

HEAD LICE INFORMATION

HOW DO I KNOW IF MY CHILD HAS HEAD LICE?

Many head lice infections cause no symptoms, and probably less than half cause itch. So you have to LOOK to find out if your child has head lice. Do not rely on itching and scratching.

Eggs are not difficult to see; use a strong light and look on the hair shafts. Newly laid eggs are usually within 1.5 cm of the scalp while older eggs are higher up the hair shafts. If you are not sure whether an object you find is a head louse egg, try sliding it up the hair shaft using your fingers. Eggs are usually quite difficult to move, whereas hair muffs, dandruff and other items slide easily.

However, finding live lice can be difficult since the climbers move away quickly from disturbances in the hair, and they are very difficult to see.

An easy way to find the climbers is to use the conditioner and nit comb technique. Conditioner stuns lice for 20 minutes. So once the hair is properly covered with a layer of conditioner, do not delay in combing those little suckers out!

1. Apply conditioner to dry hair aiming to cover each hair from root to tip with a layer of conditioner.
2. Detangle the hair using an ordinary comb.
3. Immediately comb the hair with a fine tooth comb. The best comb for this is the Lice Meister comb. However, plastic nit combs with conditioner are also very effective for detecting climbers.
4. Wipe the conditioner off the fine tooth comb onto a paper tissue and look for lice and eggs.
5. Repeat the combing for every part of the head at least 5 times.
6. Also examine the comb for lice and eggs.

If you find lice, your child should be treated.

If your child has not been treated for head lice before, and you only find eggs, you should consider treating for head lice. However, another option if you do not want to use insecticidal treatments, is to check again the next day using the conditioner and comb technique.

If your child has been treated recently, and you find only hatched eggs, but no lice, you may not need to treat since the eggs could be from the old infection.

You should check your child every week using conditioner, a fine tooth comb, and paper tissue as described above.

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HOW DO I TREAT HEAD LICE?

Head lice live in the hair and come down to the scalp to feed by sucking blood. So head lice formulations must be applied to all parts of the hair. A complete regime consists of two treatments 7 days apart, the first to kill the climbers, and the second to kill the juvenile lice

hatched from the eggs over the intervening 6 days. No product currently available kills all eggs.

1. Apply the product to all areas of the head and coat all hairs from roots to tips.
2. If you are using lotions, apply the product to dry hair. For shampoos, wet the hair, but use the least amount of water possible.
3. For long hair apply the treatment formulation near the scalp and then use an ordinary comb to carry the formulation down the hair shaft to the tip. If product is left on the comb after one sweep, it should be wiped onto the same or a new area of hair at the base and the process repeated. By repeating this process several times for hair all over the head, one can obtain an even coverage of all hairs from roots to tip. In addition the hair is tangle free and use of a fine tooth comb is subsequently simplified.
4. Leave the preparation on the hair for at least 20 minutes.
5. Cover the child's eyes while the treatment is being applied. Ask them to hold a towel against their eyes.

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HOW CAN I TELL THAT THE TREATMENT HAS KILLED THE LICE?

If a head lice product works, lice will be dead within 20 minutes. You can test if the lice are killed by doing the following:

1. After 20 minutes, use a fine tooth comb to comb the hair, and after each sweep from roots to tip, wipe the combings onto a tissue.
2. Repeat this many times until the whole head has been combed at least twice and little treatment formulation is visible on the hair.
3. Examine the tissues and see if lice are alive or dead. A magnifying lens is not needed to do this, but will help in the visually impaired. Grade each lice as dead (no movement at all), inactive but alive (louse is stationary, but is moving legs or antennae), or active (louse is crawling on the tissue).
4. Assess success of treatment and possible insecticide resistance.
 1. If all lice are dead, infestation is sensitive to product used.
 2. If some lice are inactive but alive, infestation may be partly resistant to treatment, but regard the louse population as "sensitive" if no lice are active.
 3. If some lice are active, infestation is resistant.
5. For a sensitive population of head lice, the current treatment has been successful, but embryos in eggs will most likely survive. Retreat in 7 days using the same product.
6. For resistant lice, the current treatment has been unsuccessful. See section "If lice aren't killed, what should I do?".

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IS A SECOND TREATMENT NECESSARY?

Yes, in almost all cases a second treatment is needed since no head lice treatment kills 100% of the eggs. So if the first treatment killed all climbers, at the second treatment one would expect only juveniles, hatched from eggs during the 7 day period, and no adults. You must retreat on day 7 with the same product that worked on the first treatment, and evaluate efficacy using the same protocol.

