increase the risk of complications by allowing dying worms to cause more damage. Limiting activity might feel tough, but it's one of the best things you can do to help your dog recover safely.

An alternative, "slow kill" method also exists, involving long-term treatment with monthly heartworm preventives plus doxycycline. This method usually is only considered when standard melarsomine treatment is not possible. One important downside is that the slow-kill method takes **months to years** to clear the infection, during which time exercise must be strictly restricted and the worms may continue to cause damage. What's more, the treatment may not fully clear all adult heartworms and the remaining worms may develop resistance to treatment.

Cats—Unfortunately, no medication is available to eliminate heartworms in cats; the drug used to treat dogs is unsafe for cats. If your cat is diagnosed with heartworm disease, your veterinarian will focus on stabilizing your cat's condition and may prescribe medications to help manage signs of disease. Ongoing monitoring is essential, and you and your veterinarian will need to work together to track your cat's progress and adjust care as needed.

In certain cases, surgical removal of heartworms may be considered, but this procedure is high risk and not commonly performed.

HOW IS HEARTWORM DISEASE PREVENTED?

As with most medical problems, preventing heartworm infection is much easier—and much less expensive—than treating it. In fact, heartworm disease is almost 100% preventable with the right care.

Several safe, effective preventives are available through your veterinarian in the form of monthly oral or topical (spot-on) treatments or long-lasting injections (every 6 or 12 months—for dogs only). These preventives work by killing immature heartworm larvae before they can grow into harmful adult worms.

It's important to remember that preventives can only do their job when given **on time and as directed**. This is especially critical for cats and ferrets, which have no good treatment options once infected, making continuous prevention their only line of defense. Year-round protection is the best way to keep all pets safe.

You can further reduce your pet's risk by:

- Limiting outdoor access/activity during peak mosquito times
- Using veterinarian-approved mosquito repellents
- Removing standing water from your yard to stop mosquitoes from breeding

Even with consistent use, no preventive is completely failproof. A dose might be missed, spit out, vomited, or not fully absorbed. For these reasons and others, annual heartworm testing is recommended for all dogs, even those on year-round prevention. It's a quick, simple step that could save your dog's life.

The risk of heartworm disease drops to almost zero when pets receive continuous, year-round heartworm protection.

FERRETS AND HEARTWORM

Ferrets—even those kept strictly indoors—also are at risk of heartworm disease. The signs of illness are like those in dogs but tend to develop more rapidly. Even a single adult worm can cause serious disease in a ferret. As with cats, diagnosis can be challenging, and there is no approved treatment for adult worms. These factors make veterinarian-recommended heartworm preventives essential for ferrets in the U.S.

FOR MORE INFORMATION ON HOW TO KEEP YOUR PET HAPPY AND HEALTHY AS LONG AS POSSIBLE, VISIT:

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HEARTWORM DISEASE

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Heartworms are parasites that can cause serious disease in dogs, cats, and ferrets. They're spread by mosquitoes, and even indoor pets are at risk. People also can be infected, but this happens only rarely.

The good news is that the risk of heartworm disease drops to almost zero when pets receive continuous, year-round heartworm protection.

HOW ARE HEARTWORMS TRANSMITTED?

Heartworms can only be transmitted by mosquitoes—your pet can't catch them directly from another animal. When a mosquito bites an infected animal, it picks up tiny young heartworms called microfilaria. These develop into larvae inside the mosquito, and the next time the mosquito bites another animal, it can pass the larvae along.

Once inside your pet, the larvae travel through the body and eventually reach the blood vessels of the lungs, whether they continue to develop into adult worms. This whole process takes about six months.

If both male and female adult worms are present, they will mate and produce offspring (new microfilaria). If a mosquito then bites your pet, the insect can pick up microfilaria, and the parasite's life cycle will begin again.

HOW DO HEARTWORMS AFFECT PETS?

Adult heartworms live mainly in the arteries of the lungs and, in more serious cases, inside the heart itself. Dogs are affected differently from cats.

Dogs—Dogs, including certain wild dogs like wolves and coyotes, are the preferred host for heartworms. This means the parasites can develop, mate, and reproduce in their bodies. Adult female heartworms can grow up to 12 inches long, while males are about half that length. Adults worms typically live for 5 to 7 years, and untreated dogs can have hundreds of them.

In both the lungs and heart, adult heartworms can cause considerable damage, especially when present in large numbers. They can block blood flow, making the heart work harder. But that's not all. When adult worms reproduce, their offspring (microfilaria) can trigger harmful immune reactions, leading to inflammation in blood vessels and harm to other organs like the kidneys. Dead and dying worms also can cause damage—sometimes even more than live worms. What's more, most heartworms contain certain bacteria (*Wolbachia*) that are released into the bloodstream when the adult worms die, causing more damage and making dogs even sicker. These problems can make treatment complex and risky.

