

### Body Lice Infestation (*Pediculus humanus humanus*)

The order Anoplura contains the blood-sucking lice (*Pediculus* and *Pthirus* spp.), which have legs with claws adapted for clinging to hairs or fibers. There are three nymphal stages prior to the adult, and all stages feed on blood. In general, the biting lice respond to warmth and smell, avoid high humidity, and are negatively phototactic (i.e., they move toward dark objects). There are several types of human lice: the head louse, the body louse, and the pubic or “crab” louse.

Lice infestation dates from approximately 25 million years ago. Clothing lice affect predominantly homeless and refugee-camp populations and are less prevalent than head lice but far more serious because they transmit at least three deadly bacterial pathogens. In a stable population of the body louse, *Pediculus humanus*, more than two-thirds of the lice are present as eggs, about one-fourth are present as nymphs, and only 6 to 7% are present as adults. The adults measure 2 to 3 mm for the male and 2.4 to 3.6 mm for the female. Body lice can cause severe skin irritation; there may be swelling and the development of papules at the bite sites, as well as mild or severe itching. Some individuals may become sensitized to antigens introduced during louse feeding, and they can experience generalized allergic reactions. Removal of skin during itching can also lead to secondary infection. The lice tend to attach to cloth fibers along the seams inside of underwear or other places where clothes touch the body; they tend to prefer wool clothing. *P. humanus* can be removed from clothes by heating the clothes to >60°C for 15 min; this could be accomplished by placing clothes in the clothes drier for about 20 to 30 min.

*Pediculus humanus humanus* is a strictly human ectoparasite with a worldwide distribution and represents a serious public health threat because it acts as a vector for pathogenic bacteria. Human body lice may transmit epidemic typhus, which is caused by *Rickettsia prowazekii*, the louse-borne relapsing fever, which is caused by *Borrelia recurrentis*, and trench fever, which is caused by *Bartonella quintana*. It has also been described that body lice can transmit *Acinetobacter baumannii*. Because body lice are vectors of several human diseases, it is important to understand and identify the compartments (organs, tissue, cells) in which these bacteria reside to define new strategies to counterstroke the capacity of vectorization of the bacterial pathogens by body lice.





Top, Body lice, *Pediculus humanus*; Below Left, Louse egg case on hair shaft; Below Right, body lice adults and developing stages on the skin/hair, note the skin reaction.