

# Crossroads Veterinary Hospital

## Kitten Manual



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Hours:  
Mon, Wed, Fri: 8am – 7pm  
Tues, Thurs, Sat: 8am – 6pm  
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### **Important Phone Numbers**

Crossroads Veterinary Hospital: (503) 625-4404

Crossroads Fax: (503) 625-5784

#### After-hours Emergencies:

Emergency Veterinary Clinic of Tualatin: (503) 691-7922

DoveLewis (Portland): (503) 228-7281

Northwest Veterinary Specialists (Clackamas): (503) 656-3999

Oregon Poison Control: 1-800-452-7165

#### Animal Control:

Washington County: (503) 846-7041

Clackamas County: (503) 655-8628

Multnomah County: (503) 988-7387

Oregon Humane Society: (503) 285-7722

### **Important Websites**

Crossroads Veterinary Hospital: [www.crossroadsvet.com](http://www.crossroadsvet.com)

Veterinary Partner: [www.veterinarypartner.com](http://www.veterinarypartner.com)

- A searchable database of articles on veterinary topics written by veterinarians for pet owners.

#### Lost Pets:

- [www.petfinder.com](http://www.petfinder.com)
- [www.petmicrochiplookup.org](http://www.petmicrochiplookup.org)
- [www.petlink.net](http://www.petlink.net)
- [www.amberalertforpets.com](http://www.amberalertforpets.com)

CDC “Healthy Pets, Healthy People” Program: [www.cdc.gov/HealthyPets](http://www.cdc.gov/HealthyPets)

## Vaccines

### Vaccine protocol

- FVRCP
  - Initial vaccine at 6-8 weeks of age, then boosted every 3-4 weeks until the kitten is 14-16 weeks old
  - Boosted again at the first annual visit, then every three years
- Rabies
  - Initial vaccine at 3-6 months of age
  - Boosted at the first annual visit, then every three years
- Feline Leukemia (FeLV)
  - Initial series of two vaccines 2-4 weeks apart, then boosted yearly
  - It is recommended that cats be tested for FeLV before the vaccine series is started

### My cat's vaccines

Age	Date	FVRCP	Rabies	FeLV
6-8 weeks				
10-12 weeks				
14-16 weeks				
6 months				
1 year				
2 years				
3 years				
4 years				
5 years				
6 years				
7 years				
8 years				
9 years				
10 years				
11 years				
12 years				
13 years				
14 years				
15 years				
16 years				
17 years				
18 years				

## Core vaccines

These are vaccines that are recommended for every cat, regardless of lifestyle. The core vaccines protect against the most serious contagious illnesses.

- FVRCP
  - FVR is for Feline Viral Rhinotracheitis, caused by the Feline Herpesvirus. Feline Herpesvirus, or FHV-1, is a highly contagious virus that causes coughing, sneezing and runny nose and eyes. Once contracted, the cat has the virus for life, although she may never show symptoms. Feline Herpesvirus is not contagious to people or dogs, but cats can spread it to each other through direct contact.
  - C is for Calicivirus. Calicivirus causes very similar symptoms to Herpesvirus. Some cats who contract Calicivirus can become persistently infected. Like Herpesvirus, Calicivirus is spread through direct contact with other cats, and is not contagious to people or dogs.
  - P is for Panleukopenia, caused by the Feline Parvovirus. Panleukopenia, also known as Feline Distemper, causes vomiting, diarrhea, anorexia and very low white blood cell counts. It is spread via fecal-oral route, can live in the environment for months, and can be fatal in young kittens. Although the Feline and Canine Parvoviruses are related, transmission between dogs and cats is highly unlikely.
- Rabies
  - Spread by bites, rabies virus attacks the nerves and brain. Any mammal, including humans, can be infected, and once symptoms start, it is almost uniformly fatal.

## Non-core vaccines

Veterinarians often vary in which of the non-core vaccines they recommend. These vaccines are often tailored to the pet depending on their lifestyle.

