



Tackling fleas on cats

The most common flea found on cats and dogs is the cat flea (*Ctenocephalides felis*). Occasionally, rabbit and hedgehog fleas may be found on cats. Using modern treatments it is now possible to control feline fleas effectively.

Why control fleas?

While many cats live with fleas and show minimal signs of infestation, control is advisable because:

- The cat flea carries the larval stage of the tapeworm *Dipylidium caninum*. Cats can be infested with these worms by eating fleas during grooming. Fleas have the potential to transmit other infectious agents
- Adult fleas feed on cat blood; in young kittens this can cause weakness, anaemia and death
- Some dogs and cats develop an allergy to flea bites, which causes them to scratch excessively or develop skin disease
- Cat fleas can cause itchy bites on sensitive humans, typically around the ankles

Does my cat have fleas?

When grooming, cats may eat fleas that they discover, making it difficult to find adult fleas in the coat. An itchy cat, or insect bites on human ankles, may be the only sign of infestation. The best way to demonstrate the presence of fleas is to comb the cat meticulously with a fine-toothed flea comb over a clean white surface such as a piece of paper. Fleas and 'flea dirt' (flea excrement consisting of undigested cat blood) will be deposited onto the surface. If placed on damp cotton wool, flea dirt will slowly dissolve leaving blood.

The flea life cycle

The adult flea lives permanently on its animal host – your dog or cat. They can survive off their host for up to six months, and can have a lifespan of about two years.

Within two days of finding a host, the mature female starts to lay eggs at a rate of about 50 a day.

The eggs fall off the animal's coat together with 'flea dirt'. This flea dirt provides food for the hatching flea larvae. Eggs and larvae may be found anywhere the dog or cat has been, but are particularly concentrated in bedding or in areas where your pet has been active.

The larvae dislike light and move deep into the carpet or soft furnishings. There the larvae develop into pupae, each encased in a sticky cocoon.

An adult flea develops within the cocoon and awaits a sign that there is an animal or person close by. It does this by detecting pressure, noise, heat, carbon dioxide or vibrations.

The new flea can emerge and attach to the host within seconds. Fleas can lie waiting in the cocoon for up to two years. However, in the right conditions, the whole development cycle can be completed in 15 days. Unfortunately, centrally heated homes with fitted carpets provide ideal conditions for all-year-round development of fleas. For effective control, adult fleas on the cat must be killed and re-infestation from the environment prevented (see box 1).

Box 1

Tackling fleas in the home

Frequent vacuuming will help reduce but not eliminate fleas in a house. Vacuum bags should be immediately and carefully disposed of. Anything heavily infested, such as bedding, should be disposed of. Treatments can be used to prevent re-infestation in a number of ways:

- Using long-acting insecticides to kill adult fleas on all household pets, and thus preventing reproduction

- Treating the house to eradicate fleas at all stages of their development. Treatment of the **whole** house is essential. All soft furnishings should be treated, including carpet pile and other areas difficult to reach. Gaps between floorboards, skirting boards and other nooks and crannies should be included. Vacuuming before treatment may stimulate adults to emerge from their cocoons.
- Cocoons are very resistant to treatment and therefore repeated treatments may be needed to completely eliminate all fleas from a home.
- Products with insect development inhibitors may be used on pets to prevent immature fleas maturing or reproducing. For these to be effective all potential hosts in the household must be treated. There are also products for the environment which target developing fleas. These products may not kill adult fleas.

To be effective, all treatment guidelines should be followed. Visit your veterinary practice for some helpful advice. For some treatments there may be a time lag of weeks to months during which fleas may continue to develop.

Manufacturers' guidelines **must** be followed carefully to avoid toxic effects.

Flea treatments available for cats

There is a vast and confusing array of flea treatments available from veterinary surgeries, pet shops and supermarkets for use in and on cats. What may not be apparent is that these products vary markedly in their compositions, mode of action, effectiveness and safety.

