



# Head lice...

what should be done?

## About us

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## An introductory comment

Head lice have been endemic in Europe for millennia. They do not transmit any diseases, but they spread very easily.

Today's high standards of hygiene have not changed anything in this regard, since getting head lice is not a matter of personal cleanliness. Lice can feel entirely at home and multiply on even the best cared-for head – they actually seem to have a preference for freshly washed hair.

Thus, anyone can get head lice and nobody needs to feel ashamed about it. However, it is important to get rid of the annoying bloodsuckers as quickly as possible and prevent their further spread.



## How do you get head lice?

Head lice cannot jump or fly, but they are nimble scramblers. For this reason, it can easily happen that these uninvited guests wander from one person's head to another during close encounters in the family, between friends, while cuddling, snuggling, and putting heads together. They are not choosy in their selection of which mop of hair to live in – any scalp is a welcome spot to have another meal.



**Head lice can take up residence on anyone – despite the best body hygiene and daily hair washing!**



Direct transmission from one head to another is by far the commonest pattern – transmission by means of objects happens only extremely rarely and can only take place on objects that are used jointly within a short time period. This is because the head louse becomes dehydrated relatively quickly as soon as it cannot suck several blood meals from the scalp every day. Without food the louse will die within at most 55 hours. This is also the reason that a head louse never wants to leave its source of nourishment – the head.

Transmission of head lice eggs by means of objects is even less likely. Away from the head, an egg lacks the necessary brood heat and moisture to allow it to continue developing.

**Moreover: Household pets cannot transmit head lice.**

## How can you tell that you have head lice?

At the latest, if the scalp becomes very itchy, you should check to see whether the little bloodsuckers have selected you as a new victim. But even if you haven't noticed anything yet: as soon as you come to know about a case of head lice occurring in your close proximity or your child's school or daycare centre, you should immediately begin carefully checking the heads of all members of your family.

### Why does your head often itch when there are head lice?

The reason your head often itches so intensely when you have head lice is that every time a louse sucks a blood meal, it squirts a tiny droplet of saliva into your scalp. Since you begin scratching without even noticing it, small skin abrasions occur in your scalp, and these can easily become infected. This can lead to bacterial skin infections and, in severe cases, may even cause swollen lymph nodes. Should this occur, a visit to the doctor's office is necessary.



It is best to examine the scalp when the hair is wet; apply a commercial hair conditioner (and don't rinse it out!), and then comb the hair using a louse comb, starting from the hair root and combing outwards carefully strand by strand all the way to the tips of the hair. The conditioner makes it easier to comb through with the fine comb and also helps to keep the lice from running away. Between strokes, wipe off

the comb on a paper towel. In case of infestation, you will find head lice and/or their somewhat smaller larvae (the not-yet fully matured lice) on the paper towel.



### What is a louse comb?

The term 'louse comb' refers to special combs with teeth that are no more than 0.2 mm separated from each other. Thus, they are well suited for catching lice and their larvae. You can purchase a louse comb at any pharmacy or medical supply store.

The six-legged head lice are no more than 3mm in size and usually of a gray color; just after they have sucked blood, they develop a reddish hue. They are readily visible with the naked eye. Larvae are somewhat smaller – and a magnifying glass may be helpful in detecting them.

If there are only a few lice on the head, it is possible that they manage to slip away during the monitoring examination and are not discovered. However, you can almost always find louse eggs whenever there is an infestation with head lice. These 0.8 mm tiny droplet-shaped structures stick tightly to the hair shaft and cannot be shaken off or washed away. When you examine the head, you may find the brownish-gray eggs from which larvae may still hatch, and/or whitish, shiny empty egg cases (nits).

If you have found living lice, larvae or louse eggs that are sticking to the hair at a distance of less than one centimeter from the scalp, this definitely confirms the existence of an infestation with head lice. Whitish nits (egg cases) that are found further than 1 cm from the scalp are empty and no longer represent any risk of transmission.

Empty egg cases may sometimes continue to adhere to the hair shaft long after successful treatment of head lice, as they are rather difficult to remove (for removal of nits, see [page 11](#)).