- FeLV or Feline Leukemia Virus
  - FeLV is a retrovirus that can cause cancers such as leukemia and lymphoma. It is spread through close contact with an infected cat, such as

biting, mutual grooming or sharing food or water dishes. Kittens are more susceptible to the virus—adults gain resistance.

### **Vaccine Reactions**

It is common for a pet to feel sore or lethargic for a day or so after being vaccinated. Rarely, animals can have a local reaction, such as hair loss or color change. Equally rare are allergic reactions, such as facial swelling, hives, vomiting, diarrhea or severe lethargy. If your pet were to experience the symptoms of allergic reaction, they should be seen right away at Crossroads or the nearest emergency clinic.

There may be a correlation between vaccines and some immune-mediated diseases, such as immune-mediated hemolytic anemia or thrombocytopenia, but the connection is not well understood.

In cats, there is a risk of developing a type of cancer, called fibrosarcoma, at the site of vaccines. Studies have shown that the risk of cancer from vaccines is between 0.01 to 0.1%. The vaccines that are implicated most are the ones that contain a killed virus with an adjuvant—this includes some FeLV and Rabies vaccines.

The risk of vaccine reaction is much smaller than the risk of the diseases that vaccines protect against. However, in animals that have had allergic reactions, or autoimmune disease, we sometimes recommend discontinuing vaccines. In animals that have had mild reactions, we often have the owner give Benadryl an hour prior to their vaccine appointment.

## **Feline Leukemia and Immunodeficiency Viruses (FeLV and FIV)**

When you adopt a new cat or kitten, or if you bring a sick cat to the vet, it is very likely the doctor will recommend testing your cat for Feline Leukemia Virus (FeLV) and Feline Immunodeficiency Virus (FIV). FeLV and FIV are both very serious viruses that can be incurable and fatal, but there is a simple, reasonably priced blood test that can check for both viruses in a matter of minutes. It is recommended that all kittens be tested before starting their vaccine series. Veterinarians often recommend sick cats be tested as well, even if they had a negative test in the past.

- Feline Leukemia Virus (FeLV)
  - FeLV is a cancer-causing virus that is spread through close contact between cats such as mutual grooming, sharing food and water dishes, and bite wounds. It is a cat-only virus.
  - FeLV has two different stages of infection, or viremia (meaning that virus is circulating in the blood):
    - Primary viremia: Initial infection, in which the cat or kitten may not show any symptoms. The cat's immune system can sometimes stop the virus at this stage, and eliminate the infection.
    - Secondary viremia: Persistent infection, where the virus has infected the bone marrow. Cats may remain symptomatic for months to years, but the infection is now life-long, and will eventually lead to illness.
  - Symptoms of infection include:
    - Weight loss and scruffy hair coat
    - Skin and dental infections
    - Chronic upper respiratory infection (runny eyes and nose)
    - Chronic diarrhea
    - Persistent fever and enlarged lymph nodes
    - Cancer and neurologic problems, such as seizures
  - There is a very safe and effective vaccine for FeLV that is recommended for all outdoor cats. The vaccine does not interfere with test results.

- Feline Immunodeficiency Virus (FIV)
  - FIV is related to HIV, and like HIV does in people, FIV causes AIDS in cats. However, FIV is a cat-only virus: people cannot catch FIV, and cats cannot catch HIV.
  - FIV is mainly spread through cat bites, although it can occasionally be passed from mother to kittens during birth or nursing. Male outdoor cats are at highest risk of contracting the virus due to territorial fighting.
  - FIV causes the immune system to weaken and eventually be unable to fight off infection, leading to AIDS. Symptoms are virtually identical to FeLV, including:
    - Weight loss and scruffy hair coat
    - Skin and dental infections
    - Chronic upper respiratory infection (runny eyes and nose)
    - Chronic diarrhea
    - Cancer and neurologic problems, such as seizures
  - There is a vaccine against FIV, but it is not recommended for two main reasons:
    - The vaccine has only been formulated and tested against one strain of the FIV virus, although other strains exist.
    - Once vaccinated, a cat will test positive for the virus on all tests currently in existence.

