

## Animal Toxicity

### Western diamondback rattlesnake



The western diamondback rattlesnake or Texas diamond-back (*Crotalus atrox*) is a rattlesnake species and member of the viper family, found in the south-western United States and Mexico. Like all other rattlesnakes and all other vipers, it is venomous. It is likely responsible for the majority of snakebite fatalities in northern Mexico and the greatest number of snakebites in the U.S.

It lives in elevations from below sea level up to 2,000m. This species ranges throughout the south-western United States and northern half of Mexico. Currently, western diamondback rattlesnakes are not threatened or endangered.

Like most other American pit vipers, the venom contains photolytic enzymes. Proteolysis venoms are concentrated secretions that destroy structural tissues and proteins via catabolism, which help in disabling prey. The venom is primarily hemotoxic, affecting mainly the blood vessels, blood cells and the heart. The venom contains haemorrhagic components called zinc metalloproteinase. The venom also contains cytotoxins and myotoxins which destroy cells and muscles, adding to the damage to the cardiovascular system. In addition to haemorrhage, venom metalloproteinase induce myonecrosis (skeletal muscle damage), which seems to be secondary to the ischemia that ensues in muscle tissue as a consequence of bleeding and reduced perfusion. Micro vascular disruption by metalloproteinase also impairs skeletal muscle regeneration, being thereby responsible for fibrosis and permanent tissue loss. General local effects include pain, heavy internal bleeding, severe swelling, severe muscle damage, bruising, blistering, and necrosis; systemic effects are variable and not specific, but may include headache, nausea, vomiting, abdominal pain, diarrhoea, dizziness, and convulsions. Bleeding caused by haemorrhaging is a major clinical effect that can be fatal.

This species has LD50 values of 2.72 mg/kg intravenous, 20 mg/kg intramuscular and 18.5 mg/kg subcutaneous, which is far less toxic than many other rattlesnakes. However, because of its large venom glands and specialized fangs, the western diamondback rattlesnake can deliver a large amount of venom in a single bite. The average venom yield per bite is usually between 250 and 350 mg, with a maximum of 700–800 mg. severe envenomation is rare but possible, and can be lethal. Mortality rate of untreated bites is between 10 and 20%.

1. Using Google to research – Give 3 other names for the Western Diamondback Rattlesnake:

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2. What is the meaning of 'HAEMORRHAGE'?

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3. According to studies, what the average venom yield in a single bite of this snake?

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4. Where in the world is the Western Diamond Back Rattlesnake Commonly found?

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5. What 3 symptoms could one experience should they be bitten by this snake?

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