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"RATTLESNAKE!"

By Willis Lamm

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Recent revisions to snake bite protocols are indicated in red.

Over 8,000 people are bitten by poisonous snakes in the United States each year. On average, fewer than 10 snakebite deaths are reported. In fact more people die from wasp and bee stings than from snakebites. Nonetheless venomous snakes must be considered dangerous and even non-fatal bites can cause severe pain and long lasting tissue damage.

There are four species of poisonous snakes in the United States. Three, the Copperhead, Water Moccasin and Rattlesnake, belong to a group known as pit vipers. They get this title due their highly specialized venom apparatus which include two long hinged fangs and a pair of extremely sensitive innervated pits which are located between their eyes and nostrils. These pits are "heat detectors" used for hunting which are so sensitive that blindfolded snakes have been able to accurately follow warm-blooded prey (e.g., rodents) from a distance of 6 feet!

Rattlesnakes are equipped for both day and night vision. They give birth to living, poisonous young. There are many varieties in the U.S., the most predominant being: The Eastern Diamondback Rattlesnake; the most dangerous North American snake. Specimens have been captured as a large as 8-foot long and weighing 15 pounds. The snake's 3/4" fangs are capable of penetrating almost any boot. Fortunately this snake is relatively docile.

The Diamondback; a western rattlesnake which can become quite nasty when provoked. The Diamondback is responsible for most deaths due to snakebite in the U.S.

The Prairie Rattler; a smaller snake found in the great plains, also with a relatively nasty disposition. It is too small to be a fatal threat to a treated human, but horses and cattle bitten on the nose can die from the resulting swelling which blocks their air passages.

The Timber or Banded Rattlesnake; a northeastern snake which is easily camouflaged on the forest floor.

The Sidewinder; another often "hidden" rattlesnake, so named for its unusual side-sliding movements which leave "J" patterns in the sand. When the day gets hot, the Sidewinder buries itself in the sand to keep cool, leaving just its eyes exposed which are protected by horn-like growths. Neither of the Sidewinder or the Timber Rattler are easily discovered until the passer-by is well within striking distance.

Rattlesnakes, before striking, are typically coiled except for the forward part of the body which is raised and the rattle which is buzzing. Rattlesnakes typically strike up to a distance equal to 1/3 to 1/2 of their overall length, although longer reaches are theoretically possible.

The sound made by a rattler is caused by the clicking together of the rattle segments when the tail is vibrated. This sound has been described as similar to the crackling sound of frying fat. It should be noted that when the rattle is wet, it makes no noise. Pit vipers generally inject large amounts of venom into hunting bites, but oftentimes little or no venom into defensive bites. In fact, up to 25% of pit viper bites in humans

are non-venomous "dry bites". A provoked and angered snake, however, might not only "load up" to be quite venomous, but may also strike several times!

SNAKEBITES IN HUMANS

A rattlesnake bite is a serious event, but by staying calm, following good procedures and using common sense, it doesn't have to be a fatal event. In fact, Rattlesnake bites are generally not fatal. The signs and symptoms of poisoning often take several hours to develop. Reliable antivenins are available at virtually all medical facilities and proper prehospital care can lessen the toxicity of the event and resulting tissue damage.

There have been many snake bite remedies offered over the years. Recent studies have concluded that the following protocols are best: (Note 1)

1. Stay calm, get safely away from the snake, and have someone call 9-1-1 (or the emergency number in your area). The less the victim moves the bitten site, the less likely the venom will be profused and cause damage.
2. Have the victim lie down with the affected limb lower than the heart. Keep the limb immobilized. If practical, splint the limb.
3. Treat for shock and preserve body heat.
4. Remove any rings, bracelets, boots, or other restricting items from the bitten extremity. (It *WILL* swell.)
5. Apply a light constricting band about 2" above and below the bite, however never place the bands on either side of a joint (such as above and below the knee or elbow). This band should be made up of wide, soft material, which could be a handkerchief or shredded clothing. The band should only be as tight as the band the nurse applies when giving a blood test.
 - NOTE: The purpose of constricting bands is to restrict lymphatic flow, not blood, so they should not be too tight. Check pulses below the bands and readjust them as necessary when they tighten due to swelling.
6. Wash the bite with soap and water (if available).
7. If the victim has to walk out, **sit calmly for 20-30 minutes to let the venom localize at the site**, proceed calmly to the nearest source of help and try to avoid unnecessary exertion which will stimulate circulation of the poison.
8. Get the victim to definitive medical care for antivenin, which will provide the greatest relief from the toxic effects of the bite.

ACTIONS TO AVOID:

1. DO NOT cut the bite. The additional tissue damage may actually increase the diffusion of the toxins throughout the body.
2. DO NOT apply a tourniquet. Such action can result in the loss of the limb.
3. NEVER try to suck out the venom by mouth. You can try the suction cup in a snakebite kit if it doesn't delay other needed treatment. Suctioning seldom provides any measurable advantages, however.
4. Do not apply cold and/or ice packs. **Recent studies indicate that application of cold or ice makes the injury much worse.**

SNAKEBITES IN HORSES:

Facial Bites

Most horses are bitten on the nose when they lower their heads to investigate the snake. This is by far the most dangerous site for a bite as the resulting swelling often closes both nostrils and causes suffocation.

Bites on the legs

can also occur when the horse steps too close to a snake. Due to the lack of muscle in the leg, leg bites may be difficult to identify as there may be little or no swelling.