### The life cycle of the louse...

... occurs through several different stages, from the egg to the larval stage, and then on to the adult, sexually mature louse. The eggs (**A**) are deposited by the adult female louse and attached to the hair shaft near the scalp with a glue-like substance that is not water-soluble. Eight to ten days after the eggs are laid, larvae hatch out of the eggs (**B**). These develop over the following 9 to 11 days into adult, sexually mature lice (**C**) – and the life cycle begins once again.



Size comparison: match/one-penny coin

From the egg stage to the first time the adult female louse begins laying eggs takes about 17 to 22 days. Fertile female lice lay several eggs daily (over their entire lifetime of about four weeks, they will lay approx. 90 to 140 eggs). Treatment of a head lice infestation must be timed accurately to the lifecycle of the louse in order to be successful. This is the reason it is so very important to pay especially close attention to the time information in the following recommendations for treatment.

## How can you get rid of head lice?

According to today's opinion the optimal treatment is a combination of applying an approved anti-lice agent (pediculocide) and carefully combing out the hair using hair conditioner and a louse comb. If you use both of these methods together, you can assume that there is a high likelihood that you will be rid of the lice.



### 1. Treatment with an approved anti-lice agent

You can obtain products for treating lice with a prescription from your doctor, or without a prescription at your local pharmacy. If your child is less than 12 years old you will get a prescription from a pediatrician and health insurance will cover the costs for most approved anti-lice agents. Treatment can take place at home.

By now a large range of products are available to choose from for treating an infestation with head lice, and these products are based upon different active ingredients and modes of action (see also [p. 14](#) and following). You should let your pharmacist advise you about selecting the convenient product and speak directly with the pharmacist about what you need to consider when using the product.

For any anti-lice agent that you use: you should be sure to strictly follow the instructions for use with regard to the recommended amount, distribution and the exposure period for the preparation, because otherwise, you may jeopardize the success of the treatment.

After you complete your first treatment, you are not quite done yet. On **day 8, 9 or 10** following the initial treatment (= day 1), you must complete a **repeat treatment** using the anti-lice agent. This is true for all anti-lice treatment products – even if a different regimen is recommended in the instructions for use.

**The repeat treatment is absolutely necessary**, because most approved anti-lice agents are quite effective against mature lice and louse larvae, but unfortunately, they are ineffective or only of limited effectiveness against louse eggs. Therefore, on the days after initial treatment with the anti-lice agent, they may continue to mature and new larvae may hatch. The second treatment will wipe out the larvae that hatched since the first head washing.



**Attention! Mistakes in application seriously jeopardize the success of treatment!**

**For example:**

- Too brief exposure periods
- Too scant application of the product  
(the entire hair area should be covered with the anti-lice agent!)
- Uneven distribution of the product
- Excessive dilution of the product on hair that is too wet
- Omitting the repeat treatment
- Repeat treatment that is performed too soon or delayed too long



**Combing results**

## **2. Wet combing with conditioner and a louse comb**

In addition to treatment with the anti-lice agent, the hair should be combed while wet every four days (on days 1, 5, 9, and 13) for two weeks to remove any larvae that might have hatched in the interim.

For this purpose, you should apply a commercially available hair conditioner and thoroughly comb the hair using a louse comb, strand by strand, from the roots to the tips of the hair. After each time you comb through the hair, wipe the comb on a paper towel. If you find any larvae or lice on the paper towel, you should comb the same strand through once again.

**Tip:** On pages 22/23 of this brochure, you will find all the necessary treatment steps presented once more in tabular form for you to check off. This will make it easier for you to have a successful treatment!

Individuals who might not use to use certain anti-lice agents, such as pregnant or nursing mothers, and people with certain allergies (e.g. allergies to chrysanthemum), may instead employ the method of wet combing with conditioner using a louse comb as a single treatment alternative. However, the effectiveness of simply combing without applying an anti-lice agent is significantly lower than that of the combined method. This is readily understood once you consider that applying conditioner does not kill the lice, larvae or eggs, but simply makes it easier to comb them out with the louse comb. Using the combing method alone can only succeed if you are extremely thorough and follow the directions provided here very carefully.



