



Lice Found on Humans

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Description

Human head lice (*Pediculus humanus capitus*) and body lice (*Pediculus humanus humanus*) are wingless, flattened insects with mouthparts for sucking blood. The head is somewhat narrower than the elongated body. Adults are small, about the size of a sesame seed (2.5-3.5 mm; 0.1 inch). Head and body lice are gray to tan in color, but a recent blood meal will be visible in the body and make them appear darker. Bloodsucking lice have a large claw at the end of each leg that fits snugly around a hair shaft, allowing them to cling securely to their host or the fibers of their clothing. Lice cannot fly or jump; they can only crawl.



Figure 1. An adult human head louse (Mohammed El Damir, Bugwood.org).

Life Cycle

Lice have an incomplete life cycle consisting of egg, nymphal, and adult stages. The oval, whitish eggs (also called nits) of head lice are firmly glued at an

angle to hair shafts close to the skin's surface. They will only hatch if kept at body temperature. In contrast, body lice typically lay their eggs in heavily used clothing and bedding. The eggs of body lice will hatch at lower temperatures than head lice nits. Head and body lice hatch in 6-9 days. Nymphs look much like adult lice, but they must feed and grow through three molts before reaching the adult stage in approximately one week. Both nymphs and adults require frequent blood meals for survival, but for only a few minutes at each feeding. Adult female head and body lice typically lay several eggs each day. Adults live for about 30 days.

Damage

Head and body lice are blood feeders and require blood meals throughout their lives for survival. Only a small amount of blood is ingested by a single louse each time it feeds, but each bite is a source of discomfort and intense irritation due to an allergic reaction. Scratching the bites may break the skin and lead to a secondary bacterial infection requiring additional medical attention.

Head lice are generally not thought to transmit disease, but body lice have transmitted several infectious diseases, including typhus and relapsing fevers, historically. These diseases are not transmitted through the bite of the louse, but by scratching and rubbing the louse feces or the louse body into the skin. Disease transmission by lice is not regularly seen in the United States, probably because fewer people live in the conditions conducive to the spread of body lice (poor hygiene, overcrowding, no laundry facilities, etc.). Now days, infestations of human lice (pediculosis) are largely just a contagious nuisance.

Habitat

Head lice are found on the head, usually around the ears and the hairline above the back of the neck.

Head lice always lay their eggs on the hairs of their host. Body lice are found in clothing and bedding that has been heavily used without laundering. Both head and body lice need to feed on human blood several times daily. Head lice will die after 1-2 days if they fall off the host and don't find a new one. Body lice will soon die if the infested clothing or bedding are not continually used.

Nits of head lice are laid at the base of the hair shaft. The empty shell remains firmly glued on the shaft even after the nymph has hatched and the hair grows in length. Nits present on the hair shaft a half inch or more from the scalp suggest an old infestation. Nits attached closer to the scalp suggests an active infestation, but the presence of crawling head lice is a sure sign of an active louse infestation. In contrast, body lice are usually found on clothing and bedding rather than the body. Head and body lice are both hard to see without strong light and a magnifying glass because they move fast, avoid light, and are very small.

Head lice spread through direct human contact and the sharing of infested personal items. Infested hats, combs, headgear, coats, pillowcases, stuffed animals, blankets, and towels can all serve as a means of spreading head lice, but this is much less common than head-to-head contact with someone who has lice. Head lice move easily from person to person in group settings such as schools, day care centers, camps, etc., where people and their personal items are in close contact. Infested items can continue to spread lice as long as there are live nits or lice on the item. Body lice are spread through close human contact and the sharing of infested clothing and bedding.

Human head and body lice do not feed on other animals and people cannot pick them up from dogs, cats, or other pets. Conversely, human lice cannot infest pets either. Pets do not need to be treated when human lice are found in the household.

Treatment

Treatment for human head and body lice requires several steps that must be followed carefully. The most effective strategy for eliminating head lice includes the manual removal of nits and crawling lice from the hair; the use of medicated shampoos;

and washing all possibly infested clothing and bedding items in hot water and drying with high heat. Body lice are rarely seen outside of the homeless population, but an infestation can be treated by destroying any infested clothing and bedding and resuming good hygiene with regular bathing and laundering.

