



What You Should Know About Animal Bites

Animal bites can sometimes result in severe infections and some people are at higher risk than others.

Are you at risk? And do you know what to do if you are bitten?

The information and recommendations here will help you avoid serious problems.

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I've always heard that dogs' mouths are cleaner than humans. Is this true?

Neither dogs nor cats nor humans have mouths that can even remotely be considered clean. All are filled with bacteria, many of which can cause disease if they enter broken skin. Over 130 disease-causing microbes have been isolated from dog and cat bite wounds.¹ Animals' saliva is also heavily contaminated with bacteria, so a bite may not even be necessary to cause infection; if you have a cut or scratch and allow a pet to lick it, you could be setting yourself up for trouble.

What are the particular dangers from animal bites?

Bites to the hand, whether from cats or dogs, are potentially dangerous because of the structure of the hand. There are many bones, tendons, and joints in the hand and there is less blood circulation in these areas. This makes it harder for the body to fight infection in the hand. Infections that develop in the hand may lead to severe complications, such as osteomyelitis or septic arthritis.

In small children, bites to the face, neck, or head are extremely hazardous. Because their small stature often puts their heads near dogs' mouths, children are often bitten in these areas. Dog bites can cause fractures of the face and skull and lead to brain and nervous system infections. Dog bites cause, on average, about 15-20 fatalities a year in the United States. Most of these victims are infants and young children.

Which is worse, dog bites or cat bites?

Dogs have strong jaws—large dogs can exert more than 450 pounds of pressure per square inch—and their teeth are relatively dull. So the wounds caused by dogs are usually crushing of the tissue bitten and lacerations or tearing of the skin rather than puncture wounds. Most dog bites do not penetrate deeply enough to get bacteria into bones, tendons, or joints, but they often do a lot of damage just from the trauma of the bite. Tissue that has been crushed, however, such as may occur with a bite to the hand, is particularly susceptible to infection.

Cats' teeth are thin and sharp, so the wounds they cause are more likely to be puncture wounds. These wounds can reach into joints and bones and introduce bacteria deeply into the tissue. Puncture wounds are very difficult to clean, so a lot of bacteria may be left in the wound. Also, most cat bites are to the hand, which makes infection more likely.

Dog bites often do more outright damage, but only 3 to 18 percent become infected. In contrast, cat bites may appear more trivial, but up to 80 percent of cat bites may become infected if proper care is not taken.

What kinds of infections can develop?

Many infection-causing bacteria have been isolated from dog and cat bite wounds. The four we discuss here are probably the most significant.

Pasteurellosis.

The most common bite-associated infection is caused by a bacterium called *Pasteurella*. Most cats and dogs—even healthy ones—naturally carry this organism in their mouths. When an animal bites a person (or another animal), these bacteria can enter the wound and start an infection. The first signs of pasteurellosis usually occur within 2 to 12 hours of the bite and include pain, reddening, and swelling of the area around the site of the bite. Pasteurellosis can progress quickly, spreading toward the body from the bitten area. It is important that you seek medical care *immediately* if these symptoms occur. Untreated, this infection can lead to severe complications. Bites to the hand need special attention; if pasteurellosis develops in the tissues of the hand, the bacteria can infect tendons or even bones and sometimes cause permanent damage if appropriate medical care is not administered promptly.

Streptococcal and Staphylococcal Infections.

These bacteria can cause infections similar to those caused by *Pasteurella*. Redness and painful swelling occur at or near the site of the bite and progress toward the body. As with pasteurellosis, you should seek prompt medical care if these symptoms develop.

Capnocytophaga Infection.

This is a very rare infection, but we mention it here because it is so dangerous if it develops. There is no common name for this infection, which is caused by the bacterium *Capnocytophaga canimorsus*. Most of the people who have become infected were bitten by dogs; in many instances the bite wounds themselves were tiny and would not have ordinarily called for any special medical care. But *Capnocytophaga* can cause septicemia, or blood poisoning, particularly in people whose immune systems are compromised by some underlying condition (see box below). Up to 30 percent of people who have developed this septicemia have died. People who have had their spleens removed are at special risk for this infection. Early symptoms may include nausea, headache, muscle aches, and tiny reddened patches on the skin.

If you have any of the risk factors listed below, particularly if you have had your spleen removed, it is very important that you take proper immediate care of any animal bite wound and promptly seek medical advice.

How do I know if I am at risk for infection?

Anyone who is bitten by a cat or a dog and who does not take proper care of the wound is at risk of developing infection.

But some people are at increased risk.

- Are you over 50 years of age?
- Do you have diabetes, circulatory problems, liver disease, alcoholism, or HIV/AIDS?
- Have you had a mastectomy or organ transplant?
- Are you taking chemotherapy or long-term steroids?
- **Have you had your spleen removed?**

If you answered “yes” to any of these questions, you may be more likely to develop a serious infection than other people. You should take special care to avoid being bitten or scratched by any animal.

What should I do if I am bitten?

Immediately and thoroughly wash the wound with plenty of soap and warm water. The idea is to remove as much dirt and saliva—and therefore, bacteria—as possible. It may hurt to scrub a wound, but an infection will hurt a lot more. Scrub it well and run water over it for several minutes to make sure it is clean and all soap is rinsed out. It is a good idea to follow the washing with an antiseptic solution, such as iodine or other disinfectant, but always wash with soap and water first. Apply antibiotic ointment and cover the wound with gauze or a bandage. If the wound is severe, or if you have any of the risk factors listed above, seek medical advice at once. Your doctor may want you to take antibiotics to prevent infection from developing. If you have not had a recent tetanus booster, you may be advised to take one. And if you are bitten by a wild or stray animal that could have rabies, you may need to begin anti-rabies treatment. (See [What You Should Know About Rabies Prevention](#)).

If you have had your spleen removed, you should be aware that the potential for fatal infection exists, even from seemingly minor wounds. Some experts recommend that people without spleens should completely avoid contact with cats and dogs. This is an issue you and your doctor should discuss in detail.

For most people, however, the benefits of companion animals outweigh the risk. If you have any of the risk factors shown in the box above, you should do everything possible to avoid being bitten or scratched by dogs or cats. If wounds do occur, you should clean them promptly and thoroughly and seek medical advice. A little care and common sense can go a long way in preventing bite-associated infections.

The information presented here is not intended to take the place of professional medical advice. If you are bitten by any animal, always consult your physician for his/her recommendations.

References:

¹Talan DA, Citron DM, Abrahamian FM, et al, 1999. Bacteriologic analysis of infected dog and cat bites. *New England Journal of Medicine* 340:85-92.

Further Reading:



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