

Head Lice Information

The adult head louse is 2 to 3 mm long (the size of a sesame seed), has 6 legs, and is usually tan to grayish-white in color. The female lives up to 3 to 4 weeks and, once mature, can lay up to 10 eggs per day. These tiny eggs are firmly attached to the base of the hair shaft within approximately 4 mm of the scalp with a glue-like substance produced by the louse. Viable eggs camouflaged with pigment to match the hair color of the infested person often are seen more easily at the posterior hairline. Empty egg casings (nits) are easier to see because they appear white against darker hair. (Note that some experts refer to “eggs” as containing the developing nymph and use “nits” to refer to empty egg casings; others use the term “nits” to refer to both eggs and the empty casings.) The eggs are incubated by body heat and typically hatch in 8 to 9 days, but hatching can vary from 7 to 12 days depending on whether the ambient climate is hot or cold. Once it hatches, a nymph leaves the shell casing and passes through a total of 3 nymph stages (instars) during the next 9 to 12 days and then reaches the adult stage. The female louse can mate and begin to lay viable eggs approximately 1.5 days after becoming an adult. If not treated, this cycle may repeat itself approximately every 3 weeks. The louse feeds by injecting small amounts of saliva with vasodilatory and anticoagulation properties and sucking tiny amounts of blood from the scalp every few hours. Itching results from sensitization to components of the saliva. With a first case of head lice, itching may not develop for 4 to 6 weeks, because it takes that amount of time for sensitivity to result. Head lice usually survive for less than 1 day away from the scalp at room temperature, and their eggs cannot hatch at an ambient temperature lower than that near the scalp.

Head lice, unlike body lice, do not transmit any disease agent. Itching can develop in a sensitized individual. Rarely, scratching may cause impetigo or other skin infection, which can lead to local adenopathy. Lice cannot hop or fly; they crawl. However, there are reports that combing dry hair can build up enough static electricity to physically eject an adult louse from an infested scalp more than 1 m. Transmission in most cases occurs by direct contact with the head of an infested individual. Indirect spread through contact with personal belongings of an infested individual (combs, brushes, hats) is much less likely but may occur rarely. Lice found on combs are likely to be injured or dead, and a healthy louse is not likely to leave a healthy head unless there is a heavy infestation. This is further illustrated by 2 studies from Australia. In 1 study, examination of carpets on 118 classroom floors found no lice despite more than 14000

live lice found on the heads of 466 children using these classrooms. In a second study, live lice were found on only 4% of pillowcases used by infested volunteers. Thus, the major focus of control activities should be to reduce the number of lice on the head and to lessen the risks of head-to-head contact.

Treatment

Treatment for head lice is recommended for persons diagnosed with an active infestation. All household members and other close contacts should be checked; those persons with evidence of an active infestation should be treated. Some experts believe prophylactic treatment is prudent for persons who share the same bed with actively-infested individuals. All infested persons (household members and close contacts) and their bedmates should be treated at the same time.

Retreatment of head lice usually is recommended because no approved pediculicide is completely ovicidal. To be most effective, retreatment should occur after all eggs have hatched but before new eggs are produced. The retreatment schedule can vary depending on whether the pediculicide used is ovicidal (whether it can kill lice eggs).

When treating head lice, supplemental measures can be combined with recommended medicine (pharmacologic treatment); however, such additional (non-pharmacologic) measures generally are not required to eliminate a head lice infestation. For example, hats, scarves, pillow cases, bedding, clothing, and towels worn or used by the infested person in the 2-day period just before treatment is started can be machine washed and dried using the hot water and hot air cycles because lice and eggs are killed by exposure for 5 minutes to temperatures greater than 53.5°C (128.3°F). Items that cannot be laundered may be dry-cleaned or sealed in a plastic bag for two weeks. Items such as hats, grooming aids, and towels that come in contact with the hair of an infested person should not be shared. Vacuuming furniture and floors can remove an infested person's hairs that might have viable nits attached.

Treat the infested person(s): Requires using an over-the-counter (OTC) or prescription medication. Follow these treatment steps:

- Before applying treatment, it may be helpful to remove clothing that can become wet or stained during treatment.
- Apply lice medicine, also called pediculicide, according to the instructions contained in the box or printed on the label. If the infested person has very long hair (longer than shoulder length), it may be necessary to use a second bottle. Pay special attention to instructions on the label or in the box regarding how long the medication should be left on the hair and how it should be washed out.

WARNING:

Do not use a combination shampoo/conditioner, or conditioner before using lice medicine. Do not re-wash the hair for 1-2 days after the lice medicine is removed.

- Have the infested person put on clean clothing after treatment.
- If a few live lice are still found 8-12 hours after treatment, but are moving more slowly than before, do not retreat. The medicine may take longer to kill all the lice. Comb dead and any remaining live lice out of the hair using a fine-toothed nit comb.
- If, after 8-12 hours of treatment, no dead lice are found and lice seem as active as before, the medicine may not be working. Do not retreat until speaking with your health care provider; a different lice medicine (pediculicide) may be necessary. If your health care provider recommends a different pediculicide, carefully follow the treatment instructions contained in the box or printed on the label.
- Nit (head lice egg) combs, often found in lice medicine packages, should be used to comb nits and lice from the hair shaft. Many flea combs made for cats and dogs are also effective.
- After each treatment, checking the hair and combing with a nit comb to remove nits and lice every 2-3 days may decrease the chance of self-reinfestation. Continue to check for 2-3 weeks to be sure all lice and nits are gone.
- Retreatment generally is recommended for most prescription and non-prescription (over-the-counter) drugs on day 9 in order to kill any surviving hatched lice before they produce new eggs. However, if using the prescription drug malathion, which is ovicidal, retreatment is recommended after 7-9 days ONLY if crawling bugs are found.

