# Snakebite: Prevention and First Aid

## Introduction

Sri Lanka has one of the world's highest death rates from snakebite. Bites of venomous snakes do not always result in envenoming. The current recommendation is to give antivenom treatment only if the victim shows signs of envenoming. If there are no such signs, the treatment is as for any animal bite injury.

*Not all snakes bite*
*Not all snakes are venomous*
*Not all venomous snakebites are fatal*

Hospitals in Sri Lanka generally carry stocks of antivenom, and their staff is competent in its use. Studies conducted recently relating to snakebite and the effects of envenoming in Sri Lanka have shown an improvement in the treatment of snakebite, especially with the safe and effective use of antivenom.

## Venomous snakes

Sri Lanka has 104 species of land, fresh water and sea snakes. Most of them are harmless; a few are considered highly venomous, often deadly, while some are moderately or mildly venomous. Almost all deaths from snakebite in Sri Lanka are caused by four out of the six species of highly venomous land snakes. These are the **Russell's viper, cobra, common krait and hump-nosed pit vipers.** The Ceylon krait is deadly venomous but its bites are extremely rare. The saw scaled viper, though highly venomous, has not reportedly caused deaths in Sri Lanka. The hump-nosed viper is now considered a highly venomous snake as it gives rise, though rarely, to fatal systemic effects. Table 1 lists their scientific and local names.

About fifteen species of sea snakes have been found in our coastal waters. They are all highly venomous but rarely bite, and even then may not inject venom. The hook-nosed sea snake *Enhydrina schistosa* (valakkadiya in Sinhala) is an aggressive snake commonly found in lagoons and river mouths. Their bites have caused severe envenoming leading to muscle damage and even deaths.

There is only one moderately venomous snake, namely the **green pit viper** (Table 2). No deaths have been reported in Sri Lanka following green pit viper bites.

Mildly venomous snakes (Table 3) have not caused significant medical problems. Included in this group are the cat snakes *(mapila)*. These snakes have earned an unjustified reputation in Sri Lanka as being highly venomous. They are back fanged and cannot

therefore efficiently deliver venom into humans. There have been no documented deaths from the bites of these snakes, which may cause local pain and swelling.

## Prevention

Snakes are commonly found near human habitations, including agricultural fields, farms and plantations. Preventive measures, taken by persons likely to come in contact with snakes, will reduce the incidence of snakebite in this country. The following measures are recommended.

1. Most snake bites are on the legs. Protect the legs and feet by wearing shoes or boots, and ankle length garments when walking or working in areas where snakes are likely to be found. These areas include land covered by tall grass or dense undergrowth, jungle paths, and agricultural lands particularly during harvesting and weeding.

2. At night use torchlight to prevent treading on snakes.

3. Carry a stick when walking in snake infested sites, and use it to beat the grass and undergrowth, if such areas are present in the walking path. Beating vegetation on either side of a foot-path may drive snakes on to the path in front of you.

4. Warn snakes of your approach by treading heavily. Snakes are relatively deaf to airborne sounds, but are sensitive to ground vibrations.

5. Do not put your hand into anthills, cavities in trees and thick undergrowth and under logs. It is prudent to clear sites likely to be occupied by snakes around human habitations. Destroy anthills and fill up cavities in trees. Do not let fallen trees, logs and firewood lie around. Exercise caution if you have to move logs, rocks, etc in the course of your work, as there may be snakes under these.

6. When harvesting paddy be extra careful in the last field (liyadda). Snakes, particularly Russell's vipers, may have been driven there from the fields harvested earlier.

7. Dispose of garbage and junk regularly so as to keep your dwelling and surroundings free of rats, mice, frogs, lizards, etc., which attract snakes.

8. Do not store paddy inside your house: paddy attracts rats and mice. Hang rolled-up mats from the roof rather than storing them on the floor: snakes like kraits may creep inside.

9. Only knowledgeable persons should handle or rear snakes. An apparently dead snake should be handled with great care as it may still be alive, and even when dead, may inflict a reflex bite.

## First aid in snakebite

Effective first aid should always be given to snakebite victims. It will prevent or minimise spread of venom that may have been introduced into the tissues, as well as complications resulting from the bite. Incorrect first aid may cause harm.

The following simple, practical, effective and safe measures are recommended:

1. The commonest reaction following snakebite is fear — the victim thinks of death. Reassurance is vital and should be done in a positive and authoritative manner and continued for as long as necessary. The following points should be emphasised –

   - Most snakes are not venomous.
   - Even if a biting snake is venomous, it may not inject venom.
   - The presence of fang marks alone does not mean that venom has entered the body.
   - If envenoming has taken place, affective treatment is available in hospitals and full recovery is likely.