## **Feline Infectious Peritonitis**

Feline Infectious Peritonitis (FIP) is a devastating disease caused by the feline enteric coronavirus. It is incurable and fatal, and there is no easy confirmatory test for it.

Feline enteric coronavirus is usually avirulent, meaning it doesn't cause disease. Kittens are often infected through their mothers before they are 8 weeks old. During the initial infection, they may show no symptoms, or they may have mild upper respiratory or gastrointestinal symptoms, such as runny eyes, sneezing or diarrhea. During this period, the kittens are highly infectious, shedding the virus in their saliva and feces. Most kittens' immune systems will fight off the virus, and they will recover fully and develop antibodies against further infection.

A small percentage of cats infected with coronavirus will develop FIP. It is not known exactly how this occurs—either the virus mutates, or the body's immune system has an aberrant reaction to the virus. It is important to note, that although the coronavirus is transmissible to other cats, FIP is not. However, there does seem to be a genetic predisposition to the disease, so certain family lines and certain breeds, especially Persian cats, are more prone to developing FIP.

The symptoms may take years to develop, but usually show up before two years of age. There are two forms of FIP, the “wet” (effusive) form, and “dry” (non-effusive) form. In the wet form, cats often develop fluid in the abdomen, making them look pot-bellied. Sometimes, they also accumulate fluid in the chest, leading to shallow, rapid breathing. However, the main symptoms of both forms are fever, loss of appetite, weight loss and unthrifty hair coat, making the disease hard to distinguish from many other illnesses.

There is no single test that conclusively diagnoses FIP. The diagnosis is usually made through exam and blood work findings, and by ruling out Feline Leukemia and Immunodeficiency Viruses (FeLV and FIV).

There is a coronavirus vaccine available, but its efficacy is controversial and most kittens have already contracted coronavirus before they are old enough to receive vaccines, therefore the vaccine is not widely recommended.

## **Heartworm disease**

### **What is Heartworm disease?**

It is a parasitic disease caused by the worm, *Dirofilaria immitis*. *Dirofilaria*, or heartworms, are microscopic when young, but the adult worms can grow to up to a foot in length, and like to live in the heart and pulmonary arteries of infected dogs.

### **How is it spread?**

By mosquitoes. When a mosquito takes a blood meal from an infected animal, it ingests the larvae, also called microfilariae, of the heartworm. It then injects the microfilariae into the next animal it bites, spreading the disease. The microfilariae then travel and grow in the new host, developing into adult worms in about six months, and settling in the right ventricle of the heart and the pulmonary arteries.

### **Where do you find heartworm disease?**

It is endemic to the Mississippi Delta region, and is very prevalent throughout the Midwest and East Coast. It is much less prevalent in Oregon than in other parts of the country, but it is here, especially in Southern Oregon.

### **Can cats or people get heartworm disease?**

It is rare in cats, but they can get it—particularly outdoor cats in endemic areas of the country. Most infected cats have only one or two worms—usually in the lungs. Only a couple of people have ever been diagnosed with it, and in those cases, a single worm was found, usually not in the heart, but in the liver or some other organ.

### **What are the symptoms of heartworm disease?**

Symptoms make take a year or more after infection to develop. In a dog, symptoms are usually those of heart failure: cough, difficulty breathing, exercise intolerance, lethargy and loss of appetite. Rarely do cats show signs of heart failure—instead they may have no symptoms, or they may have asthma due to the lungs' allergic

reaction to the worms. Both dogs and cats can suffer a sudden death from pulmonary embolism when the worm blocks arterial blood flow to a portion of the lungs.

### **How is the disease diagnosed?**

A simple blood test can be performed that checks for proteins released by the worms. *Microfilariae* can also be spotted when looking at blood under the microscope.

### **How is the disease treated?**

Dogs with the disease are often treated with a series of injections of an arsenic-derived compound called Melarsomine or Immiticide. Dogs must be hospitalized during the injection because of the high risk of allergic reaction.

Cats are not given Immiticide, rather they are usually treated with a steroid and the worms are allowed to die naturally.

