

PROTECTING YOUR DOG FROM DISEASE

CAUSED BY EATING RAW FISH*

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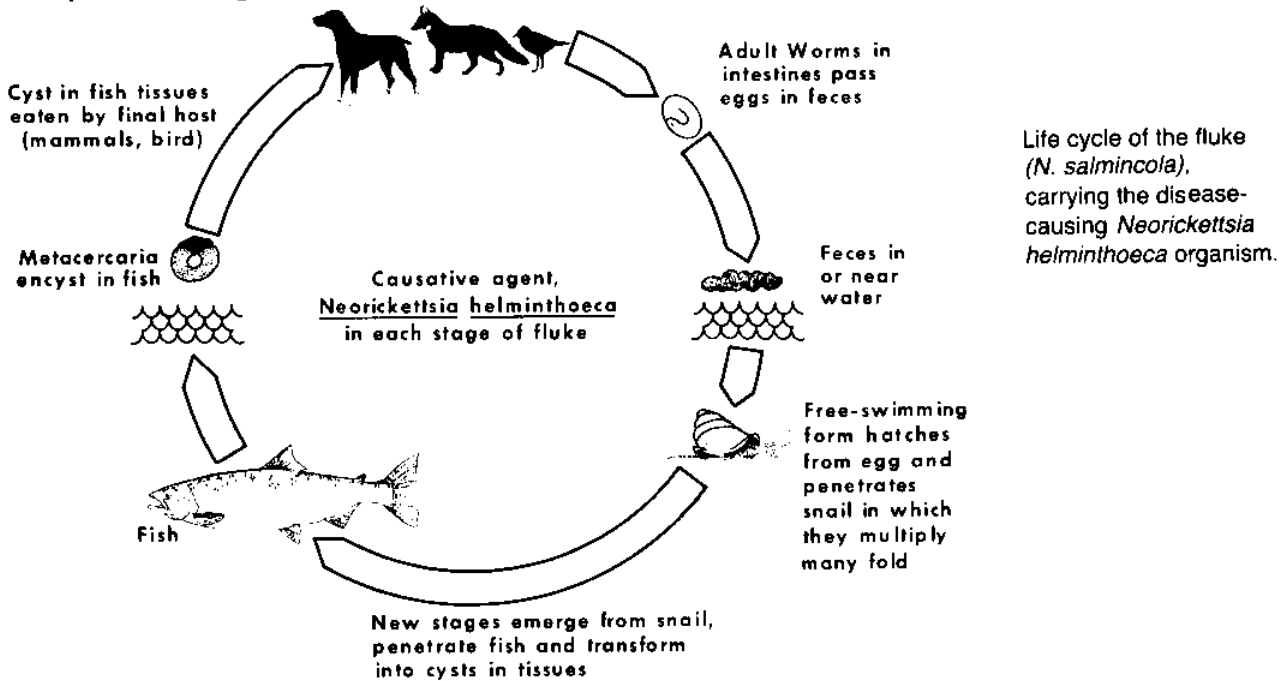
Introduction

Every year thousands of dogs are stricken with a serious illness commonly known as "salmon poisoning disease" (SPD) which, if left untreated, is usually fatal. The disease results when dogs eat parasite-infected raw or cold-smoked fish which have spent part or all of their lives in coastal streams and rivers of northern California, Oregon, and southern Washington. Signs of the disease are similar to those of distemper, and prompt treatment by a veterinarian is essential. The best way to protect your dog is to not let it eat raw fish from north Pacific streams.

organisms, *Neorickettsia helminthoeca*, which are found in all life stages of a parasitic fluke which lives in the intestines of many fish-eating birds and mammals. However, ill effects of the disease only appear in canines: dogs, foxes, coyotes and wolves. The fluke's life cycle begins when the eggs of the fluke (*Nanophyetus salmincola*) are released in the intestine and pass out in the feces of the host mammal or avian. Those eggs that find their way into freshwater hatch into microscopic forms (metacercaria—see diagram which follows) that invade a freshwater snail, *Oxytrema silicula*, which is found only in coastal streams and rivers. Inside the snail these forms reproduce many times and new stages then emerge to penetrate fish and encyst in their tissues. The life cycle of the fluke is completed when an infected fish is eaten by a bird, dog, or other mammal and the fluke matures and lays eggs in its intestines. The adult fluke and all immature forms carry the *Neorickettsia* organism.

What is SPD?

The disease is not caused by a poison, nor do the fish become poisoned, nor do they directly poison the dog. SPD is caused by virus-like or-



*Adapted from "Salmon Poisoning: An Unnecessary Killer of Dogs" by Fred Jurick, former Marine Extension Agent, Humboldt State University.

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What Fish Carry the Disease?