If lice are found at the second treatment, and they are killed by this treatment, there are two options:

1. retreatment with same preparation a third time in 7 days to verify complete cure, or
2. 7 days after the second treatment, put conditioner in the hair, comb with a fine tooth comb and check for lice.

The choice of option depends on your philosophy, option 1 being chosen if you want to make sure all lice are killed, and option 2 is chosen if you wish to minimise exposure to insecticides. If treatment has been as successful as possible, only juvenile lice should be found at the second treatment, and no lice should be found on the third treatment or the third examination.

If no lice are found at the second treatment, the case has been cured.

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HOW DO I KNOW IF HEAD LICE ARE RESISTANT TO INSECTICIDES?

Insecticide resistance in head lice is common, but it can be detected by assessing the effect of treatments. If live lice are found in the combings after treatment that has been correctly applied, the head lice are resistant to the product used, and possibly to any other product using the same active compound.

Wash off the first product. Retreat as soon as possible using a product from a different active group than the one used. Although there are over 20 head lice products they fall into four groups based on the active compound:

1. pyrethrins
2. synthetic pyrethroids (permethrin and bioallethrin)
3. organophosphates (malathion or maldison), and
4. herbal and essential oils.

If the product doesn't kill lice, look to see what the active compound is and then choose a product from another group. Apply the product and reassess using steps 1-5 above in the treatment schedule.

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WHAT ABOUT THE NYMPHS THAT HATCH BETWEEN TREATMENTS?

Between the treatments 7 days apart, embryos that were not killed by the head lice product in the egg will hatch and emerge to live on the head. They will be killed by the retreatment, but in the meantime the nymphs will feed and grow. Not an ideal situation!

A good strategy to manage this situation is to use the conditioner and fine tooth comb technique between treatments. If conditioner is applied and then immediately combed out, the nymphs that have hatched will be removed. Do this at least twice in the 7 days between treatment 1 and treatment 2.

NOTHING WORKS!

Some cases of pediculosis seem horribly persistent. To solve these you have to use a very systematic approach. Reasons for failure come down to one or several of the following:

1. Inadequate application of the product
2. Lice are resistant to insecticide
3. Failure to retreat to kill nymphs emerged from eggs
4. Reinfection.

The order of listing of these causes is very important. To determine why the pediculosis persists, you have to start at the top of the list and work to the bottom. For more details go to the page on Strategy To Manage Treatment Failure.

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ARE HEAD LICE TREATMENTS SAFE?

All head lice products contain insecticides and most work by attacking the nervous system of the lice. All products licensed and registered with the Therapeutic Goods Administration in Australia have a Aust L or Aust R number. Check for this to see that the product is licensed for use in Australia. Be wary of head lice treatment products in Australia that are not officially approved.

The active ingredient of all Aust R products have low acute toxicities for humans. Please note that lindane and carbaryl are not licensed for use in Australia. Lindane as a treatment for pediculosis has been removed from many developed countries because of concerns about acute toxicity if used too frequently. Carbaryl is available in the UK only by prescription. The chronic toxicities of the active ingredients are less well recognised. The aim should be to keep exposure to insecticides to the minimum required to eradicate head lice.

WHAT IS DANGEROUS?

Some parents and guardians do risky things to get rid of head lice. Treatments that you should not use because they may harm your child include:

- Using insecticidal head lice products to prevent head lice.
- Using other insecticidal products on the head. Using pet flea or tick treatments, fly spray and insecticidal surface sprays is dangerous.
- Using kerosene.

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DO I NEED TO SPRING CLEAN THE HOUSE?

Definitely not! Head lice die if they leave the head. The only way head lice can get water and food is by sucking blood from the scalp. A head louse not on the head is a head louse in a desperate situation! Head lice will dehydrate when off the head. The rate at which this occurs depends on the amount of water vapour in the air. In an air-conditioned room, head lice will be severely dehydrated after a few hours. When it is wet and raining, head lice may live for 24 hours.

The floors of 118 primary school classroom carpets were searched for head lice while the pupils were out of the classroom. We also checked the children's heads. We found no lice (ZERO!) on the floors and 14,033 lice on the heads of the 2000 or so children using those classrooms. To treat head lice concentrate on the head!

A small number of lice do move down to pillow slips at night. So change the pillow slip when you are treating your child, or heat it up (hot wash, iron, hot dryer) to kill any head lice that may have walked across to the pillow slip. However, focus your main efforts on the head, not on the environment. The head is where the action is!

If you are unable to eradicate head lice speak to your pharmacist or general practitioner.

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