Cats—Cats are not a preferred host for the parasite, and their immune system kills most heartworm larvae before they mature to adults. Any adult worms that do survive are smaller than in dogs, have shorter lives, and usually are limited in number. Only seldomly will cats have microfilaria in their bloodstream.

Even so, unlike in dogs, only one or two adult worms can make a cat sick. And even juvenile heartworms (larvae) can cause significant damage, leading to a condition known as heartworm-associated respiratory disease (HARD), which mainly affects the lungs.

WHAT IS MY PET'S RISK OF HEARTWORM INFECTION?

Heartworms are found in all 50 U.S. states, as well as in Puerto Rico, the U.S. Virgin Islands, and Guam. This means dogs, cats, and ferrets across the country are at risk of infection, no matter where they live. And, because mosquitoes may enter your home, even indoor pets are vulnerable.

Risk levels vary by region and season, depending on how plentiful mosquitoes are and how common heartworm infection is. The Southeastern U.S.—with its long mosquito seasons and high heartworm prevalence—is a particularly high-risk zone.

WHAT ARE THE SIGNS OF HEARTWORM DISEASE?

Pets are considered to have heartworm disease when they start developing signs of illness (clinical signs) or damage to the heart, lungs, or blood vessels.

Dogs—Clinical signs in dogs depend on the stage and severity of infection. In the initial stages, or with a mild infection, your dog may have no signs. As the disease progresses, you may notice:

- Mild, persistent coughing
- Fatigue after mild exercise or activity
- Decreased appetite
- Weight loss
- Swollen belly (from fluid accumulation)
- Difficulty breathing
- In severe cases: collapse or sudden death

Annual testing is recommended to ensure dogs remain heartworm free.

Cats—Clinical signs in cats range from subtle to severe, and disease can be difficult to detect. Affected cats may experience:

- Intermittent coughing or wheezing
- Rapid or difficult breathing
- Occasional vomiting (unrelated to eating)
- Loss of appetite
- Difficulty walking
- Fainting spells or seizures
- Swollen belly (from fluid accumulation)
- Sudden collapse or death

HOW ARE HEARTWORMS DETECTED?

Regular testing helps find infections early on, when they're easier to treat. It's particularly useful for dogs, for which highly accurate blood tests are available.

Dogs—Two blood tests are used to find out if a dog has heartworms. The main one detects proteins (antigens) produced by adult female worms, and the other detects microfilaria. For dogs with positive results, additional tests, such as chest X-rays, general blood work, ECG, and a heart ultrasound exam, may be recommended to confirm the diagnosis, assess disease severity, and determine the best treatment plan.

Experts recommend that all dogs be tested for heartworm immediately before starting heartworm preventives or restarting them after missed doses. This helps avoid serious reactions that can occur if a dog receives preventives when the animal is already infected and has microfilaria in their bloodstream.

In addition, annual testing is recommended for all dogs 7 months or older to ensure dogs remain heartworm free. The 7-month point represents the time when a newly infected dog will have detectable adult worms and microfilaria. Your veterinarian can recommend the best times for heartworm testing based on your dog's age, preventive history, and other factors.

Cats—Heartworms are much harder to detect in cats than in dogs, and test results are often inconclusive. Your veterinarian will consider your cat's risk of infection, health status, and other factors in recommending specific tests and their timing. Blood tests include an antigen test and a different test that detects antibodies against heartworm larvae. Additional tests may be necessary to increase the chance of detecting worms, like chest X-rays to look for HARD-related changes in the lungs and a heart ultrasound exam to look for live worms.

HOW IS HEARTWORM DISEASE TREATED?

Heartworm disease is a progressive, potentially fatal condition. Some of the damage that heartworms cause can be permanent. The earlier heartworms are detected and treated, the better the chance that your pet will recover and the fewer the complications.

Dogs—Treating heartworm disease in dogs is a carefully managed process focused on stabilizing the animal and safely eliminating the parasites. The standard method uses a medication called melarsomine, which quickly kills adult heartworms. Your veterinarian also may prescribe an antibiotic (doxycycline) to kill bacteria released by dying worms. The entire treatment process typically takes several months and can be expensive.

In rare but severe cases, dogs may develop caval syndrome, a life-threatening complication caused by many adult worms blocking blood flow within the heart. This is an emergency. Affected dogs often require immediate referral to a veterinarian who specializes in veterinary surgery or cardiology to have the adult worms surgically removed from the heart and major blood vessels, before melarsomine treatment can begin. These specialists work together with veterinarians and pet owners to provide the best possible care for pets with advanced heartworm disease.

With melarsomine treatment, there is a risk of serious complications as the worms begin to die, including blocked blood vessels in the lungs (pulmonary thromboembolism). The risk of complications is much lower if your dog is in good overall health and you closely follow your veterinarian's instructions. You will need to strictly limit your dog's physical activity, starting as soon as heartworm disease is confirmed and continuing for several weeks after the final melarsomine dose. This can be especially challenging if your dog is normally energetic or playful. However, physical exertion can significantly