### **How is the disease prevented?**

There are many once-monthly heartworm preventative products available in both oral and topical forms. Dogs over six months of age should be tested before starting the preventative, and the preventative should be given monthly, year-round. If a dose is missed, the heartworm test should be repeated. Some veterinarians will also recommend yearly heartworm tests to make sure the preventative is doing its job.

Cats can be started on a preventative without testing first.

An added benefit of heartworm preventative products is that most also deworm for intestinal parasites such as roundworms and hookworms.

For more information, check out the following websites:

- The American Heartworm Society: [www.heartwormsociety.org](http://www.heartwormsociety.org)
  - Downloadable map of the incidence of heartworm disease in the United States: [www.heartwormsociety.org/download/incidencemap.jpg](http://www.heartwormsociety.org/download/incidencemap.jpg)
- Companion Animal Parasite Council: [www.petsandparasites.org](http://www.petsandparasites.org)
- KNOW Heartworms (Cats): [www.knowheartworms.org](http://www.knowheartworms.org)

## **Intestinal Parasites**

There are many common intestinal parasites of dogs and cats. Some of them are transmissible to people, some are not. Most of them you will not see in their feces, as the adult worms do not leave the intestines unless they are dead. The worms lay microscopic eggs that are passed in the feces and that can be detected by laboratory exam.

The US Centers for Disease Control has a very good website with information about both diseases and parasites that people can catch from pets, with special sections for women who are pregnant or people who are immunodeficient due to AIDS or chemotherapy. The website is: [www.cdc.gov/healthypets](http://www.cdc.gov/healthypets)

### **Roundworms**

- Roundworms are one of the most common intestinal parasites of puppies and kittens. They can be acquired while the puppy or kitten is in the womb, or through the mother's milk, or by ingesting infected fecal material. Adult animals are usually resistant to infection by roundworms.
- There are often no symptoms, but it can cause diarrhea.
- Roundworms can cause a very serious disease in children called Visceral or Ocular Larval Migrans.

### **Hookworms**

- Hookworms are found in all ages of pets. The larvae can live in soil and infect pets by penetrating the skin or through ingestion. They can also infect puppies via mother's milk.
- Hookworms can cause bloody diarrhea and anemia.
- People can be infected through skin penetration—for example, walking barefoot in an infected yard.

### **Whipworms**

- Whipworms are also found in all ages of pets. Infection occurs through oral ingestion of fecal material.
- Whipworms can cause bloody diarrhea.
- People can be infected, but it is not common.

**Tapeworms**

- Tapeworms are found in all ages of pets. They are one of the few worms that pet owners may see on their pets feces or around the pets anus. They are small, white, and flat, sometimes looking like a grain of rice. They are acquired through the ingestion of fleas or rodents, and are common in cats that hunt.
- Tapeworms don't usually cause any symptoms.
- Some species of tapeworms can be acquired by humans, but it is not common. People cannot get tapeworms directly from their pet—they must ingest a pet's flea.

**Coccidia (*Isospora spp.*)**

- Coccidia are single-celled parasites, or protozoa, that are more commonly found in young animals as adults develop resistance to infection. Infection is via fecal-oral route.
- Coccidia is frequently a cause of diarrhea in puppies, and can sometimes cause bloody stools.
- People cannot catch coccidia.

**Giardia**

- Giardia are another type of protozoa. Any age of animal can contract Giardia, which is found in water contaminated with feces.
- Giardia causes diarrhea.
- People can contract giardia by drinking from contaminated streams when camping, or by drinking contaminated well water.