#### How do you get rid of the nits?

Even after successful treatment, it is common to find empty nits on your head, as they adhere very firmly to the hair. Don't worry – they pose no risk of further transmission. Of course, you would like to get rid of them as well. If you find that even careful combing with the very thin-toothed louse comb doesn't work, the only other thing you can try is to remove them one at a time with your fingernails – and sometimes this includes clipping off single hairs.



## What else should you do?

If you have found lice, larvae or viable eggs on the head of a family member, you should carefully examine all other members of the family right away, as the head lice may already have settled on other heads within your household.

Most often, by the time head lice are discovered, a number of other children in a group of friends, a child-care group or a class in school are all affected. Therefore, even if you do so much to eliminate the bloodsuckers – unless the group takes collective steps against the head lice, all your best efforts may be in vain.



**Therefore:** If you have discovered that your child has head lice, you should telephone your child's friends and personally inform all the people in your immediate environment as well as the school or daycare centre administration. The school or daycare administration will then notify the health authority responsible for informing and advising about issues related to head lice, and they will assure effective cooperation between the parents and the institution. An embarrassed silence only helps the head lice spread, and can lead to a vicious circle of new infestations, thereby causing harm to everyone!

## What cleaning measures are necessary?

It is extremely unlikely that head lice are transmitted via objects, but it is not one hundred percent impossible. As an example, if an affected child shares a cap with several other children on that day, a louse could inadvertently migrate to another child along with the cap.



Yet, this actually happens extremely seldom. For this reason, efforts at washing the laundry and cleaning the house always have a lower priority than prompt and thorough treatment of the affected child plus examining the heads of all other family members. Only after you have completed these essential steps you may:

- thoroughly wash combs and hairbrushes in hot soapy water (for example, using a hand brush or an old toothbrush) – the best idea is for each family member to first be given his/her personal brush,
- change the towel, underwear and linens along with the pyjamas of the person who has been affected by the head lice,

- take all caps, scarves, blankets, pillows, stuffed animals and other objects that have come in direct contact with the affected person's scalp hair and store them in a sealed plastic bag for three days.

Major cleaning efforts in the home, such as disinfecting upholstered furniture or treating carpets with insecticide are absolutely unnecessary! Such measures simply waste your time and energy – and since they involve toxic substances, may actually cause harm.



## How do anti-lice agents work? Can they be harmful to my child?

To eliminate a head lice infestation, we only recommend the use of approved medicaments or medicinal products, and these are formulated on the basis of different effective agents and have different modes of action.

For a number of years now, agents that affect the nervous systems of lice have been used to fight head lice. They contain chemicals or plant-derived substances (chrysanthemum blossom extract) that cause paralysis in lice and ultimately kill them. In Germany, products containing pyrethrum, allethrin or permethrin are approved for treating head lice.

In addition, a set of what are referred to as medicinal products are available today to treat head lice. The precise mechanism of action of these products has not yet been thoroughly researched, but the assumption is that substances they contain (oils) kill the lice by shutting down their airway openings. A number of products belonging to this group have been approved for use in Germany, and they are based on dimethicone (a liquid silicone oil) or other oils.

With all products to treat head lice approved by the German Federal Environmental Agency (ask your pharmacist), you can feel assured that they have been thoroughly studied regarding tolerance and harmlessness. If you use them according to directions, these medications and medicinal products normally cause no harm to humans and they may also be used on children.

**You can obtain the current list of products tested and approved by the German Federal Environmental Agency and the Federal Institute for Risk Assessment at the Robert Koch Institute (RKI)'s Internet site at the following address: [www.rki.de/cln\\_178/nn\\_468404/DE/Content/InfAZ/K/Kopflaus/Liste\\_Entwesung.html](http://www.rki.de/cln_178/nn_468404/DE/Content/InfAZ/K/Kopflaus/Liste_Entwesung.html)**



However, for **infants and toddlers**, you should seek medical advice before administering any treatment, since not all of the available preparations are suitable to use in these age groups. Your doctor will recommend and prescribe the appropriate product for your child.

