



EntGuide



...A publication of Florida A & M University

EG#9

Head Lice and Their Control

John P. Smith, Ph.D., B.C.E.

John A. Mulrennan, Sr. Public Health Entomology Research & Education Center
Florida A&M University

GENERAL

Head lice are small, clear to gray colored, blood-sucking insects measuring 1/16 to 1/8 inch in length. They live on the scalp, particularly behind the ears and at the nape of the neck and are a common menace, particularly to young children. Households, schools and day care centers routinely encounter by outbreaks of these pests. The purpose of this guide is to provide information necessary to better understand their biology and control.

BIOLOGY

The life cycle of the head louse consists of the egg--also called "nit", nymphal and adult stages (Fig. 1). Adult head lice live about 1 month on their host and seldom longer than 2 days when removed. A female head louse may deposit 4 eggs per day totaling 50 to 150 eggs during its adult life span. Head lice eggs are cylindrical, yellow-colored capsules measuring approximately 0.03 inches long and are securely

attached via a cement-like "glue" to the base of head hairs (Fig. 2). Eggs hatch in approximately 7-10 days. They remain viable 10 days on average, off the host; however, hatching is greatly reduced or completely prevented at room temperature (75° F) or below.

INJURY

Head lice penetrate the scalp with their blood-sucking mouthparts, inject an anti-coagulant and withdraw blood. This process causes intense itching. Scratching to alleviate the itch may lead to secondary infections that may form sores. Pediculosis is the medical term used to describe the condition of being infested with lice.

SPREAD

Personal hygiene is not a complete safeguard against acquiring head lice. Head lice can infest anyone due to their communicable mode of transmission. They do not jump or fly! Spread is usually direct from person to person contact or indirectly through shared objects such as combs, hairbrushes, caps, scarves, coats, sheets and pillowcases.

Head lice are poorly adapted for survival off the host. They do not flourish on desks, carpet, lockers, chairs, school bus seats or other objects. Survival on such surfaces is usually no longer than 2 days; thus, lice located in an unoccupied school, day care center, or bus will die over the weekend.

Head lice infest only humans; therefore, there is no need to treat pets!

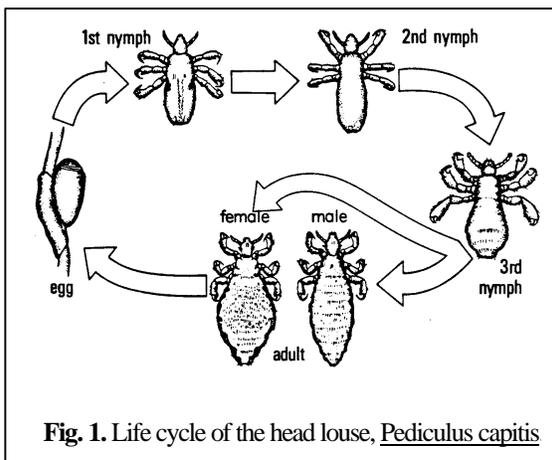


Fig. 1. Life cycle of the head louse, *Pediculus capitis*

SIGNS & SYMPTOMS

The first sign of a head louse infestation is constant scratching of the head. To rule out other scalp ailments such as dry skin and fungal infections, close inspection should find nits that are about the size of this dash (-) in the hair. It may be possible to see lice that are about this size (-) crawling on the scalp, however, this is not easy since they are few in number and difficult to find.

CONTROL & TREATMENT AT HOME

FIRST, check the hair of all family members and friends who have had close contact with infested individual(s). A toothpick or tongue depressor are handy tools that can be used to part and lift the hair for easy inspection. An infested person will most often have nits firmly attached to the hair shafts, particularly around the back of the neck and behind the ears. **CAUTION:** Do not mistake hair spray globules, cast hair follicles or dry skin for nits. These materials can be easily moved up and down the hair shaft, whereas, nits cannot (Fig. 2.)

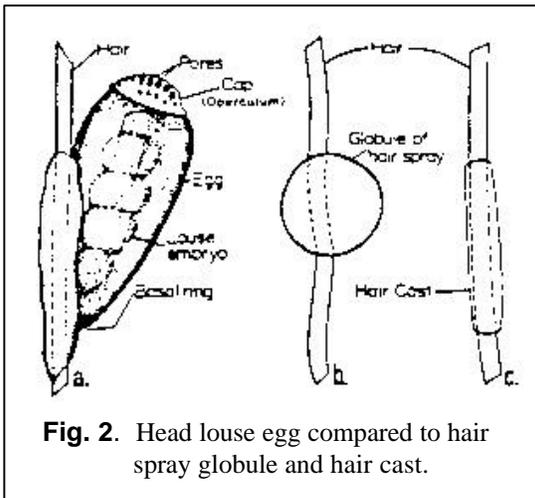


Fig. 2. Head louse egg compared to hair spray globule and hair cast.

