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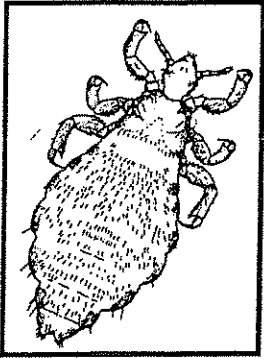
UNIVERSITY OF NEBRASKA COOPERATIVE EXTENSION IN LANCASTER COUNTY

"HELPING YOU PUT KNOWLEDGE TO WORK"

Head Lice Management

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018-99



The incidence of head lice has increased in the last twenty years. This means that more kids are carrying around head lice and have the chance to

expose even more kids to head lice. What can parents do that is safe and effective? This fact sheet will discuss how to detect head lice and the steps required to eliminate lice and prevent re-infestation. We will discuss insecticidal treatments, but will emphasize combing as the most important action that parents can do to eliminate head lice from their child's head. Because of the limitations of insecticidal products, even after using head lice treatments, combing must be done to break the head lice life cycle.

Background

Head lice are found in children of all socioeconomic classes. They are very contagious and can spread easily. While there is no reason to panic (head lice do not carry serious diseases), taking action quickly is the best way to prevent the infestation of other family members. It is also important for parents to remain calm because they will need the cooperation of their child to successfully treat this problem.

Identification and Biology

It is important to understand a little about head lice biology and habits. Head lice are obligate blood feeders, which means that they require human blood to grow, develop and lay eggs. When on a human host, they usually will be found close to the scalp, but may also be found on the eyebrows or eyelashes.

Head lice are quite small; adults are 1/10 to 1/8 of an inch long and the immature lice are even smaller. They are tan to grayish-white. Head lice cannot fly or hop like fleas, but they can crawl quickly through the hair at a rate of nine inches per minute.

An adult female head louse can lay 3-4 eggs per day and the average life span on the host is 30 days. Eggs hatch within 7-10 days after being laid. Immature lice pass through three stages before becoming adults, which takes another 8-9 days. One pregnant adult female can produce enough offspring so that a significant infestation can occur within a month. A child that has a significant infestation has been infested for at least a month or more.

Nits are white when they are first laid and turn brownish before they hatch. They are glued to hair strands about 1/2 inch from the scalp. This glue is so strong that the nits cannot be as easily removed as dandruff and other hair debris. Even though some products claim to remove nits, there is no safe solvent for this glue.

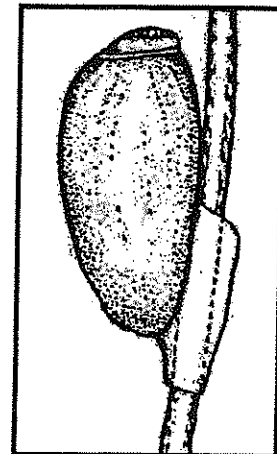
Head lice must feed every few hours, but can survive off the host for two days to a week depending on

environmental conditions, primarily temperature. Lice die more quickly when temperatures are warm and humidity is low.

Inspection

If you see your child scratching his/her head or if the school or daycare has reported a louse infestation, look for signs of head lice. Many parents routinely examine their child's head on a weekly basis. Look for:

- **Live lice.** Part the hair with a rat-tailed comb. Check all areas of your child's scalp, especially at the nape of the neck and around the ears; these are favorite spots for lice. Also look for



lice feces, that look like tiny black specks on your child's scalp. If you see them, examine the rest of the head for live lice and nits.

- **Eggs (nits).**

Female lice typically

attach nits 1/2 inch from the scalp. There can be from a few to several hundred nits in a child's hair. Use a magnifying glass and a good light to help distinguish between nits and dandruff. Eggs are oval-shaped and glued securely to only one side of the hair shaft. The spent egg stays attached to the hair shaft even after hatching.

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Treatment Options

•What probably won't work.

We've heard of some home remedies that include cooking oil, mayonnaise, vinegar and other combinations. However, lice can survive in hair covered with oil even when it is left overnight. Shampooing with ordinary shampoo won't kill lice; studies have shown that lice can survive through two consecutive shampooings even when the hair is not rinsed for an hour after the second shampooing. Lice don't drown easily. Research has shown that lice can survive when immersed in water for 14 hours at 86-98 degrees Fahrenheit.

No scientific studies have been conducted that show cooking oils, mayonnaise, vinegar or other concoctions are effective head lice treatments. Our experience is that some parents try these and think that they have been helpful, but many parents try them without success.

•Insecticidal Treatments

To reduce the number of live lice on your child's head, you may want to use an insecticidal product that is labeled for head lice control.

Pyrethrins Pyrethrin products on the market are NIX®, RID®, A-200®, Clear® and some other store brands that have similar active ingredients. When used correctly, these over-the-counter products are pretty safe; only a few

children will exhibit minor problems such as itching, a minor rash or an allergic reaction. Because the active ingredients of NIX, RID, A-200



and Clear are all similar chemically and have been the primary treatments for control, it is likely that head lice will continue to develop resistance to them.