Older preparations contain organophosphate, carbamate, pyrethroid or pyrethrum insecticides that kill fleas rapidly. They can be used safely provided instructions are followed very carefully. Pet owners must follow the detailed product instructions (see also box 2 - Beware! Cats are not small dogs), as cats are potentially at risk of toxic effects from these older insecticides. It may be necessary to use a variety of flea control products, and these should be chosen carefully to avoid overdosing the cat.

If in doubt, seek veterinary advice. If your vet is prescribing flea control products, other medications or contemplating sedation/anaesthesia of your cat, then you should inform him or her of all flea treatments you have used recently.

Some sprays and powders should not be used near fish tanks because they are toxic to fish.

Some of the newer products available are considered safer, more effective and durable. Always check if a product is safe to use on kittens, pregnant or suckling cats if treating such animals.

Box 2

Beware! Cats are not small dogs!

It is tempting to think that whatever works for dogs will work just as well for cats.

This is simply not the case.

These animals have very different physiology and metabolic pathways.

For example, the insecticide permethrin can be safely used as a flea treatment for dogs, but is highly toxic to cats, even at dosages appropriate for puppies.

Because they are potentially more toxic to cats, less efficacious than some other products and there are potential additive effects with other similar products and household treatments, FAB believes that permethrin and similar insecticides should not be used on cats.

Using such products on dogs living with or near cats should be done with great caution. Some manufacturers recommend that cats should be separated for several days from dogs treated with some products.

Using flea treatments responsibly

NEVER use a flea treatment product on a cat that has been formulated for use in dogs. Some dog flea treatment products containing permethrin (see box 3, Advice from the Veterinary Medicines Directorate) can cause deaths in cats.

Care should be taken to ensure that cats don't have contact with these products (eg, with a dog that has just been treated).

Some household pesticides such as wood treatments, ant and other insect killers may contain similar active ingredients to those used in flea treatments. To prevent additive effects care must be taken to limit exposure to these.

Always read the small print carefully. Keep package inserts as they usually contain more detailed information than the outer packaging concerning any possible toxic hazards. If your pet does become ill after application of a product, always take the package insert with you to the vets.

When choosing an insecticide for use on a cat, always consult someone with specialist knowledge - ideally a veterinary surgeon. Ask specifically about the exact product you have selected and about any possible toxic effects in cats.

What is available? (this list is not exhaustive)

There are various types of treatments available - eg, powders, collars, drops, tablets and 'spot-on' products. These are not all equally effective and the advantages and disadvantages of each are discussed below. Many powders contain permethrin and other pyrethroids.

Powders

Generally, powders are active for as long as they remain on the coat. Remember that cats will groom after treatment and may therefore swallow some of the powder. Careless application may cause the powder particles to be inhaled, causing breathing difficulties.

FAB does not recommend the use of flea powders, as there are safer and more effective products available.

Collars

Insecticidal collars are impregnated with active ingredients such as permethrin or other pyrethroids, organophosphates, carbamates or flea-growth inhibiting substances such as methoprene. The chemicals may not spread throughout the coat and so these may not be very effective. Flea collars may also cause hair loss where the collar comes in contact with the skin. Many collars are **not** made with a safety snap-open buckle, and will **not** enable a cat to escape should its collar accidentally become caught.

FAB does not advocate the use of flea collars as there are safer and more effective products available.

'Spot-on' products

Be aware that the term 'Spot-on' simply refers to the method of application. Generally it refers to the method of applying drops to the skin at the back of the neck, at the base of the skull or between the shoulder blades. From there the product is distributed over the body. They have the great benefit of being easy to administer. Most manufacturers recommend preventing cats from grooming themselves or each other until the product has fully dried.



Not all 'spot-on' products are the same. Some contain substances that kill adult fleas; others work by interrupting the development of fleas thereby preventing their growth and reproduction (these do not necessarily kill mature fleas already present on the host).