**Toxoplasmosis**

- Toxoplasma are also protozoa, or single-celled parasites. Toxoplasma has a different life cycle than the other parasites outlined above, and is of special interest because it can cause birth defects if a woman becomes infected during pregnancy.
- Although many different animals can become infected by Toxoplasma, only cats shed the oocysts, or eggs, in their feces. Any animal that has been infected can harbor the infection in their tissues or meat.
- Infection can occur via two different routes:

- Fecal-oral route (cat feces only).
- Ingestion of raw meat (any infected mammal).
- Once infected, cats usually only shed the oocysts in their feces for a single, short period of time, once in their life. This is usually when they are kittens, and is sometimes accompanied with diarrhea. However, adults cats may shed the oocysts for a short period of time after eating a raw meal.
- After the initial infection, where the cat may or may not display symptoms of diarrhea, cats can develop a systemic infection. This can be asymptomatic, or they can develop mild flu-like symptoms, or very rarely, neurologic problems such as blindness or seizures.
- Because toxoplasmosis can cause birth defects or even miscarriage if women are infected while pregnant, there are some very important precautions pregnant women should take:
  - Avoid changing the litter box. If this is not possible, then wear gloves while changing the litter, and wash hands thoroughly afterwards.
  - Wear gloves when gardening, especially in areas where stray cats might pass through. Again, wash hands thoroughly after gardening.
  - Do not eat raw or undercooked meat.
  - Do not feed your cat raw or undercooked meat.
  - Keep your cat indoors to prevent hunting.

**Parasite Control: What you can do...**

- Pick up and dispose of your dog's fecal material daily.
- Clean your cat's litter box daily.
- Bring in a stool sample for your vet to check on a yearly basis.
- Have your children wash their hands after handling pets.
- Put your dog or cat on a once-monthly heartworm preventative that also contains a dewormer for intestinal parasites.
- Keep your pet on a monthly flea preventative to prevent tapeworms.

## Fleas, Ticks and Ear Mites

### **Fleas**

- Fleas are tiny, dark brown insects that live off of the blood of dogs and cats. They live on your pet, but their eggs usually fall off the pet into the environment. The eggs then hatch into larvae, which feed off of flea feces (digested blood) that fall off of the pet. The larvae then spin cocoons and become pupae. The pupae can lay dormant for months in your carpet or your pet's bedding, and are resistant to freezing and insecticides. Warmth or vibrations cause them to hatch into fleas, which then seek out a host. This entire cycle can take as little as two weeks, and as long as six months.
- Some animals are allergic to flea saliva. For these animals, even a couple of fleas can make them miserable, and they can develop secondary bacterial infections of the skin.
- Fleas can transmit diseases such as tapeworms, *Bartonella henselae* (cat-scratch fever) and *Mycoplasma hemofelis* (feline infectious anemia).
- Because of the temperate climate, fleas often survive year-round in Oregon. For pets that spend a lot of time outdoors, and for flea-allergic pets, year-round monthly flea control, such as Advantage or Frontline, is recommended.
- Over-the-counter topical products containing permethrin are **not** recommended, as they can cause serious reactions and can even be fatal to cats. Flea collars, powders and shampoos are not recommended as they are not effective.
- If you have a flea infestation, it is recommended you treat your pets with Frontline or Advantage, wash their bedding, and vacuum all areas that they frequent weekly, throwing away your vacuum bag in a sealed container after each session. You can also use an area flea treatment—sprays are preferable to bombs, as you can direct sprays under couches and seat cushions where larvae may have crawled.

### **Ticks**

- Ticks are arthropods that range in size from a little larger than the head of a pin, to a little smaller than a dime. They like to live and lay their eggs in areas of dense

- vegetation, and will attach themselves to passing animals in order to take a blood meal.
- Ticks can transmit serious illnesses such as Lyme Disease, Rocky Mountain Spotted Fever, Ehrlichiosis and Babesiosis. These are not common in Oregon.
  - Frontline Plus and tick collars containing amitraz can help prevent ticks from attaching to your pet, although they may not kill the ticks.
  - If you find a tick on your pet, you can grasp it gently near the head with tweezers and pull it off. Most outdoor sports stores also carry tick removers in the camping section. After you remove the tick, you can clean the area with rubbing alcohol or hydrogen peroxide. A raised red bump may remain for a few days, as tick bites can be very irritating.
  - Tick infestations in yards are rare in Oregon, but if you are finding lots of ticks in your yard, you can treat the area with a spray containing Fenvalerate, which should not hurt your plants.