Malathion A product that has been reintroduced to the U.S. market is

Ovide®. It has been used in European countries for many years. The active ingredient in this lotion is malathion, an organophosphate insecticide. Lice that are resistant to pyrethrin products may be better controlled with this product. This product is a lotion and is available only by prescription. This product may have an unpleasant odor which is associated with malathion. Head lice resistance to malathion was reported several years ago in Britain where this product has been used for a number of years.

Kwell One shampoo product that is only available by prescription is Kwell®. It has been used in the U.S. for lice for about 50 years. Head lice resistance to lindane, the active ingredient in Kwell, has been reported in many parts of the world, including the U.S. This product is less effective than most of the other head lice treatments. It is available only by prescription because it is more hazardous. Kwell should be used with caution—neurotoxic reactions, carcinogenicity in lab animals and blood disorders have been reported as a result of the normal use of lindane shampoos.

•Cutting Hair. Head lice have claws on their legs that help them grasp hair. Children with long hair may contact stray lice more frequently than children with short hair. For children that have repeated infestations of head lice, cutting hair short may help.

Effectiveness Parents sometimes report that these products are not effective and often blame resistant lice or the product. However, sometimes the problem is that parents are not using these products according to label directions. The most common mistakes are:

1. The treatment is not repeated 7-10 days later as directed on the label. Because the head lice nit stage is resistant to chemicals, the treatment must be repeated to kill lice that hatched after the first treatment.

2. Less product is used than is recommended on the label. Because these products are expensive, parents understandably want to save shampoo to treat another child or for a later treatment. It is important to use the

entire amount recommended on the label. Any less can reduce the effectiveness of the shampoo.

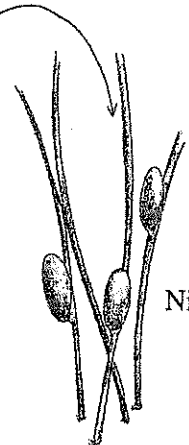
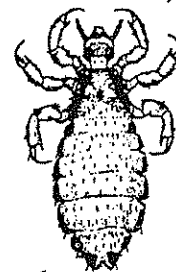
These products cannot be used like regular shampoos. Read and follow all label directions. If you are confused, most product manufacturers have a consumer line and will help you. The telephone number will be found on the package.

Resistance has been documented with some of the head lice products. The longer these products are used, the more resistance will be found. But parents should be aware that even the most effective product may not be 100% effective. This is why using a lice comb is so important.

Aerosols Some aerosol insecticides are sold to be used on surfaces that cannot be washed. We recommend vacuuming instead of using these aerosols. Because lice require frequent blood meals, most of the time lice will be found on the host and not on environmental surfaces. The problem is that some of these products may cause respiratory problems for sensitive individuals, especially those who have allergies. In our experience, the benefits of using these aerosols are low and vacuuming is a much safer alternative.

Head Lice Lifecycle

Adult Female



Nits



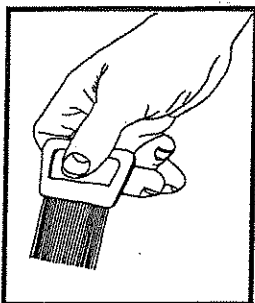
Immature Louse

Combing: a safe, non-toxic method of lice control



Combing is the oldest and safest method of lice control; nit combs have been found in Egyptian tombs. It is completely

safe. When done properly, it takes time and requires patience on the part of parent and child. You can completely avoid insecticide shampoos/rinses if you comb the hair to remove lice and nits, but you must be diligent. Even if you use an insecticidal shampoo, combing is the only way to remove nits from the hair.



How to Use a Lice Comb to Remove Lice and Nits

1. Getting ready. First, purchase a metal lice comb. The tines of a

specially designed nit comb are narrower than the eggs. Do not use plastic combs provided with some pesticidal shampoos; they are flexible and can allow nits and lice to pass through. If you cannot find a metal lice comb, ask your pharmacist to order one. Other items that you will need are:

- comb and/or brush
- bobby pins or hair clips (for long hair)
- a large towel to place around the child's shoulders during combing
- box of facial tissue
- bowl of water with a little dishwashing liquid added.

Combing should be done in a well lighted area. Seat the child so her/his head is just below eye level. It also might be a good idea to have something fun to entertain the child that

does not require much physical activity. Consider reading, modeling clay, coloring or videos.

2. Prepare the hair. Cover the child's hair with salad or olive oil. Oil prevents the hair from tangling, prevents the hair from drying out and makes it easier to use the lice comb. Use a regular comb or brush to remove the snarls.

3. Combing.

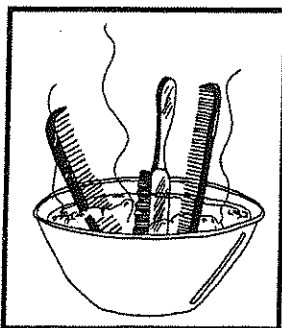
—Separate a mass of hair that is slightly wider than the width of your lice comb and about 3/4 inch in the other direction. It is important to separate the hair into small sections so you can more easily see lice and nits.

