

Fleas: Life Cycle, Anatomy & Disease Transmission in Cats

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Fleas are insects and thus belong to the order Siphonaptera which means 'wingless siphon,' an apt description. Worldwide, there are over 2,000 species of fleas. They prefer to live separately and do not interbreed. Fleas are important because of their direct effects on animals (and people) and because of the diseases they can transmit. Some of the more important fleas include:

Xenopsylla cheopis is commonly known as the rat flea and is the carrier of bubonic plague. Known as the 'Black Death' in the Middle Ages, bubonic plague killed 200 million people. The name "rat flea" implies that rats are the preferred host, but the flea also lives on people, dogs, and cats.

Echidnophaga gallinacea is also known as the Tropical hen flea or the sticktight flea. It is mainly a flea of birds, but will also feed on other animals.

Pulex irritans is the human flea. This flea also infests swine, and occasionally dogs and cats.

Ctenocephalides felis is the domestic cat flea, but it actually prefers dogs. This is the most common flea that affects dogs and cats.

Ctenocephalides canis is the common dog flea. Despite its name, it also feeds on humans, cats, and other animals.

All of these fleas have their preferred hosts, but all will feed on dogs and cats. With such a huge range of fleas that can and do feed on dogs and cats, it is easy to understand why their numbers are so difficult to control.

Flea Anatomy

Fleas are insects, 2-8 mm long, and their body is divided into three parts: the head, thorax, and abdomen. Attached to the thorax are three pairs of legs for a total of six. The last pair is greatly enlarged, which equips them with their fantastic jumping ability. Fleas have no wings. The most noted flea characteristics are their medium brown to mahogany color and laterally flattened body. They are slightly smaller than a sesame seed.

The record high jump for a flea is 33 cm - over 1 foot.

Fleas have eyes and antennae, which detect heat, vibration, carbon dioxide, shadows, and changes in air currents, all of which indicate a possible meal is nearby.

What do fleas eat?

Fleas, both male and female, feed on the blood of animals. They can go several months without a meal.

What is the life cycle of fleas?

There are four stages in the development of fleas: eggs, larvae, pupae, and adults. Male and female fleas mate and two days later the female flea starts laying eggs. The eggs are often laid on the animal, but because they are not sticky, fall off into the environment. Along with the eggs, the female flea deposits a large amount of feces (often called 'flea dirt'). The feces, or flea dirt will dissolve into a red color when moistened; this is because it is primarily digested blood. The flea can lay 30-50 eggs in a day, generally in batches of 3 to 15, though she will not lay eggs every day. A flea can produce 400-1,000 eggs in her lifetime (several months to two years, depending on the species).



Two days (or more depending on temperature) after the egg is laid it hatches and the larva, which looks like a small maggot, starts to feed on the feces left by its mother. The larva passes through several phases of development taking a total of about a week. At that time, the larva starts spinning a cocoon and is called a pupa. The cocoon is sticky and will often become covered with fine dirt or sand, and can be found deep in carpet or crevices. In a week, the pupa develops into an adult and emerges from the cocoon when it senses vibrations, carbon dioxide, or warmth, which tell it an animal host is near. The entire life cycle takes about 15 days, but the pupa can remain dormant under inhospitable conditions (e.g.; cold) and extend the cycle to over a year. This is important to remember when planning flea control.

In just thirty days, 25 adult female fleas can multiply to as many as a quarter of a million fleas!

What symptoms are caused by fleas and how is a flea infestation diagnosed?

Flea bites themselves may be unnoticeable on some pets, cause slight irritation in others, and produce severe itching, red lesions, hair loss, and even ulcers in a third group. The severe lesions are caused by a hypersensitivity to the flea saliva and is called [flea allergy dermatitis](#).



Large numbers of fleas can cause anemia, especially in puppies and kittens. Some pets have been known to die if the anemia is severe.

The diagnosis of a flea infestation can be made by finding the adult fleas or 'flea dirt' (described above) on the animal. The best places to use a flea comb to detect fleas is around the hindquarters and head of the pet. These same areas should be examined for the 'flea dirt.' After using the flea comb, transfer any debris found on the comb to a piece of white paper toweling and moisten it. If the 'dirt' dissolves into a red color, it is 'flea dirt'.



What diseases do fleas transmit?

Fleas can transmit:

- a [tapeworm](#) called *Dipylidium caninum*
- [Haemobartonellosis](#) which affects red blood cells
- another parasite called [Dipetalonema reconditum](#)
- [Plague](#) caused by *Yersinia pestis*
- [Typhus](#) caused by *Rickettsia typhi*
- [Tularemia](#) caused by *Francisella tularensis*

See our article on [Flea Control](#) for more information on how to prevent fleas and flea-transmitted diseases in cats.