SECOND, treat all infested individuals with either an over-the-counter insecticidal louse shampoo containing pyrethrins (e.g., Pyrinate A-200[®], XXX[®], RID[®]) or permethrin (NIX[®]). These are available at most discount drug stores. **Be sure to follow labeled directions completely since much of the success in controlling head lice depends on how well the treatment instructions are followed.** Regardless of the product used, none are 100% effective against the eggs; therefore, a second treatment is recommended one week after the initial treatment to kill lice emerging

from surviving eggs. Thereafter, treatment(s) should be administered on a “as needed” basis at time intervals no shorter than the label prescription. **The presence of nits alone on a recently treated individual does not necessary indicate an active infestation.** Nits become more noticeable as they move further from the scalp as the hair grows. As a general rule, nits located further than half an inch from the scalp should have already emerged and been killed by the first and second treatment. A third treatment should not be necessary unless nymph and/or adult lice are detected.

THIRD, it is a good idea to remove as many nits possible. Use a fine-toothed, specially designed “nit comb” (available at drug stores--metal combs are best) after each treatment to eliminate as many nits as possible from the hair, thus further reducing the chance of survival. **Note:** Commercially available nit removal products and vinegar solutions will not adequately dissolve or loosen the “glue” holding the nits to the hair.

FOURTH, machine-wash in hot water (over 130°F) or dry clean all coats, hats, scarves, pillow cases and other clothing coming in recent contact (48 hours) with the head of an infested person. Items that cannot be washed or cleaned as described, can be sealed in plastic bags and/or stored at room temperature or lower for two weeks which will kill all eggs, nymphs and adults.

FIFTH, soak all combs, brushes and other hair care items for an hour in either an insecticidal louse shampoo solution or in a 2% Lysol[®] solution prepared by adding 1-1/2 tablespoons of Lysol[®] to 1 quart of water. Another method is to heat the articles in water to 130°F for 5-10 minutes.

SIXTH, thoroughly vacuum couches, chairs, mattresses and other furniture that may have been in contact with infested persons or garments. Treatment with insecticidal aerosols such as R&C[®] and YDP[®] Sprays are generally not considered necessary because head lice seldom utilize these environments. It bears repeating, head lice seldom survive for more than two days off the host and rarely hatch at room temperature or lower.

SEVENTH, children should be encouraged not to share combs, brushes, caps, and other clothing that come in contact with the head.

EIGHTH, if it appears that head lice are not being controlled by a particular louse shampoo, switch to a different product and check to make sure that all of the steps above are being followed.

CONTROL & TREATMENT AT SCHOOL

Awareness—School nurses, teachers and day care providers should be aware of above-listed signs and symptoms indicating possible head louse infestations, particularly during the first few months of school when lice begin to spread due to the re-congregation of children.

Screening—Schools and day care centers with annual head louse problems should consider screening all children during September and January. Infested children should be sent home promptly with a note addressed to the parents or guardian detailing the problem and recommended control measures presented in this **EntGuide**. If possible, it is a good idea to actually show parents infested areas (i.e., lice and/or nits) so they will know what to look for in the future. These children can be readmitted the day following treatment; however, they should be inspected upon return to assure that treatment has been administered. Evidence of treatment includes: no lice (adults or nymphs); clean hair and scalp; the louse shampoo label or a note from the parents or physician stating the treatment used. It is a good idea to re-inspect infested children 7-10 days after initial treatment to make sure they have undergone the recommended second treatment. Thereafter, biweekly inspections should be made to assure re-infestation does not occur.

“NO-NIT” Policy—Many schools and day care centers have adopted a policy requiring removal of all nits before readmission. This can be an effective approach if it can be enforced, however, it is extremely difficult to remove 100% of the nits.

Shampooing Caution—Insecticidal shampooing beyond the recommended two applications is often not necessary and can be harmful. The presence of nits alone on a recently treated person does not necessarily indicate a new infestation since they are difficult to completely remove. Hatched and dead nits often take on a pearly white color and are located beyond a half inch from the scalp. Microscopic examination of a sample of the nits can be used to confirm viability. Hatched nits will be clear with the top portion of the egg case open. A moving embryo can easily be seen inside a live nit.

Stop-The-Spread!!—Every effort should be made to eliminate the spread of lice by separating jackets, sweaters, hats and other clothing when stored in group situations. This can be accomplished by having children stow their apparel when not in use in individual plastic bags at their desks or in a well-separated storage area. Children should also be advised not to share combs, brushes, hats, scarves, and any other clothing or hair care articles that could possibly support the spread of lice. It is not advisable to spray an insecticide for lice control in schools or day care centers. Good custodial services (i.e., sweeping, vacuuming and mopping) are sufficient.

For More Information

Pollack, R. J. 1998. Head Lice: Information and Frequently Asked Questions. Harvard School of Public Health. <http://www.hsph.harvard.edu/headlice.html>

The National Pediculosis Association[®], Inc. 1999. <http://www.headlice.org/>

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