

THE ANIMAL CARE CENTER AT GRANVILLE

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Fleas, Flea Control and Your Pet

Adult fleas are dark, reddish brown insects that measure less than 1/5 inch. In order to reach their host, fleas have strong legs that allow them to jump up to 100 times their own body length (8 inches vertically and 15 inches horizontally). They do not have wings, but have backward directed bristles on their legs and bodies to keep them from being easily dislodged. There are over 2,000 species of fleas, however the most important four in North America include the cat flea, the dog flea and two species of human flea. **The most common flea on both dogs and cats is the so-called cat flea.** It is actually the most common external parasite of dogs and cats. It is most prevalent during warm summer months but can live over winter on outdoor hosts such as raccoons.

The flea has a four-stage life cycle, which includes eggs, larvae, pupae and adult. Under most household conditions, cat fleas will complete their life cycle in 3-4 weeks. Temperature and humidity can affect this, however, so the entire life cycle may be completed as quickly as 12-14 days or as long as 6 months or more.

Flea eggs are pearly white ovals with rounded ends. They are NOT sticky and readily fall off into the environment. This is why they can be found any place a flea-infested pet has access. Most flea eggs will be deposited in areas most often frequented by the host. A female adult cat flea cannot lay eggs until 24-48 hours after she has had a blood meal and has mated. Once that has occurred, she can lay 20-50 eggs a day and more than 2,000 eggs over a lifetime. Eggs usually hatch in **one to six days** depending on temperature and humidity. Wet conditions or humidity below 50% or over 92% will kill flea eggs.

When the egg hatches, a flea larva is released. It feeds on organic debris from the environment and from the feces of adult fleas. The larval stage usually lasts 5-11 days and is dependent on the climate and the availability of food. During this time they undergo two molts and then become pupae. The larvae avoid light and move downward in response to gravity. Because of this they are found under organic debris such as leaves or deep in carpet fibers. They accumulate in areas where the animal spends a great deal of time, such as a sleeping area.

Mature larvae change into pupae inside a whitish, loosely spun cocoon. In 7-14 days, the pupa is typically fully developed, but this stage can last as long as 28. However, a fully developed flea can stay inside the cocoon for several days to several weeks (up to about 180 days) until stimulated to emerge. Physical pressure, carbon dioxide, vibration and heat can all stimulate emergence. To fleas, these stimuli signal the arrival of a suitable host. A flea population often maximized the chances of finding their needed hosts by emerging from cocoons over a period of 2-4 weeks instead of all at once. Insecticides do not readily kill fleas that are still inside cocoons, primarily because of the inaccessible location of the cocoons at the base of carpeting or pet bedding. This window

of emergence is the reason new adult fleas can continue to emerge for up to several months after an insecticide application has killed the adult flea population on the animal.

As soon as an adult flea emerges from its cocoon, it begins seeking a host for a blood meal. Adult fleas move upward and toward light (top of the carpet pile, bedding material or other surface) where they are more likely to encounter a passing host. Once it is on the host, the cat flea begins feeding within minutes. Before feeding, the flea pumps anticoagulant-containing saliva into the wound to prevent the blood from clotting. Foreign proteins contained in this saliva may cause mild to severe allergic reactions in the host. Flea allergy dermatitis (FAD) is an example of a severe reaction. It is also called miliary dermatitis in cats.

Mating occurs on the host and egg production begins within 24-48 hours of females taking their first blood meal. Then the cycle begins again. On the host, the female flea can survive and reproduce for 3-4 months. They can produce twice their body weight in eggs every day so must consume large quantities of blood—up to 15% of their weight daily. Significant blood loss can occur from a heavily infested host animal, and anemia from blood loss may be fatal, especially in young puppies and kittens.

When a pet is seen scratching, flea infestation is a strong possibility. This is usually more obvious in dogs than cats, who may be more discreet in displaying a flea problem. If the cat does not develop the common skin problems of FAD or miliary dermatitis, the owner may be unaware of a flea problem. An irritable cat or one that is over grooming may be signaling a flea problem.

Direct observation of fleas in the home is another way to recognize the problem. Even one flea could signal an infestation in the home. The diagnosis may be confirmed by examining the pet in a strong light for evidence of adult fleas, flea bites or flea feces, combing with a fine toothed flea comb to trap fleas or flea feces, or moistening pepper-like combings on a white paper towel. Flea feces will turn reddish-brown as digested blood dissolves. Fleas also carry tapeworms so pets with fleas should also be examined for small tapeworm segments (resembling white grains of rice) around the anal area or in the feces.

If one pet has fleas, all pets in the household have fleas whether they can be seen or not. Flea control involves treating ALL pets in the household, not just the ones fleas can be seen on. There are many over-the-counter topical flea control products—shampoos, sprays, powders, dips and collars. Most either do not work or only last for a few hours to a few days. Many of these products can be toxic for pets. We have seen some very serious reactions to over-the-counter flea products at our clinic.

We recommend treating both the pet and the indoor environment with products using insect growth regulators. These IGRs inhibit further development of the immature stages of the flea. Frontline Plus, the topical adulticide this clinic recommends, contains fipronil. Fipronil affects an insect's normal nerve transmission through receptors and causes them to die. These receptors are configured differently from pets and from humans and so are not toxic to either. Frontline Plus also contains an IGR which prevents flea eggs from hatching. Monthly application to all pets will eventually eliminate fleas. There is a chewable tablet available for dogs called Comfortis which contains spinosad. It is beef-flavored, provides flea coverage for a full month and begins to kill fleas within 30 minutes. It is recommended that Comfortis be given on a full stomach to allow it to be quickly absorbed into the bloodstream. Elanco, the company

that makes Comfortis, also makes a sister product called Trifexis that works exactly the same way but also contains heartworm preventive. Merial, the manufacturer of Frontline Plus, has also developed Frontline Tritak, another topical product with a more rapid onset of action—killing 50% of fleas in 5 minutes and beginning a kill on ticks in less than an hour. Their latest product is Nexgard, a chewable oral tablet that kills both fleas **AND ticks**. Additionally, a tablet called Capstar may be given orally to pets to start killing fleas within 30 minutes. This tablet may be given daily for an extended period of time. It works for about 24 hours. Additionally, washing all pet bedding and vacuuming daily (especially in pets' sleeping and resting areas) will aid in the reduction and eventual elimination of fleas. Vacuuming is the most important aspect of mechanical and physical control. Since vacuuming can stimulate emergence of adult fleas from the cocoon, special attention should be directed to areas behind and under furniture, where larval and pupal stages may be developing. Vacuuming with a beater-bar vacuum cleaner can remove between 32-60% of eggs and 15-27 % of adult fleas can also be removed by this method.

Finally, we recommend either having your home professionally exterminated (be sure there is a guarantee for flea eradication) or treating your home with an indoor spray or bomb containing an IGR. Enough spray for the total square footage of your home or bombs for the total cubic footage must be purchased. We recommend treating once on the day the pets are treated and then retreating the home in 2-4 weeks.

In addition to being carriers of tapeworm (as the intermediate host), fleas may also transmit bubonic plague, murine typhus, and cause severe anemia and flea allergy dermatitis as well as miliary dermatitis. Effectively eliminating fleas in your home and continuing with a monthly use of a quality flea control product should keep your pets and your family healthy and safe.