### **Ear Mites**

- Ear mites are microscopic arthropods that live in and around the ears. They are much more common in cats than dogs. They are transmitted from pet to pet by direct physical contact.
- They cause itchy ears and a black, waxy discharge. Bacterial and yeast infections of the ears have a similar appearance, so it is very important to have your pet's ears checked by a vet before starting a treatment regimen.
- Over-the-counter ear mite treatments are often not very successful, and have to be used on a daily basis for a couple of weeks. There are some newer prescription treatments that only have to be applied once or twice to kill the mites.
- It is recommended that all animals in the household be treated at the same time for ear mites to prevent them from re-infecting each other.

**Antiparasitics for Cats**

<b>Topical</b>	Adult Fleas	Flea Larvae	Flea Eggs	Ticks	Ear Mites	Lice	Heart-worms	Round-worms	Hook-worms	Tape-worms
Advantage II	✓	✓	✓							
Frontline Plus	✓	✓	✓	✓		✓				
Revolution	✓				✓		✓	✓	✓	
Profender								✓	✓	✓

<b>Oral</b>	Adult Fleas	Flea Larvae	Flea Eggs	Ticks	Ear Mites	Lice	Heart-worms	Round-worms	Hook-worms	Tape-worms
Droncit										✓
Drontal								✓	✓	✓
Pyrantel								✓	✓	

## **Spaying and Neutering**

### **Why spay or neuter?**

Spaying your female or neutering your male pet provides many health and behavioral benefits, as well as preventing the births of animals in a time when our shelters and humane societies are overflowing with unwanted puppies and kittens.

### **How old does my pet have to be?**

Although spaying and neutering is frequently performed in animals as young as 8 weeks old, here at Crossroads Veterinary Hospital, we usually recommend the procedure be performed at about 6 months of age.

### **What are the benefits of spaying and neutering?**

- Reduces the risk of mammary cancer in females, especially if performed prior to the first heat cycle
- Reduces the risk of benign prostatic hyperplasia (enlarged prostate) in males
- Eliminates the risk of ovarian cancer in females and testicular cancer in males
- Makes your pet less likely to want to roam
- Often reduces unwanted behaviors such as aggression or mounting
- In females, prevents the occurrence of pyometra, a potentially fatal uterine infection
- Decreases urine odor in males, and makes male cats less likely to spray urine
- Eliminates messy heat cycles in females
- Helps control pet overpopulation

### **Let's dispel some myths...**

- Spaying or neutering your pet will not alter ability to work, hunt or train
- Spaying or neutering your pet does not cause them to become fat or lazy, although they may require fewer calories as it can alter the metabolism
- It is not just mutts filling up our shelters and humane societies—one-fourth of shelter dogs are purebred

## **Litter Box Training**

Because cats instinctually want to bury their eliminations, litter box training is usually fairly easy with kittens: just keep them in a small, confined area with their litter box, and they will get the picture pretty soon. However, when litter box issues do occur, they can be very frustrating. Here are some tips to encourage your cat to eliminate in the box:

- You should provide one litter box per cat plus one. In other words, if you have three cats, you should have four litter boxes.
- Litter boxes should be placed in different areas of the house, and should not be close to the cats' food or water dishes. Avoid placing litter boxes near appliances that can turn on suddenly, such as laundry machines or furnaces. Also avoid air vents.
- Clean litter boxes frequently, ideally once or twice daily.
- Use a scoopable, clay-based litter, preferably with carbon to absorb odors.
- Do not use covered litter boxes.
- If your cat is urinating outside the box, make sure you are following the tips laid out above, but you can also try some other things:
  - Make sure your cat is spayed or neutered. Hormonal motivation to mark territory can be an aspect of inappropriate urination.
  - Try placing a litter box in the area your cat is soiling. If you don't want a box there, just place it temporarily, and slowly move the box a few feet every day to a more desirable spot.
  - Try using Feliway spray on areas where the cat marks twice daily for at least a month. Feliway contains synthetic pheromones that mimic the cheek pheromones that cats use to mark territory. It is safe and odorless.
  - Have your cat examined by a veterinarian. Cats, especially males, can develop lower urinary tract disease that may need to be managed with special food or medication.