Virtually all salmon and trout can be infected, but other fish which spend part or all of their lives in coastal streams and rivers in which this particular snail lives can also be infected. Such fish include the lamprey, sculpin, redbreasted shiner, shad, sturgeon, candlefish, and the large-scale sucker; infected Pacific giant salamanders have also been found. Introduced fish species are particularly susceptible to infection. The disease is generally limited to the coastal rivers and streams of northern California, Oregon, and southern Washington (west of the Cascades) that have populations of the freshwater snail, *O. silicula*, that is a key link in the life cycle of the fluke. The disease-carrying cyst of the fluke can survive in salt water and ocean-caught salmon and trout can be infected if they have migrated from a stream containing the aquatic stages of the fluke and the responsible disease organism.

How Are Dogs Infected?

Few people feed fish to their dogs, but dogs can find fish by rummaging through garbage cans and fish boxes, by eating fish trimmings and carcasses along streams or beaches, or by digging up buried fish. Fish fed to dogs should be well-cooked to destroy the cysts containing the disease-causing organism. Other less common but possible means of infection may occur when dogs eat feces from other fluke-infested dogs or fish-eating mammals such as skunks, raccoons, mink or bobcats.

How is the Disease Recognized?

The signs of salmon poisoning are similar to those your dog would show for distemper. Symptoms start to appear 6 to 10 days after eating infested fish. At first there is a slight rise in body temperature, followed (within 24 hours) by a complete loss of appetite, listlessness, and a temperature of 104° to 107°F. By the 4th or 5th day the temperature usually decreases; the eyes appear sunken; vomiting is persistent; rapid weight loss occurs. By the 5th to 7th day diarrhea begins and is impregnated with blood within a day or two. Finally, the body temperature falls to subnormal. If untreated, most dogs will die 10 to 14 days after the first signs

appear. Rarely does an untreated animal survive, and death is generally caused by dehydration and blood loss.

How is it Treated?

What do you do if you find or suspect that your dog has eaten unsafe fish? The first thing veterinarians stress is not to get excited; wait a week and watch the dog closely for symptoms. The first signs to recognize are a listless attitude and loss of appetite. A fever of 102.5° to 107°F is a sure sign, but a dog's fever should never be diagnosed by a wet or dry nose; use a rectal thermometer. If these signs appear, contact a veterinarian immediately whether or not you suspect the dog has eaten fish. One method of diagnosing is to look for worm eggs in the dog's stool. Treatment with antibiotics and fluids takes 3 to 4 days, and the dog's temperature will usually drop after the first 24 hours of treatment.

This is an oversimplification of the treatment, but if it is begun early enough and complications don't set in, it is usually successful and relatively inexpensive. The disease is usually contracted only once, as dogs develop a permanent immunity following recovery from one SPD infection, whether it be naturally or by treatment. The dog can then eat raw contaminated fish. In fact, some experts recommend low-level feeding of raw salmon to dogs in order for them to develop an immunity to the disease. But remember, feeding any raw fish or meat to your dog subjects them to other types of parasitic worms and diseases. Great care should be exercised in such feeding and consultation with your veterinarian is advised.

Prevention

No vaccine or immune serum to protect dogs from SPD is available at the present time. To help protect dogs from SPD:

- Wrap garbage completely and use disposal cans with well-secured lids;
- Don't take dogs on fishing trips;
- Use leashes or restraints for dogs at beaches and along rivers;
- Cook fish thoroughly or deep-freeze fish for a minimum of 2 weeks to destroy the fluke cysts in the fish before feeding it to your dog.

People who take dogs to areas in which salmon poisoning disease occurs should watch their dog for early signs of SPD when they return home, particularly if they know the dog has run about in fishing areas.

Important Things to Remember

Thousands of dogs are infected annually with salmon poisoning disease after eating raw or cold-smoked fish infected with a parasitic fluke which carries a virus-like organism known as *Neorickettsia helminthoeca*.

All fish caught or originating from streams in northern California, Oregon, and southern Washington should be suspected of being infected with disease-carrying flukes harmful to dogs.

If your dog has eaten or is suspected of eating raw fish, wait to see if signs of the disease appear. If signs of the disease appear, promptly take him to a veterinarian.

Although this disease is relatively easy to cure, left untreated it will almost certainly kill your dog.

Keep salmon, steelhead, trout, and other fresh-water fish carcasses away from your dogs.

Additional Reading

Malek, Emile A. 1980. *Snail-Transmitted Parasite Disease, Volume II*. CRC Press, Boca Raton, FL.

Soulsby, E.J.I. 1965 *Textbook of Veterinary Clinical Parasitology*. F. A. Davis Co., Philadelphia, PA.

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