Most remain effective for some time (see below). It is better to treat sensitive cats (those that excessively suffer from itchy skin after bites) with a product that kills the fleas before they can bite. Products containing fipronil, imidacloprid or selamectin have such properties.

WARNING: NEVER USE DOG 'SPOT-ON' PRODUCTS ON CATS (see box 3)

Box 3

Advice from the Veterinary Medicines Directorate

The Veterinary Medicines Directorate has published on its website the following list of dog spot-on products that, if used accidentally on cats, can be fatal (www.vmd.gov.uk/General/Adverse/current.htm).

- Advantix Spot On Solution for Dogs
- Armitage Pet Care Flea and Tick Drops
- Armitage Pet Care Flea and Tick Drops for Dogs
- Beaphar Dog Flea and Tick Drops
- Bio-tech's Anti-Flea and Anti-Tick Drops for Dogs
- Bio-tech's Flea and Tick Drops for Dogs
- Bob Martin Dog Spot On
- Bob Martin Flea and Tick Spot On
- Bob Martin Permethrin Dog Spot On
- Canac Dog Flea and Tick Drops

- Canovel Flea Drops
- Derasect Flea Drops
- Exspot Insecticide for Dogs
- Hartz Control Pet Care System One Spot Flea and Tick Remedy for Dogs
- Hyperdrug Veterinary Flea and Tick Drops
- Hyperdrug Veterinary Flea and Tick Drops for Dogs
- Johnson's Flea and Tick Drops for Puppies and Small Dogs
- Johnson's Insecticidal Flea and Tick Drops
- Protect Spot Flea and Tick Drops for Dogs
- Wilko Dog Flea Drops
- Zodiac Flea and Tick Drops for Dogs

These products are intended for the treatment of fleas and ticks in dogs only. They contain permethrin, a substance that is safe for dogs but causes a toxic reaction in cats when present in spot-on products, due to its concentration. Cats treated with even small amounts of spot-on products containing permethrin, or allowed to groom dogs treated with any of the products in the list above, can develop nervous signs such as depression, drooling, tremors, seizures, vomiting and staggering, and may die.

Some pet owners apply spot-on products containing permethrin that are indicated for use in dogs to their cats by mistake, or because they think that it is safe if they use only small amounts of the product. It is not safe to use any spot-on product containing permethrin in cats. If you have applied any of the products listed above to your cat, it is important to wash off the product from the cat with water and a mild detergent and seek immediate treatment from your veterinary surgeon. Take the product package with you and show it to the veterinarian.

The VMD (Veterinary Medicines Directorate) is actively monitoring the incidence of suspected adverse reactions to these products and requests that any incident be reported as soon as possible. Details of how to report a suspected adverse reaction can be found by following the link:

<http://www.vmd.gov.uk/General/Adverse/mal252.pdf>

Here are examples of effective 'spot-on' products suggested by the FAB feline expert panel.

Advantage for cats (Bayer)

- Contains imidacloprid, which affects the central nervous system of fleas causing their paralysis and death
- Imidacloprid has minimal effects on mammals
- Requires monthly application

Advocate (Bayer)

- Contains imidacloprid, which affects the central nervous system of fleas causing their paralysis and death
- Also contains moxicectin, a chemical to control worms (not tapeworms)
- Imidacloprid has minimal effects on mammals
- Requires monthly application

Frontline Spot-on Cat (Merial)

- Contains fipronil, which affects nerve activity in fleas, ticks and lice causing death
- Fleas are usually killed within 24 hours
- The product can be effective for up to 5 weeks

Frontline Combo Spot-on Cat (Merial)

- Contains fipronil, which affects nerve activity in fleas, ticks and lice causing death
- Also contains methoprene which stops flea stages developing into adults

Promeris (Fort Dodge)

- Contains metaflumizone, a new insecticide
- Can protect against infection for up to 6 weeks

Stronghold (Pfizer)

- Contains selamectin, which causes paralysis and death of fleas and some worms (not tapeworms) in cats
- Selamectin has minimal adverse effects in mammals
- Effective for a month

There are other spot-on products available containing other ingredients, such as essential oils, the efficacy and safety of which is less certain.