In rare cases of persons with unusual sensitivities, these substances may provoke allergic reactions or irritation. If your child has a scalp condition, or suffers from the rare condition known as MCS Syndrome (multiple sensitivities to chemical substances), or has an allergy to **chrysanthemum**, you should consult your



doctor or pharmacist, or employ only the “wet comb” method, using hair conditioner and a louse comb (see [page 10](#) and following).

Some preparations may not be used during **pregnancy or while nursing**. At these times as well, you should employ only the “wet combing” method or consult your physician for further advice.

You should also be aware that the German Federal Institute for Drugs and Medical Devices (BfArM) has warned about the flammability of certain substances used to treat head lice and the associated risk of fire. Therefore, you should never apply any of these substances in the proximity of an open flame (e.g. candles, lit cigarettes) or sources of intense heat (for example, a hot hairdryer).

As a rule, you can find out more about the dangers and risks of using anti-lice agents from the instructions for use, and you should be sure to read them thoroughly. You can also obtain advice from your pharmacist about the safe use of these preparations for treating head lice.

## Are there household remedies that help get rid of lice?

The basic message is: despite occasional success, treating head lice with assorted household remedies (such as household oils, etc.) is not a reliable way to get rid of head lice.

From time to time you may also see suggestions to kill head lice using hot air, for example, from a hairdryer. This is an unreliable method and can cause damage to the scalp because of the high temperature. Special “louse hair blowers” that are offered for sale have also been insufficiently tested to justify any credible claims about their effectiveness. Sitting in a sauna is likewise not an appropriate way to manage head lice.

**Household remedies are unreliable for treating head lice. They rarely achieve the desired success.**



Cutting the hair very short or even going so far as to shave off all your child’s hair is unnecessary and for understandable reasons, especially stressful for a child. As presented in this brochure, there are other options available to manage the problem without subjecting the affected person to such “drastic measures.”

## How long does the risk of transmission last ... and when can my child return to school or the daycare centre?

Children (and adults) with head lice should be treated as soon as possible. Before the treatment described above (Page 9 and following), they are not allowed to attend daycare or school. Since head lice spread so rapidly in communal settings, parents of children attending the same group or class need to be informed as soon as possible about the occurrence of head lice and should be advised to thoroughly examine their own children’s heads and to let the institution know the results.

According to the stipulations of the German Law on the Prevention of Infection, affected children may only return to the institution when they are no longer capable of causing further spread of the lice. In practice, however, the issue of exactly when a child found to have head lice no longer presents any risk of transmission and may return to the institution sometimes leads to conflict between the parents, the administration at the institution, and even pediatricians. The Robert Koch Institute (RKI), which bears responsibility in Germany for questions related to preventing infectious diseases and works closely with experts, takes the position that after proper treatment with a approved anti-lice agent, preferably in combination with wet combing (see [Page 9](#) and following), it is highly probable that no further transmission of lice should be feared. If the child has been treated thoroughly in this manner, there is no reason he/she cannot return to attend daycare or school the following day.



**Missed days in daycare or school are unnecessary as long as you treat lice infestation thoroughly and according to all the instructions!**

**However, it is important** not to forget to perform the second treatment with the anti-lice agent eight to ten days afterwards. Otherwise, there can be a renewed risk of transmission, since larvae may have hatched in the interim.

Please note that the conditions for returning to school or daycare may be regulated differently in different localities. The health authorities will make a decision in these matters in conjunction with the school or daycare administration and depending upon the particular situation and local circumstances.



### **In addition...**

According to § 33 of the German Law on Prevention of Infection, the regulations that apply to schools and daycare centres also apply to other institutions that care for children or adolescents, such as residences, day nurseries, summer camps, etc.

## **Can you protect yourself from getting head lice?**

There is no absolute means of preventing head lice – theoretically, this can happen at any time to anybody who has close contact with other people. The best “prevention” is regular monitoring of your child’s hair and scalp – and in this way, you will at least be assured of early detection, which can protect your child from complications (such as infection of the scalp) and other children from transmission.

