomfort, nutritional problems, or intestinal obstruction.

Hookworms represent another important group of nematodes. Their larvae can develop in soil contaminated by human feces. When a person comes into contact with contaminated soil, larvae may penetrate the skin. They subsequently migrate through the body and eventually reach the intestine. Adult hookworms attach to the intestinal lining and consume blood. Persistent infection can therefore contribute to iron-deficiency anemia, fatigue, reduced physical performance, and impaired development in children.

Enterobius vermicularis, commonly known as the pinworm, is frequently found among children. Infection occurs after ingestion of microscopic eggs. Adult worms live in the large intestine, and females migrate to the skin around the anus to deposit eggs. The resulting itching can lead to scratching and transfer of eggs to the hands and household surfaces. Repeated transfer can result in reinfection and transmission among family members or groups of children.

Strongyloides stercoralis has a particularly complex life cycle. Infective larvae can penetrate human skin, usually when people come into contact with contaminated soil. After entering the circulation, larvae travel through the lungs and are eventually swallowed. They reach the small intestine, where adult female worms produce offspring. In some individuals, larvae can develop into infective forms within the host and penetrate intestinal tissue or surrounding skin, allowing infection to continue for many years.

Cestodes, or tapeworms, have flat, segmented bodies and possess specialized structures for attachment to the intestinal wall. Their life cycles frequently involve intermediate hosts. Humans can become infected by consuming food containing larval stages. *Taenia* species are examples of tapeworms associated with meat consumption. The adult worms can live in the intestine and release segments or eggs that leave the body through feces. Some cestodes can cause disease outside the intestine. *Taenia solium* is particularly important because ingestion of eggs can result in larval infection of human tissues. When larvae develop in the nervous system, a condition known as neurocysticercosis can occur.

CONCLUSION

The immune response to helminths differs from the response to many bacterial and viral infections. Large worms cannot always be destroyed easily by conventional cellular mechanisms because

Correspondence to: Cedric Valemont, Department of Tropical Parasitology, Kingsmere University, Brisbane, Australia, E-mail: cedric.valemont@kingsmere.edu

Received: 20-Jan-2026, Manuscript No. JBP-26-32377; **Editor assigned:** 22-Jan-2026, Pre QC No. JBP-26-32377 (PQ); **Reviewed:** 05-Feb-2026, QC No JBP-26-32377; **Revised:** 12-Feb-2026, Manuscript No. JBP-26-32377 (R); **Published:** 19-Feb-2026, DOI: 10.35248/2155-9597.26.17.593

Citation: Valemont C (2026). Helminths: Biology, Life Cycles, Transmission, and Effects on Human Health. J Bacteriol Parasitol. 17:593.

Copyright: © 2026 Valemont C. 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.

of their size. The host may instead produce antibodies and activate immune cells that release substances capable of damaging parasite surfaces. Helminth infections can influence nutritional status in several ways. Some worms consume blood, while others compete for nutrients or interfere with intestinal function. Eosinophils, mast cells, and other immune components can participate in these responses. Helminths can also influence immune activity in ways that help them remain in the host for extended periods.