

What is Lymphatic Filariasis?



Endemic regions for filariasis

Lymphatic Filariasis (LF) is the primary cause for lymphedema worldwide and is a painful and extremely disfiguring disease, which has been identified by the World Health Organization (WHO) as a leading cause for permanent and long-term disability in the world. It is a tropical disease, endemic to more than 80 regions in Africa, India, Southeast Asia, and South America, as well as in the Pacific islands and the Caribbean. Lymphatic Filariasis is rare in the United States, but may be contracted by [visiting endemic regions](#).

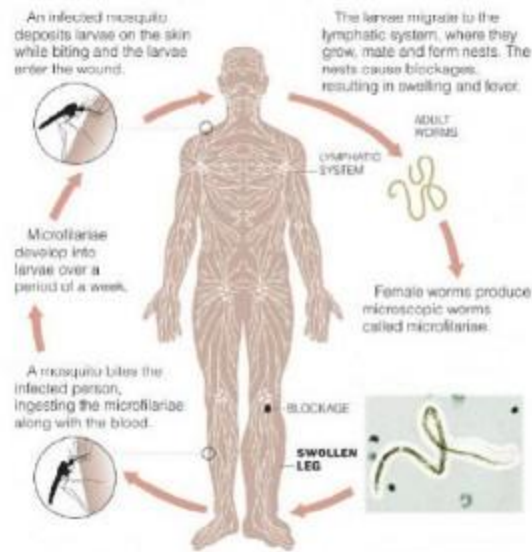
According to the WHO, 1.3 billion individuals are threatened by the disease and over 120 million people are currently affected, with about 40 million being disfigured by lymphedema and suffering from recurrent infections and other secondary conditions.

Filariasis is caused by three types of round parasitic filarial worms with *Wucheria bancrofti* being the most common type. The other types, *Brugia malayi* and *Brugia timori* are endemic to Southeast Asia.

Lymphatic Filariasis is transmitted to humans by different types of mosquitos that carry infective-stage larvae and bite an individual. During the bite, the larvae enter the wound and are deposited in the individuals' skin; from there the parasitic larvae migrate to the lymphatic system, where over a period of 6-12 months they develop into adult worms and mate. Male and female worms live together and form "nests" in the nodes and vessels of the lymphatic system. Adult worms live for a period of about 4-6 years; male worms can grow 3-4 centimeters in length, whereas females can reach 8-10 centimeters.

Filariasis Transmission Cycle

The females produce millions of microscopic worms (microfilariae) during their lifetime, which circulate in the host's bloodstream and are then again ingested by biting mosquitos. Once inside the mosquito, the microfilariae develop into infective-stage larvae, which then again are transmitted to other individuals, thus completing the transmission cycle.



Wuchereria bancrofti

During the worms lifetimes inside the host's lymphatic system they produce dilation and damage to the lymphatics, restricting the normal flow of lymph, causing swelling, fibrosis and infections to lymph vessels and nodes (lymphangitis, lymphadenitis).

While infection with the larvae generally occurs in childhood of individuals living in endemic areas, the painful and disfiguring symptoms of this condition typically manifest later in life.

Lymphatic Filariasis may present asymptomatic, with no external signs of disfigurement or infection but sub-clinical lymphatic damage, acute (infections, fever, swelling), or chronic.

The chronic stage includes lymphedema, which can grow to monstrous proportions and may affect the extremities (most often the legs), breasts and the external genitalia (labia, scrotum and penis) causing pain, disability and sexual dysfunction.

Lymphatic Filariasis is typically diagnosed through blood tests detecting the presence of microfilariae in the blood, and antigen detection tests (ICT).

The primary treatment approach to individuals affected by Lymphatic Filariasis is pharmaceutical ([diethylcarbamazine \[DEC\]](#), [albendazole](#) and [ivermectin](#)) and aimed at the

elimination of adult worms and circulating microfilariae, thus interrupting the transmission cycle.



Lymphatic Filariasis affecting the legs

Another important goal is to eliminate Lymphatic Filariasis as a public health problem by preventative measures using mass drug administration covering the entire at-risk population of a country. The goal of the Global Alliance to Eliminate Lymphatic Filariasis ([GAELF](#)) is to stop the spread of filarial infection and to eradicate this disease through distribution of free medication. In order to interrupt the transmission of infection, mass drug administrations should be implemented in endemic regions for duration of 4-6 years.

Foreigners visiting endemic countries are rarely infected; however, as a preventative measure mosquito bites should be avoided by sleeping under a mosquito net, using insect repellants, wearing long-sleeved shirts and long pants and refrain from being outside between dusk and dawn, when mosquitos are most active.

Lymphedema caused by Lymphatic Filariasis can be treated effectively with [Complete Decongestive Therapy](#), if available. Other measures to improve lymphedema and infections are patient education in self-care including hygiene, skin care, compression therapy, exercises and elevation of the affected extremity.

Additional Resources:

Video [from the Carter Center on the eradication of Lymphatic Filariasis](#)

Video [Lymphatic Filariasis by IAD](#)

[WHO Factsheet on Lymphatic Filariasis](#)

[Center for Disease Control and Prevention](#)