—Hold the mass of hair with one hand. With the other hand, hold the lice comb in a slanting position with the teeth toward the head.

—Insert the comb into the hair as close to the scalp as possible since the eggs are first laid within 1/2 inch of the scalp. Pull the comb slowly through the hair several times.

—Comb one section at a time and check each section to make sure it is clean, then pin it out of the way, curling it flat against the head. Whenever you comb out nits or live lice, dunk the comb in the soapy water. Make sure comb is clean before you use it on the hair again. Frequently remove the hair and other debris from the comb with a tissue. When the tissue becomes soiled, place it in the bowl of soapy water. When the bowl is full, flush its contents down the toilet and refill the bowl with soapy water.

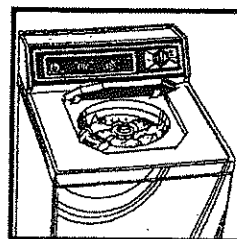
—When all the hair has been



combed, shampoo the hair twice to remove the oil. Once the hair is completely dry, again check the entire head for stray nits and remove those hairs individu-

ally with a pair of small, pointed scissors.

4. Cleaning Up. Soak the lice comb in hot ammonia water, prepared by adding one tablespoon of ammonia to one quart of hot water for 15 minutes. Metal combs can be boiled in plain water for 15 minutes. A comb cleaned either way can be reused on other family members. Scrub the teeth of the comb with a nail brush or an old toothbrush to remove debris. Wash towels in a washing machine in hot, soapy water and followed with a hot dryer. At this time, you may also want to wash bedding and recently worn clothing.



Preventing Reinfestations:

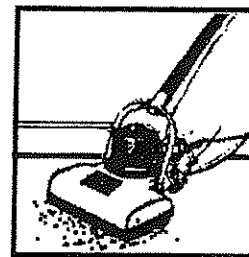
Once a child has been deloused, steps will be needed to prevent reinfestation.

Examine all

members, including parents and treat them if lice are found. Wash bed linens and recently worn clothes in hot, soapy water in a washing machine. Drying in a 140°F dryer will kill both lice and nits. Clothes washing does not have to be repeated daily and is only necessary when you treat the child or when he/

she is reinfested.

Articles that cannot be washed can be vacuumed or placed in a plastic bag and sealed for two



weeks to kill all lice and nits.

Instruct children not to share combs, brushes, hats or other articles of clothing at school, play or other activities. If they don't already have them, it might be a good time to get every member of the home their own comb and brush.

Continue to check your child's head for the presence of lice and nits.

If your time is limited, it is much more important to comb your child's hair than to spend time washing clothes and linens and vacuuming your house.

Electronic Comb

There is an electronic comb on the market, called the Robi Comb™ that can be used to detect head lice. It is an electronic comb with metal-coated teeth that runs on one AA battery. When it is turned on, a soft, high pitched hum is emitted. When the metal teeth trap live lice, the humming stops. We have used this on children with head lice and finds that it does detect head lice, even immature lice that are very tiny. The manufacturer, Mepro Epilady, LTD, (yes, the same company that produces a line of ladies shavers) claims that the lice that get trapped in the teeth are electrocuted. Unfortunately this comb will not

destroy nits. The manufacturer cautions that the Robi Comb™ should only be used on dry hair and care should be taken to avoid direct contact with ears, eyes and mouth. Be sure to read and follow directions for safe use of this comb. The cost of this comb is about \$30; it can be ordered by contacting the distributor School Health Corporation (1-800-323-1305).

No-Nit Policy

Many schools and daycare centers have adopted the "no nit" policy recommended by the National Pediculosis Association. This policy means that children cannot attend school if nits are found in their hair. None of these

insecticide treatments mentioned above will remove nits from the head. There is no safe solvent for the glue that the female louse uses to attach her eggs to the hair even though there are products that make such claims. Combing is the only sure way to remove nits from hair.

Because children spend so much time at school or day care, these facilities are sometimes accused of being the places where head lice get transmitted from child to child. While lice are transmitted in these locations, we have also heard of instances of lice transmission with children that share sports helmets and share combs at dance classes.

Additional Resources:

Removing Head Lice Safely. An 8-minute videotape that demonstrates head lice management in an easy to understand format. The video features highly magnified live lice, a combing demonstration on a child, and actions that will help prevent reinfestations. Cost: about \$13, including shipping & handling. The video and accompanying materials were developed by the University of Nebraska Cooperative Extension and State of Nebraska Department of Health and Human Services.

Quick Guide for Removing Head Lice Safely, Fact Sheet 030-99.

For more information about this video or fact sheet, contact University of Nebraska Cooperative Extension in Lancaster County, 444 Cherrycreek Road, Suite A, Lincoln, NE 68528-1507.

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