



Rattle Snake Vaccine

(The following information is taken directly from notes provided by Red Rock Biologics.)

Basic Overview:

The results of a venomous snake bite are significant. Snake bites kill or injure dogs, destroy skin and muscle, cause permanent liver, kidney, heart, neurological, and joint damage. It is estimated that about 150,000 dogs and cats are bitten annually in the United States by venomous snakes. Dogs are up to 500 times more likely to be bitten by a venomous snake than to get rabies. A snake bite is severely painful to the dog and can cost the owner thousands of dollars in veterinary bills. The rattlesnake vaccine is designed to **reduce** the likelihood of death, permanent injury, and severe pain caused by rattlesnake bites.

This vaccine is designed for healthy dogs, at least 4 months of age or older, as an aid in the reduction of morbidity and mortality due to intoxication with *Crotalus Atrox* venom. **Administration** should be performed by a veterinarian only. Initially, two doses are recommended, spaced one month apart. Typically, protection from boosters last about 6 months. Dogs should get at least one booster per year approximately one month before the beginning of rattlesnake exposure. Dogs exposed to rattlesnakes longer than about 6 months, or dogs at higher risk, should get a booster ever 6 months. **DOGS OVER 100 POUNDS AND DOGS UNDER 25 POUNDS SHOULD GET AN ADDITIONAL BOOSTER SHOT 30 days after the first booster shot in the initial vaccination sequence (3 INJECTIONS TOTAL)** and then booster normally.

The vaccine works by stimulating the dog's immune system to produce antibodies against the venom. These antibodies last for months and neutralize the rattlesnake venom in a way very similar to antivenin. This vaccine is very safe. It has been used in 100,000 dogs. The vaccine was licensed in the United States in 2003 and licensed with the USDA in 2004. Anaphylactic reactions are rare and estimated at about 1 in 250,000 injections. Less than 1% of dogs suffer any adverse **side effects**. The most common side effect is a small granuloma (lump) at the injection site. This typically doesn't bother the dog and will self resolve in about two to six weeks. In about 1 in 300 vaccinations the dog will develop a sterile abscess at the injections site, which will require additional treatment by a veterinarian. Systemic reactions similar to flu like symptoms (vomiting, diarrhea, lethargy) occur in less than 1 in 3,000 vaccinations.

Though no vaccine is 100% effective, there is both laboratory and field evidence indicating a reliable level of **efficacy**. Approximately 99% of Red Rock Rattlesnake Vaccine tested developed venom neutralizing antibodies following vaccination. Though the vaccine does not eliminate all adverse effects of snake bite, on average, vaccinates can typically survive about two to three times as much venom as non-vaccinates. For an average size (35-40 lb) dog, this is the equivalent protection of about two to three vials of antivenin. In a recent survey of 720 veterinary clinics, 90% of veterinary clinics which had treated dogs for snake bite rated the vaccine as working "well" or "very well". Another 5% of such clinics reported "mixed results". Benefits reported from the vaccine included a delay of onset of symptoms, less severe symptoms, less treatment needed or no treatment needed, and faster recovery time with little or no necrosis.

The vaccine has **limitations**. Full antibody protection is not reached until 30 days following boosters. The vaccine protection can be overcome with enough venom and special circumstances. These special circumstances include smaller dogs, large snakes, multiple bites, baby snake bites, the motive of the snake to bite, bites near vital organs, intravenous bites, how well the dogs responds to the vaccine, and some snake species that this vaccine has little or no protection against. In such circumstances antivenin may still be required. In addition, antibiotics may be needed to treat infection following the snake bite. **The vaccine is not antivenin, and is NOT a treatment for a snake bite. Dogs and cats should be taken IMMEDIATELY to a veterinarian after receiving a bite from any snake.**

The vaccine has shown significant snake species cross protection both in the laboratory and in the field. This will provide various levels of protection against the most common species of American rattlesnakes and Copperheads. The best protection has been reported from bites from the Western and Western Diamond back rattlesnakes. The vaccine has some protection against Pygmy, Mississauga, Sidewinder, and Timber rattlesnakes. The vaccine will not protect against the Mojave rattlesnake, Coral snakes, or Cottonmouth snakes.

None of the typical treatments for snake bite are contraindicated with this vaccine. Veterinarians can still use antivenin, steroids, antihistamines, and fluids. Dogs will typically present with less severe symptoms and recover more quickly with little or no necrosis. Monitoring for 24 hours post bite is still recommended.

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