**Tick Removal**

A tick that is embedded in the skin must be removed as soon as possible, but in a proper way. The reason for this is in particular that ticks can carry pathogens, including the Borrelia bacterium that causes Lyme disease. There are many misunderstandings about the method of removal.

**Misunderstandings about how to remove a tick**

There is much confusion and contradiction about removing ticks. According to some sources, a tick must not be rotated, while other sources report that the correct tick only needs to be rotated, and not to be drawn. One misconception is that ticks would screw themselves in the skin, and can be in the opposite direction can be screwed out. Ticks don't screw themselves in the skin, and therefore cannot be screwed. However, since the hypostome (part that ticks put into skin) has a kind of barbs, a light rotating motion might make the removal easier. But turning probably increases the likelihood that the hypostome breaks off. Whether or not it's best to rotate the tick, and with or without pulling it, is unclear. Another misconception is that ticks would release from the skin if they are irritated with fire, or by pricking or squeezing them. Trying to choke them by putting something like grease on them isn't advised either. All methods that involve irritating the tick, potentially increase the chance that the tick produces extra saliva or vomits its stomach contents, which could contain pathogens. Removing a tick with your fingers or with flat tip conventional tweezers also gives a chance that the tick is squeezed, and is therefore not a good idea. They can also tear the tick into pieces.

**Recommended safe method to remove ticks**

It's probably best to safely remove a tick with a tweezers with thin ends, or with a special tick remover of good quality. There are several tick removal tools, but not every tick removal device works well, especially the tiny larvae or nymph ticks ("seed" ticks) and large engorged ticks are often difficult to remove. In all cases, the tick must be grasped by the head of the tick and close as possible to the skin, while the rear body of the tick may not be squeezed. The tick must also not be pulled at the rear body, because then the tick may tear into two.

 

**Step 1**: grab tick with tweezers **Step 2:** pull tick from the skin

With a tweezers with fine tips you grab the tick from the side as displayed on the images above. Pull the tick gently straight out of the skin, in the opposite direction of the hypostome, with gradually increasing force. Note that ticks often bite (or rather stab) a bit sidewise into the skin, so not straight. Disinfect the bite wounds after removal of the tick with alcohol or 70% iodine, and wash the hands well, preferably with a disinfectant soap.

After use the tweezers can be disinfected in boiling water, or in case of a tick removal product as advised by the manufacturer. The more quickly removed, the smaller the chance of infection. In the first 24 hours the risk of transmission of infectious agents is still relatively small, but after that the chance increases fast.

Note that not all ticks are infected, but also note that tick can carry other pathogens than the Lyme causing Borrelia, that could make you ill.

**If the tick is not removed properly**

If the tick is not removed well, in a way that the tick is removed partially, it matters how big the part that is still left in the skin. If only the hypostome or parts of it remains, then that probably gives little or no more risk of infection, but it may irritate the skin. Remove it as you would remove a splinter, e.g. with a sterilized needle or tweezers. With wetting the bite spot, the mouth parts can get out of the skin. But if the head of the tick remains in place, then the salivary glands may still be there, with possibly pathogens. Then there is still a potential risk of contamination! Try to remove the tick's head as well and if it fails, consult a doctor.

**What to do with removed ticks?**

Do not crush the tick, this gives a risk that pathogens are released from the tick. Do not

flush the tick through the toilet either. If you want to test the tick for the presence of Borrelia and other possible pathogens, save the tick in a little box or something. If you want to throw a tick away, throw the box (well-sealed with tape) outdoors in the garbage bin. You can also fold the tick between tape and then throw it away. BTW: with tape

you can also delete walking ticks on the skin or clothes, when you are not able to flick away the tick with a finger or a small object.

**Document the tick bite!**

Write down the name of the person who is bitten, the date of removal, the location on the body, estimated duration that the tick was embedded into the skin it, and how the tick was removed. Keep checking the skin at the bite site for the appearance of an erythema migraines (circular rash) or other skin rashes. It is not customary to give preventive antibiotics, but there are doctors who do that. It also depends on factors such as the length of time the tick was embedded, if the tick was removed properly, if there were multiple tick bites, and whether it was demonstrated that a tested tick was infected with Borrelia or other pathogens.

**Tick removal from a dog, cat or other pet**

In principle there shouldn't be a difference whether you remove a tick from a human or from a dog, cat and other pets. Of course with dogs and cats their fur gets in the way, so you first have the push the hairs aside so the tick get exposed and you can take it out without pulling hairs. The same counts for when a human is bitten on the scalp, which happens more often to children than adults: first push the hair aside.