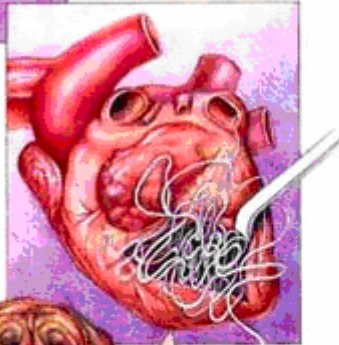


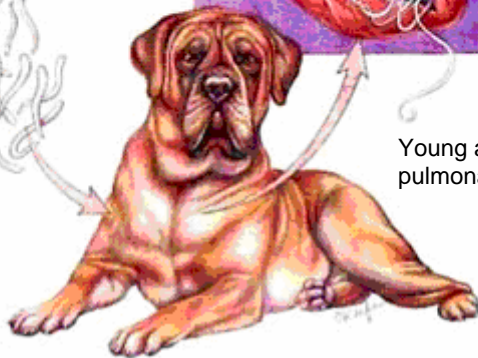
Infected mosquitoes deposit heartworm larvae into the animal's hemolymph by puncturing the animal's skin.



Mature females release microfilariae into the bloodstream where they are picked up by mosquitoes.



Larvae migrate to subcutaneous tissues where they mature to a young-adult stage.



Young adults migrate to the pulmonary arteries and heart.

## Heartworms

### Diagnostic Plan

History  
Physical examination  
Heartworm check  
Chest X-rays  
Blood work  
Urinalysis

### Therapeutic Plan

Drugs to kill the adult worms  
Aspirin  
Corticosteroids  
Restricted exercise  
Drugs to kill larvae in the bloodstream  
Prevention  
Surgery

### Nutritional Plan

Nutrition with controlled levels of protein, phosphorus and sodium  
Consider body condition

## Heartworms

Heartworms cause a serious and sometimes fatal disease of the heart, lungs and other organs. Heartworm disease can be prevented with heartworm medication. Although heartworm disease can be cured with appropriate therapy, serious complications can develop during treatment. This client education sheet will help you learn more about heartworms and will review your veterinarian's instructions for your pet's care at home, as well as follow-up with the veterinary health care team.

### What You Should Know About Heartworms

Adult heartworms are spaghetti-shaped parasites that live in blood vessels in the lungs and occasionally in the heart itself. Mature female heartworms release offspring called microfilariae into the blood stream. Microfilariae are tiny – small enough for a mosquito to ingest when the mosquito takes blood from an animal. Microfilariae develop inside the mosquito for a short time. Mosquitoes transmit heartworms from pet to pet. Although heartworm infection occurs in cats, it is much more common in dogs.

Microfilariae develop for six months in dogs and eight months in cats before they become adult heartworms capable of releasing microfilariae into the blood stream. During this time, the microfilariae migrate through a dog's or cat's tissues until they reach the heart and blood vessels of the lungs.

### Diagnosis

Heartworm infections are usually diagnosed by your veterinarian with a blood test. X-rays, ECGs, ultrasound, blood and urine tests are useful in assessing the severity of the disease.

### Treatment and Home Care

Pets can be protected from heartworm infection with preventive medications. These medications should only be given after an animal tests negative for heartworm. Preventive medications are formulated so that some medications are given

daily, monthly and at six-month intervals. Your veterinarian will tell you whether you need to give your pet preventive medication year-round, depending on the climate where you live.

If your dog is diagnosed with heartworm disease, treatment will be necessary to kill microfilaria and adult worms. Initially, your veterinarian may choose to administer drugs to kill the microfilaria. After starting that treatment, drugs are used to kill the adult heartworms. During this phase of therapy, your veterinarian may hospitalize your pet. Medications to strengthen the heart and remove fluid may be necessary. When your pet goes home after adult heartworm therapy, you will need to strictly confine it for another month to prevent fragments of dead adult heartworms from obstructing blood vessels in the lungs. Fever, coughing, lethargy, and in severe cases coughing up blood, are signs that this has occurred. These are most often seen five to 10 days after treatment.

### Nutritional Plan

Because heartworms can affect an animal's heart, lungs, liver and kidneys, your pet may show signs of organ failure and fluid accumulation in the chest and abdomen. If your pet has fluid accumulation or signs of failure in one or more of these organs, your veterinarian may give you special feeding instructions. Foods with reduced levels of protein, phosphorus and sodium may improve organ function and help eliminate excess fluid in the chest and abdomen. Such foods include Hill's® Prescription Diet® h/d® Canine Cardiac Health, Prescription Diet® k/d® Canine and k/d® Feline Renal Health, and Prescription Diet® g/d® Canine and g/d® Feline Early Cardiac-Healthy Aging.

After your pet's recovery is complete, your veterinarian may suggest another dietary change based on your pet's age and body condition, and on the presence or absence of disease in other organs and body systems. Optimal nutrition should provide for a pet's needs during each stage of its life. Optimal nutrition should also reduce the health risks associated with feeding excess sodium, phosphorus, calcium, protein and fat. Foods that avoid harmful excesses and provide proper nutrition for each life stage include Hill's® Science Diet® brand pet foods.

### Transitioning Food

Unless recommended otherwise by your veterinarian, gradually introduce any new food over a seven-day period. Mix the new food with your pet's former food, gradually increasing its proportion until only the new food is fed.

If your pet is one of the few that doesn't readily accept a new food, try warming the canned food to body temperature, hand feeding for the first few days, or mixing the dry food with warm water (wait ten minutes before serving). Feed only the recommended food. Don't feed additional salt or any snacks that may contain sodium. Be patient but firm with your pet. This is important because the success or failure of treatment depends to a large degree on strict adherence to the new food.

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*Presented as an educational service by*

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## Home Care Instructions

Client's Name: \_\_\_\_\_

Patient's Name: \_\_\_\_\_

Medication(s): \_\_\_\_\_

Nutritional Recommendation: \_\_\_\_\_

Follow-Up Appointment: \_\_\_\_\_

(Hospital Stamp Area Above)

REGULAR VISITS WILL HELP OUR VETERINARY HEALTH CARE TEAM PROVIDE FOR YOUR PET'S BEST INTEREST.