Tablets

Tablets may be useful in a flea eradication programme, but they do not have persistent activity and so animals will need treatment repeatedly unless the environmental infestation is also managed. For example:

Capstar tablets (Novartis)

- Contain active ingredient called nitenpyram, which affects the nervous system of adult fleas only and kills them
- Effective within hours of administration
- The tablets do not have a persistent activity and animals should be treated again if re-infestation occurs

Liquids

Program (Novartis)

- Liquid medication containing lufenuron, which acts to prevent development of flea eggs
- Effective for one month
- The additional use of a flea-killing spot-on is recommended if adult fleas are present

Injections

Program (Novartis)

- Medication containing lufenuron, which acts to prevent development of flea eggs
- Can be given by injection every six months
- The additional use of a flea-killing spot-on is recommended if adult fleas are present
- Currently available from veterinary surgeons only

Flea sprays for use on cats

Aerosol sprays

Aerosol sprays have the disadvantage of a delivery 'hiss' which cats may find frightening. These have become less popular as the newer 'spot-on' products are considered to be easier to apply and may act for longer.

Many contain chemicals such as pyrethrum and other pyrethroids (see above), or carbamate insecticides such as propoxur.

FAB believes that there are safer, more effective and easier to administer measures available.

Pump action sprays

Frontline spray (Merial)

This contains fipronil (see 'spot-on products' for product characteristics), and has a pump action to minimise distress.

Flea products for use in the home

Sprays

Many environmental sprays to be used in the home include traditional insecticides either alone or in combination with an insect growth regulator. Never use sprays in close proximity to a fish tank. If you have a fish tank, always ensure it is covered with damp towels if using these sprays.

Staykil (Novartis) spray contains cyromazine, for use directly in the home environment. Cyromazine prevents flea larvae developing into adults.

Juvenile hormone analogues such as methoprene act by preventing flea larvae developing into adults. Methoprene is the active constituent in products like Acclaim 2000 (Sanofi), Norshield (Norbrook), RIP Fleas (Genitrix), Canovel (Pfizer). Pyriproxifen has a similar mechanism of action and is found in products like Indorex (Virbac).

A single application of the spray to the environment can last for six months to a year, depending on the product used.

Note: Some sprays contain permethrin or pyrethroids and great care should be taken not to allow the spray to come in contact with the cat. Consider possible additive effects in cats undergoing treatment should the cat come into contact with other products containing these chemicals.

Foggers and bombs

Various products are available for treating the environment. These products are not usually very effective as specific areas of infestation may not be reached. Spray products which allow areas to be targeted specifically are preferable.

Desiccants

Sodium polyborate or similar compounds may be applied to carpets to kill fleas by desiccation (removing moisture from their bodies). Such products are available as powders for DIY application or by specialist application that lasts for a year.

'Alternative' products

So-called 'natural' compounds have been suggested to have insect-killing or repellent qualities. These include concentrated eucalyptus oil, neem oil, pennyroyal oil, tea tree oil, citrus oil and D-limonene. Although some of these constituents are used in licensed products, some 'alternative' remedies will not have been through the rigorous safety and efficacy evaluation required for veterinary licensed products. Some of these compounds are potentially toxic to cats and other animals. If you are unsure if a product is licensed consult your veterinary surgeon.

Long-term flea control

Once adult and immature fleas have been completely removed from a household environment further controls can be reappraised. In a household where none of the pets go outside, no further treatment is likely to be necessary. However, if pets venture outside further treatment will be needed, probably in the form of a single product.

An on-off approach to flea control is not recommended as this provides ideal conditions for the development of flea allergy (skin disease) in animals.

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