Supplemental Measures :

Head lice do not survive long if they fall off a person and cannot feed. You don't need to spend a lot of time or money on housecleaning activities. Follow these steps to help avoid re-infestation by lice that have recently fallen off the hair or crawled onto clothing or furniture.

- Machine wash and dry clothing, bed linens, and other items that the infested person wore or used during the 2 days before treatment using the hot water (130°F) laundry cycle and the high heat drying cycle. Clothing and items that are not washable can be dry-cleaned

OR

sealed in a plastic bag and stored for 2 weeks.

- Soak combs and brushes in hot water (at least 130°F) for 5-10 minutes.
- Vacuum the floor and furniture, particularly where the infested person sat or lay. However, the risk of getting infested by a louse that has fallen onto a rug or carpet or furniture is very small. Head lice survive less than 1-2 days if they fall off a person and cannot feed; nits cannot hatch and usually die within a week if they are not kept at the same temperature as that found close to the human scalp. Spending much time and money on housecleaning activities is not necessary to avoid reinfestation by lice or nits that may have fallen off the head or crawled onto furniture or clothing.
- Do not use fumigant sprays; they can be toxic if inhaled or absorbed through the skin.

Over-the-counter Medications

Many head lice medications are available "over-the-counter" without a prescription at a local drug store or pharmacy. Each over-the-counter product approved by the FDA for the treatment of head lice contains one of the following active ingredients. If crawling lice are still seen after a full course of treatment contact your health care provider.

1. **Pyrethrins** combined with piperonyl butoxide;

Brand name products: A-200*, Pronto*, R&C*, Rid*, Triple X*.

Pyrethrins are naturally occurring pyrethroid extracts from the chrysanthemum flower. Pyrethrins are safe and effective when used as directed. Pyrethrins can only kill live lice, not unhatched eggs (nits). A second treatment is recommended on day 9 to kill any newly hatched lice before they can produce new eggs. Pyrethrins generally should not be used by persons who are allergic to chrysanthemums or ragweed. Pyrethrin is approved for use on children 2 years of age and older.

2. **Permethrin lotion 1%**;

Brand name product: Nix*.

Permethrin is a synthetic pyrethroid similar to naturally occurring pyrethrins. Permethrin lotion 1% is approved by the FDA for the treatment of head lice. Permethrin is safe and effective when used as directed. Permethrin kills live lice but not unhatched eggs. Permethrin may continue to kill newly hatched lice for several days after treatment. A second treatment often is necessary on day 9 to kill any newly hatched lice before they can produce new eggs. Permethrin is approved for use on children 2 months of age and older.

Prescription Medications

The following medications approved by the U.S. Food and Drug Administration (FDA) for the treatment of head lice are available only by prescription. If crawling lice are still seen after a full course of treatment contact your health care provider.

1. **Malathion lotion 0.5%**;

Brand name product: Ovide*

Malathion is an organophosphate. Malathion lotion 0.5% is approved by the FDA for the treatment of head lice. The formulation of malathion approved in the United States for the treatment of head lice is a lotion that is safe and effective when used as directed. Malathion is pediculicidal (kills live lice) and partially ovicidal (kills some lice eggs). A

second treatment is recommended if live lice still are present 7-9 days after treatment. Malathion is intended for use on persons 6 years of age and older. Malathion can be irritating to the skin and scalp; contact with the eyes should be avoided. Malathion lotion is flammable; do not smoke or use electrical heat sources, including hair dryers, curlers, and curling or flat irons, when applying malathion lotion and while the hair is wet.

More on: [Malathion](#)

2. **Benzyl alcohol lotion (5%);**

Brand name product: Ulesfia lotion*

Benzyl alcohol is an aromatic alcohol. Benzyl alcohol lotion 5% is a white topical lotion approved by the FDA for the treatment of head lice; it is considered safe and effective when used as directed. Benzyl alcohol kills live lice (it is pediculicidal) but does not kill unhatched lice eggs (it is not ovicidal). A second treatment with benzyl alcohol lotion is necessary on day 9 after the first treatment (or as recommended by the manufacturer) to kill any newly hatched lice before they can produce new eggs. Benzyl alcohol lotion is intended for use on persons who are 6 months of age and older. Benzyl alcohol can be irritating to the skin and eyes; contact with the eyes should be avoided.

3. **Lindane shampoo 1%;**

Brand name products: None available

Lindane is an organochloride. The American Academy of Pediatrics (AAP) no longer recommends it as a pediculocide. Although lindane shampoo 1% is approved by the FDA for the treatment of head lice, it is not recommended as a first-line therapy. Overuse, misuse, or accidentally swallowing lindane can be toxic to the brain and other parts of the nervous system; its use should be restricted to patients for whom prior treatments have failed or who cannot tolerate other medications that pose less risk. Lindane should not be used to treat premature infants, persons with HIV, a seizure disorder, women who are pregnant or breast-feeding, persons who have very irritated skin or sores where the lindane will be applied, infants, children, the elderly, and persons who weigh less than 110 pounds.

When treating head lice

1. Do not use extra amounts of any lice medication unless instructed to do so by your physician and pharmacist. The drugs used to treat lice are insecticides and can be dangerous if they are misused or overused.
2. Do not treat an infested person more than 2-3 times with the same medication if it does not seem to be working. This may be caused by using the medicine incorrectly or by resistance to the medicine. Always seek the advice of your health care provider if this should happen. He/she may recommend an alternative medication.
3. Do not use different head lice drugs at the same time unless instructed to do so by your physician and pharmacist.

Sources:

<http://www.cdc.gov/parasites/lice/head/>

<http://pediatrics.aappublications.org/content/126/2/392.full> (American Journal of Pediatrics)