The following actions should be taken for a horse which has been bitten by a snake: (Note 2)

1. Stay calm and get safely away from the snake. Forget about going after the snake and focus your attention on settling the horse down.
2. Constricting bands may be applied similar to those used on humans.
3. For nose and face bites, insert a piece of garden hose, about 5 to 6 inches long, into each nostril. These may have to be taped at first, but soon the swelling will secure them in place. (Two pieces, cut from an old, stiff garden hose, should be carried whenever riding in rattlesnake country.)
4. Trailer the horse to veterinary care or try to get the vet to come out to the horse. Try not to walk the horse unless absolutely necessary.
5. To avoid complications due to tissue damage, do not delay getting veterinary help for the horse.

As with humans, DO NOT cut the bite, DO NOT apply a tourniquet, and NEVER try to suck out the venom by mouth.

ENCOUNTERING SNAKES ON THE TRAIL

The best way to survive a snakebite is to not get bitten!

Rattlers often take cover under rocks and logs, particularly if the temperature doesn't suit them. In cold weather they often group together in dens. When resting during a ride in rattlesnake country, the rider should check carefully around rocks and logs before sitting down and never place hands and feet where they can't be seen clearly. Occasionally snakes will be found sunning themselves on the trail. In this state they are often comfortable and docile and don't wish to move. If the snake doesn't leave when you approach, I would suggest you leave it alone. If you have to pass by the snake, you may consider encouraging it to leave. I have successfully gently nudged snakes with long sticks to get them to move along, however there is a fine line between annoying a snake and getting it angry enough to load up with venom and strike.

If you have to remove a snake from the trail, a safer approach might be to calmly and lightly pitch small stones or dirt clods at the snake from a safe distance. Be patient. Usually the snake will tire of this disturbance and slither off without wishing to strike back.

If you accidentally step on or next to a snake, prevent your horse from looking down at the snake and slowly back away. My experience with rattlers is unless they are actually stepped on, they tend to give larger animals a few seconds to get out of the way. A calm process resembling "OK snake, we'll be going" would be a safer departure than a panicked reaction where the horse's sudden movements may appear aggressive to the snake and provoke a strike, or worse yet, ending up stepping on the snake or getting the rider thrown.

Even if the horse is bitten, a calm departure may prevent additional strikes, particularly that potentially fatal nose strike should the horse suddenly investigate what just happened.

Rattlesnakes are generally defensive around larger animals, so unless extremely angered, they will generally choose to leave once they feel it is safe to do so. In such instances it is a good idea to give the snake a minute or so to get comfortably away

before passing, listening for rustling or rattling to determine that it has actually left, not holed up in a nearby unseen den.

Keeping in mind that an unprovoked snake doesn't want trouble any more than we do, and acting accordingly when encountering one, will generally prevent most human-serpent complications.

Notes:

1. The recommended treatments presented are those published in the current edition of Brady's Emergency Care for the Sick and Injured, the standard training and procedures manual for Emergency Medical Technicians.
2. The recommended treatments presented are those published in James' How To Be Your Own Veterinarian (Sometimes), and related texts.

SIGNS AND SYMPTOMS OF SNAKEBITES IN HUMANS:

1. A noticeable bite on the skin which may appear as a discolored area with two (but occasionally only one) puncture marks
2. Pain and swelling in the area of the bite (Swelling may take several hours to develop.)
3. Rapid pulse and labored breathing
4. Progressive general weakness
5. Vision problems
6. Nausea and vomiting
7. Seizures
8. Drowsiness or unconsciousness.
 - Note: Not all the above symptoms may appear!
 - **If the bite is not followed by severe, continual pain, the bite is probably *not* venomous.**

SIGNS AND SYMPTOMS OF SNAKEBITES IN HORSES:

1. Bite site swelling
2. Salivation
3. Twitching muscles
4. Wobbling
5. Convulsions
6. Coma
 - Note: Not all the above symptoms may appear!

KNOW YOUR SNAKES

Two common snakes are easily confused; the harmless Gopher Snake and the dangerous Diamondback. The following differences may help you to correctly identify a snake which you may encounter.

RATTLESNAKE (including the Diamondback)

1. Triangular head, noticeably larger than the body
2. Thick, dull (not glossy) body
3. Tail blunt with one or more rattles
4. Generally travels with tail pointed up

GOPHER SNAKE

1. Head only slightly larger than the body; sleek looking
2. Slender, glossy body
3. Pointed tail
 - Note: The gopher snake, when frightened, will often try to imitate a rattler by hissing and shaking its tail in dry grass or leaves. If in doubt, assume it is a

rattler and stay away.

A gopher snake, although non-poisonous, will strike like a rattler to fend off danger. Gopher snake bites can be easily discerned from rattler bites. The gopher snake has complete sets of small, sharp teeth on both upper and lower jaws, while the rattler has only two fangs on the upper jaw. Rather than leave two deep puncture marks, the gopher snake will leave two sets of needle- like punctures, following the shape of the upper and lower jaws.

Gopher snake bites can be quite painful, and the wound, like any animal bite, should be cleansed, but this snake has no venom and thus is considered harmless to humans and livestock.

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Please Note: Scientists are detecting neurotoxic changes in the venom of rattlesnakes in some regions. For credible information that you probably ought to read, please check out the following document presented by the Colorado Herpetological Society:

[Is Rattlesnake Venom Evolving?](#)

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