

Accessing Anti-venom Serum The Eastern Massasauga Rattlesnake

Anti-venom serum for snake bite from the Eastern Massasauga Rattlesnake is locally available from the South Muskoka Memorial Hospital (Bracebridge), the West Parry Sound Health Centre (James Street location) and Huronia District Hospital (Midland). The South Muskoka Memorial Hospital only carries one dose, while the others carry a number of doses for bites by rattlesnakes or any snakes known as pit vipers. Coral snakes and imported species of snakes require a different type of serum; information on these is available from the poison control centre. The proper name for anti-venom serum is "antivenin" and the medication is Antivenin (Crotalidae) Polyvalent (Equine). Antivenin is not available to private citizens. Doctors and hospitals may only receive the serum for a patient that has been bitten by a venomous snake.

Antivenin Dosage

The greatest danger from snake bite occurs within the first day or two after being bitten by a venomous snake (envenomation). The entire initial dose of antivenin should be administered as soon as possible and, to be most effective, within four hours after the bite. Antivenin is less effective when given after eight hours and may be of questionable value when given after 12 hours. In severe envenomations, however, it is recommended that the antivenin be given even if 24 hours have elapsed since the bite occurred. The following initial doses are recommended for children and adults: no envenomation, none; minimal envenomation, 20-40 ml. (contents of 2-4 vials); moderate envenomation 50-90 ml; and severe envenomation 100-150 or more (contents of 10-15 vials or more). Envenomation by large snakes may require relatively high doses, particularly in children or small adults. The dose of antivenin administered to children is not based on weight. The need for additional doses of antivenin is based on the clinical response to the initial dose and continuing assessment of the patient and severity of poisoning. If swelling continues to progress, systemic signs or symptoms of envenomation increase in severity or new manifestations appear (e.g. hypotension, a decrease in haematocrit), an additional 10-50 ml. (contents of 1-5 vials) should be administered intravenously.

Personal Protection

The Massasauga rattlesnake is a sluggish, solitary and passive creature. It prefers to remain motionless hoping not to be noticed. If you come too close it will rattle a warning. If you see one, or hear one rattle, **stop**. Remain still until you know where it is, or where the sound is coming from, and then move slowly away. A fast motion may be misinterpreted by the snake as a threat. They never pursue people and would rather flee than fight. They do not travel in pairs. They cannot jump. They have a short striking distance, about half their body length (about 38 cm or 15 inches for a large snake).

Wear boots, thick socks and long pants or gaiters when walking where rattlers live. Watch ahead where you are going to step. Do not place your hands into places you cannot see. Poke around with a stick before picking blueberries or gathering kindling. Use care when picking up pieces of wood or rocks. Due to its small size a Massasauga cannot strike very high above the ground unless it is situated in an elevated position such as on a log or boulder. Since their prey is mainly small rodents, their fangs are short and with their limited striking distance they are not much of a threat to humans as long as the aforementioned protective clothing is worn. The most common strikes above boot top level occur when a person steps over a snake that is situated on a log or boulder or when they place their hand near the elevated snake. Walking barefoot and looking for firewood at night are two of the most common activities that result in snake bites. If camping, check your sleeping bag before getting into it - snakes are also looking for a warm place at night. Never pick up a snake until you have positively identified it.

If Bitten Seek Medical Attention

If bitten **remain calm**, immobilize or limit the use of the bitten limb, get assistance and seek medical attention immediately. If the patient is within 30 to 40 minutes of a medical facility, the person should be transported there as quickly as possible. The injured part should be loosely immobilized in a functional position just below heart level, and all rings, watches and constrictive clothing removed.

If the patient will not receive medical attention for some hours, he/she should be placed at rest and treated for shock. The major risk is from the venom being introduced to the heart in a massive dose. Therefore, the slower the heart beats and the less the affected area is exercised, the better. The use of a tourniquet is not recommended, although some authorities do recommend a restrictive bandage just above the bite to prevent the spread of venom - tight enough to compress the soft tissue, but not tight enough to stop blood circulation.