## Louse Alarm: how you can get rid of lice quickly – the most important points at a glance

# 1

### Examination/diagnosis

- If there is severe itching of the scalp or a case of infestation with head lice in the near environment, you should carefully examine the head.
- For this purpose, apply hair conditioner and comb the hair strand by strand using a louse comb, beginning at the hair roots and going all the way to the tips of the hair.
- The comb should be wiped off on a paper towel after combing each strand of hair.
- If you find lice, larvae or eggs located near the scalp, you should also examine other family members and anyone who is affected should be promptly treated.

# 2

### Treatment with anti-lice agents

- In case of infestation with head lice, you should treat the hair with a medicament or medicinal product approved for the treatment of head lice, which you can obtain at your pharmacy. Read the package instructions and follow them precisely.
- Without exception, you should repeat the treatment on **day 8, 9 or 10** following the initial treatment (= day 1) – you should do this even if instructed otherwise by the instruction booklet for the anti-lice agent.
- You should avoid using anti-lice agents during pregnancy and while nursing, in the presence of certain allergies and hypersensitivities, and if there are any

open sores on the scalp. In these situations, you should only employ the method of combing out the hair with hair conditioner using a louse comb (see Point 3) or seek medical advice.

- You should only treat infants and toddlers after consulting a doctor.

3

### Combing out the hair with conditioner and a louse comb

- Immediately after the initial treatment with an anti-lice agent, the hair should be thoroughly combed out, strand by strand, from the roots to the tips using a louse comb. Wipe off the louse comb on a paper towel.

- You should repeat wet combing every four days for two weeks (on day 1, day 5, day 9, and day 13).

4

### Informing and examining close contacts

- In case of head lice infestation, you should immediately inform your child's school or childcare centre as well as any other close contacts.

- All people who have had close personal contact (family, kindergarten groups, school classes) should be thoroughly examined and, if necessary, treated.

5

### Additional measures

- Textiles and articles of daily use that have come into direct contact with the hair (e.g. combs, brushes, caps, scarves) should be washed, or alternatively, stored for three days in sealed plastic bags.
- No use of disinfectants or insecticides is necessary.

## Treatment plan for successfully fighting head lice:

- Treat the head lice infestation according to the regimen outlined in the adjoining table.
- The blue fields in the table let you know when you need to perform each treatment step.
- Day 1 corresponds to the day you discovered the head lice infestation, and the day the first treatment should promptly take place.
- After completing each treatment step, cross out the corresponding place on the table.
- Once you have crossed out all of the blue areas, you have completed the treatment.
- However, you should perform one more thorough examination of the head. If the infestation was quite severe, it is advisable to continue monitoring the scalp every few days for a while in order for extra assurance.

Should you have questions, your best recourse is to speak with a trusted physician or your local health authority.

To locate up-to-date scientific knowledge, discussions and news on the topic of “head lice” you can also consult the BZgA (German Federal Centre for Health Education) Internet portal for child and adolescent health at:

■ [www.kindergesundheit-info.de](http://www.kindergesundheit-info.de)

You can also find additional information on this subject at the Robert Koch Institute website:

■ [www.rki.de](http://www.rki.de)

Day	Date	Treatment with an approved medicament/ medicinal product	Combing out the hair with conditioner and a louse comb
1			
2			
3			
4			
5			
6			
7			
8			
9 <sup>1</sup>			
10			
11			
12			
13 <sup>2</sup>			

<sup>1</sup> Please note: the second treatment may also take place on day 8 or day 10.

<sup>2</sup> You may wish to perform one final check-up on day 17 for extra assurance, and possibly an additional combing out of the hair as well, especially if there were large numbers of lice on the head at the time of the initial diagnosis.

### **Head lice... what should be done in daycare or school?**

For professional staff and administrators of daycare centres, schools and other public institutions, the BZgA (German Federal Centre for Health Education) provides information and practical advice on its Internet portal at [www.kindergesundheit-info.de](http://www.kindergesundheit-info.de) about ways to banish head lice as rapidly as possible from the institution.

For example, on the portal you can find an action plan and time plan, templates for informational materials and letters to parents as well as a slide presentation for parent evenings.

[www.kindergesundheit-info.de/fuer-fachkraefte/hintergrundwissen/kopflaeuse](http://www.kindergesundheit-info.de/fuer-fachkraefte/hintergrundwissen/kopflaeuse)