Shaving the head would likely remove all head lice quickly and effectively from a person, but this is not a requirement. While the use of a medicated shampoo is probably not needed if the head is shaved completely, all possibly infested items should still be washed and dried.

Cutting the hair short is also not necessary, but the detection and removal of head lice is much easier with short hair. Regardless of hair length, use a fine-toothed or a special lice comb designed to detect and remove nits and crawling lice from the hair. Mechanically removing as many nits and crawling lice as possible will help eliminate the infestation faster. Kill any nits or crawling lice found by dropping them in very hot water, rubbing alcohol, a commercial disinfecting solution, or a medicated lice shampoo. Disinfect the comb as well when you are done. Check the hair daily until no nits or crawling lice are found for one week, then check weekly to monitor for reoccurrence for at least the next 2-3 weeks. Using a magnifying glass and a strong light may help with the detection of nits and crawling lice, especially on light-colored hair.

In addition to the daily checking and removal of nits and crawling lice, use a medicated shampoo or lotion specifically labeled for louse treatment. Usually these contain the insecticides pyrethrin or permethrin and are available over the counter in a pharmacy. **Follow the label exactly for best results.** Medicated shampoos may not kill all the nits and a second treatment may be required after the surviving nits have hatched, but before they become adults and lay eggs. Very long hair may require more than one bottle or tube of medication; check with your pharmacist or healthcare provider for recommendations. Do not use more than one kind of medicated treatment at a time. Pregnant women and children under two should not use medicated shampoos without the advice of a medical doctor.

If lice are found on one family member, everyone living in the same household should also be checked for lice on the same day. Treat all family members with lice on the same day. Consider a prophylactic louse treatment for anyone who does not have nits or crawling lice, but shares a bed or a room with someone who does.

In addition to the scalp treatments, all possibly infested bedding and clothing should be washed in hot water and dried with high heat. Items that cannot be washed and dried should be dry cleaned immediately or bagged securely for a week. Lice cannot survive more than a few days without feeding. Items such as brushes, hair ornaments, helmets, etc. can be securely bagged and placed in a freezer for a day or two. Alternatively, items can be placed in a plastic storage bin with a tightly closing lid or in a heavy plastic bag that can be securely closed and left unopened for a week. Vacuum carpets and upholstered furniture to remove any hair that may have fallen out with nits attached. The use of insecticide sprays and foggers inside the home is not recommended for the control of human lice.

Checklist for Human Lice Control

- Treat scalp or body with a medicated shampoo that is labeled for the control of lice on humans.
- Launder bedding and clothes in hot soapy water and dry with high heat.
- Use lice combs to check for live lice. Remove and kill any lice and nits that are found.
- For best results, do all three steps on the same day.
- Repeat if needed, but consult a medical practitioner if live lice are still found after properly applying a medicated shampoo.

It might look like the treatments have failed if live head lice are found several days after following the above suggestions. While it is possible that the lice are resistant to the insecticide in a medicated shampoo, it is more likely that a re-infestation has occurred from another infested person or infested items, or that the control steps were not followed as rigorously and thoroughly as needed.

Schools, camps, and daycares should be notified if a child has head lice; chances are that the child

acquired the infestation there and could be re-infested even after successful treatment at home if other children at the facility still have lice.

Alternative Treatments

Home remedies or treatments described as “natural” or “pesticide free” are not recommended because there is no research data to show their efficacy and safety. Coating the head and hair in petroleum jelly, mayonnaise, or similar materials to suffocate head lice requires that the treatment is left on the head for many hours to be effective. This may kill any crawling lice but probably not the nits, so multiple treatments are needed to kill the lice as they hatch.

Hair relaxers may kill lice if left on for a sufficient time, but these materials are caustic and may burn the hair and scalp. Kerosene, medicated pet shampoos, or any substance not registered for use on the skin should never be used to control head lice. Hair dryers and hot curling irons may kill lice and nits through heat and/or crushing the lice, but there is danger in burning the scalp while trying to kill the nits close to the head. All of these treatments could far more harmful than a medicated shampoo. Ultimately, combing the hair with a louse comb and using a medicated shampoo or cream is an effective combination that requires some effort and time, but will eliminate the infestation within several days when combined with cleaning infested items and vacuuming the home.

Revised

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