You should not cut into the bitten area unless you have been specially trained for this - it can cause more damage than the bite itself. If suction is going to be used it must be within the first five minutes. Single incisions are made through the fang marks (no longer than 1/4 inch and no deeper than 1/8 inch) and suction is applied using Sawyer's extractor. The use of suction over the incisions or even over the fang punctures is of value if applied within a few minutes of the bite and continued for 30 to 60 minutes. The wound should then be cleansed and covered with a sterile dressing. Reactions to venom varies among individuals but expect some pain, discolouration and swelling at the bite. More serious reactions will involve hospitalization for several days.

Poisonous snake bites are a serious medical condition, but, for the most part, they are not a death sentence. For example, in the U.S.A., an average of less than 15 people die each year as a result of snake bites. The media, folklore and superstition have exaggerated the probability and outcome of snake bites.

Improper treatment and panic are strong contributors to increased injury and fatalities from snake bites.

Background information

Venomous snakes in Ontario

The Eastern Massasauga rattlesnake (*Sistrurus catenatus catenatus*) is the only venomous snake in Ontario. It is characterized by the presence of a heat sensitive pit between the eye and the nostril, a segmented rattle at the tip of the tail, a vertical eye pupil and keeled scales. The body colour is grey to brown with dark brown or black blotches along its sides. Blotches near the tail sometimes join to form rings.

The belly colour is black. They have a blunt tail ending in the characteristic rattle. The head is triangular; the neck is slender. It is a relatively small rattlesnake, growing to about 75cm (30 inches) in length, but is the largest of the genus *Sistrurus* or pygmy rattlesnakes. The name is from an Indian tribe known as the Missisauga - an Ojibway word meaning, "It has a big mouth".

In Canada, the Massasauga rattlesnake is found only in Ontario. Their historical distribution included the shoreline of Georgian Bay and the Bruce Peninsula, with populations in extreme southwestern Ontario and the southeastern Niagara Peninsula. Presently, the species remains distributed in sporadic pockets along Georgian Bay and the Bruce Peninsula including Manitoulin Island. In southwestern Ontario its distribution appears to be restricted to an area near Windsor and the Wainfleet Bog on the northeast shore of Lake Erie.

In 1990, a regulation of the Game and Fish Act of Ontario protected the Massasauga rattlesnake and a number of other snakes commonly mistaken for the Massasauga. In 1991, the Committee on the Status of Endangered Wildlife in Canada listed the Massasauga rattlesnake as **threatened**. Continued monitoring has demonstrated a significant decline in their range over the past decade. The main factors responsible for their decline include killing by people and the loss of habitat through expanding development and the draining of wetlands. The Massasauga will not survive relocation, it will live at the new location until the weather deteriorates and then succumb. The timber rattlesnake has not been recorded in the Niagara Gorge region since 1941, and is probably extinct in Canada. Massasauga rattlesnakes are active from late April or early May until late October or early November, depending on temperatures. During the remainder of the year they hibernate below the frost line in holes where tree roots penetrate the bedrock; where bedrock is fractured creating rock piles or crevasses; or in rodent burrows. Hibernacula (their over wintering sites) are often associated with wetlands or small wet depressions in the terrain. In the Georgian Bay area, Massasauga use habitat ranging from wetlands to dry upland, mixed coniferous and deciduous forests with bedrock outcrop. They also find these habitats along the shorelines of lakes, streams and rivers and the islands of Georgian Bay.

Being cold blooded, the availability of open basking areas close to cooler areas of cover are important for regulating the snake's body temperature and aiding in the digestion of their food. Young Massasauga feed on other snakes, whereas adults eat mainly small rodents such as mice and voles as well as frogs. They become sexually mature at two to three years and probably reproduce only every other year.

Mating takes place during August. The following year 8 to 20 live young are born sometime from late August to mid September.