2. The snakebite victim, and especially the bitten limb, must be kept still because —

   a) Movement of the bitten part and of the victim hastens absorption of venom, which may have been introduced into the body by the bite. Therefore keep the victim still. It is better to carry rather than to let him/her walk.
   b) In addition to retarding absorption of venom, immobilisation also reduces pain. The bitten limb could be immobilised by splinting it with a piece of wood.

3. To remove venom, which may lie on the surface of the skin, the bitten area should be washed gently with soap and water, or wiped with a wet cloth. Vigorous washing and rubbing may hasten venom absorption.

4. Swelling of the bitten limb is a common feature after venomous snakebite. Prevent complications by removing, as early as possible, rings, bangles, anklets, cords or clothing, which could cause constriction if swelling were to occur.

5. Paracetamol may be given for the relief of pain.

6. Take the victim to hospital as early as possible. An accurate description of the circumstances of the bite will facilitate the identification of the snake, which will influence the management of the patient. It is no longer necessary to bring the biting snake to hospital for proper management. Live snakes, as well as dead ones, should be handled carefully.

## A few don’ts

1. Incision of or application of suction to the bite wound is not advisable. Snakes usually inject venom too deeply for suction to be of any use. Inexpert incisions may damage tendons, blood vessels and nerves; bleeding from these wounds and infection may create added problems.

2. Do not apply tourniquets in the first aid treatment of snakebite.

3. Chemicals such as Condy’s crystals (potassium permanganate) should not be applied on the bite as they may cause tissue damage.

4. Medication administered by the nasal instillation of liquids such as oil ('nasna'), is dangerous and should not be permitted. It can result in lung infections or permanent deafness.

5. Alcohol hastens absorption of venom and should not be given.

6. Thambili and kurumba water and fruit juices should not be given. They contain potassium, which can cause problems if kidney damage occurs following snakebite.

7. Aspirin may produce persistent bleeding from the stomach, especially following Russell’s viper bite and should not be given.

8. Do not panic and be tempted to do anything detrimental to the victim.

## Table 1: The highly venomous land snakes of Sri Lanka

| Scientific name | English name | Sinhala names | Tamil names |
|---|---|---|---|
| *Naja naja* | Cobra | Naya<br>Nagaya | Naga pambu<br>Nalla pambu |
| *Bungarus caeruleus* | Common krait | Thel karawala<br>Magamaruwa<br>Habaralaya<br>Mavilla | Yennai pambu<br>Yennai viriyan<br>Yettadi viriyan |
| *Bungarus ceylonicus* | Ceylon krait | Dunu karawala<br>Polon karawala<br>Mudu karawala | Yennai viriyan<br>Yettadi viriyan |
| *Daboia russelii (Vipera russelli)* | Russell's viper | Dhara polonga<br>Tith polonga | Kannardi viriyan |
| *Echis carinatus* | Saw scaled viper | Weli polonga | Surattai pambu<br>Pal surattai |
| *Hypnale spp.* | Hump nosed viper | Polonthelissa<br>Kunakatuwa | Konal mooku-pudayan<br>Kopi viriyan |

## Table 2: The moderately venomous land snake of Sri Lanka

| Scientific name | English name | Sinhala names | Tamil names |
|---|---|---|---|
| *Trimeresurus trigonocephalus* | Green pit viper | Pala polonga | Pachai viriyan<br>Kopi viriyan |

## Table 3: Some mildly venomous land snakes of Sri Lanka

| Scientific name | English name | Sinhala names | Tamil names |
|---|---|---|---|
| *Boiga spp.* | Cat snakes | Mapila | |
| *Calliophis melanurus sinhaleus* | Sri Lankan coral snake | Depath-kaluwa | |
| *Ahaetulla spp.* | Whip snakes<br>Vine snakes | Ahaetulla<br>Asgulla<br>Henakadaya | Kankuthi pambu |
| *Cerberus rhynchops rhynchops* | Dog-faced water snake | Kunudiya kaluwa<br>Diyabariya | Tanni pambu |
| *Chrysopelea spp.* | Flying snake<br>Gold and black tree snake | Polmal karawala | Parrakum pambu |
| *Balanophis ceylonensis* | Blossom krait | Nihaluwa<br>Mal karawala | |

*History*
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Edited by Malik Fernando
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