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## Marine wounds and stings

### Introduction

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Hazards from the marine environment include injuries, poisonous stings and secondary infection. These may result in severe pain, illness and even death. The main culprits are coelenterates, mollusca, echinoderms and poisonous fish.

Coelenterates include:

- Jellyfish
- Anemones
- Hydroids(fern-like)
- Coral

The two most important mollusca are octopus and cone shell.

Venomous fish include some species of stingrays and *Scorpaenidae*. There are many different species in the Scorpaenidae family. They vary in the size of their spines and the potency of the venom released through these spines.

- Scorpionfish
- Stonefish
- Lionfish
- Zebrafish
- Waspfish

### Jellyfish stings

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Jellyfish commonly have stinging nematocysts. They are sometimes known simply as sea nettles, though often this name is reserved for the less dangerous varieties. Structurally jellyfish comprise a bell shaped body with tentacles, some up to 30 metres in length. The nematocysts reside within these tentacles. Stings are delivered when contact is made with the tentacles and nematocysts discharge into the skin.

Deserving special mention are:

- Box Jellyfish or sea wasp (*Chironex fleckeri*) (Northern Australian waters)
- Portuguese man of war (*Physalia physalis*) (Atlantic, Pacific, Indian Ocean)
- Irukandji (*Carukia barnesi*)

### Clinical presentation

The first symptom is of pain, often so severe as to lead to loss of consciousness. Some victims of the box jellyfish are unable to make it to the beach alive. Other symptoms include:

- Paraesthesia (tingling and prickling)
- Red bumps and patches
- Swelling
- Nausea and vomiting

- Muscle pain and cramps.

Depending on the amount of stinging and the type of jellyfish encountered, shock and cardiac arrest can follow. After recovering from the initial sting, the wound may later blister and become necrotic (tissue death).

### Treatment

If you or a companion is stung by a jellyfish:

- Avoid moving the affected limb.
- Remove nematocysts and tentacles from the skin using gloves and forceps. Razor blades can be used to shave off nematocysts.
- If stung by box jellyfish apply vinegar (5% acetic acid), or in its absence, salt water for 30 minutes.
- If stung by the Portuguese man of war, thoroughly rinse exposed areas with seawater (vinegar is not helpful).
- Ice or an ice pack can help with pain while seeking medical attention.
- Antivenin injections are available in some medical centres for specific jellyfish, and are particularly recommended for box jellyfish stings.

Do not rub with a towel or use fresh water as this may cause further damage by causing further nematocyst discharge. Contrary to popular belief urine and alcohol can exacerbate injury and are not recommended.

## Coral injuries

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Coral cuts and abrasions are common and may become infected. Coral may also harbour stinging nematocysts.

Treatment of coral wounds involves removing visible debris and cleaning the wound thoroughly and applying antiseptic or antibiotic cream as infection is common (watch out for redness, fever, foul smell or pus).

Tetanus immunisation is recommended.

## Octopus

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Most species of octopus are harmless, except for the blue-ringed octopus largely found around the coast of Australia. This is identified by iridescent blue rings that appear on its body when disturbed. Large quantities of its venom may cause paralysis but mortality is rare.

Treatment is supportive, and the wound should be irrigated heavily. Artificial ventilation may be required in cases of paralysis.

## Cone shell

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The cone shell is a carnivore, living just beneath the sandy surface of shallow and deep water areas. Eighteen species of cone shell may sting humans, via a lightning-fast barb injection. The toxins target an array of ion channels, which cause paralysis in small creatures. Human fatalities are rare. Typically the sting results in local pain and numbness, and may be accompanied by general malaise.

Treatment may include:

- Immobilisation of affected area in a dependent position (hanging down)
- Pain relief (soaking the area in hot water may help)
- Emergency resuscitation and respiratory support

No antivenin is available

## Sea urchin

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The sea urchin is an echinoderm. It is a common source of puncture wounds because the individual often inadvertently steps on it. Local irritation is caused by embedded spines, which are often hidden by pigment release in the skin. Sea urchins are usually non-venomous, though some are capable of delivering toxin.

Treatment should be directed at removing as many visible spines as possible.

- Waxing and stripping the area may help remove residual spines
- Ammonia solution can dissolve small spine fragments
- Most thin embedded spines come out by themselves within a few weeks

## Venomous fish

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An injury from a venomous fish results in very painful and inflamed puncture site. The venom of a stingray is found at the base of its tail.

Complications may include:

- Secondary infection leading to wound breakdown
- Nausea, vomiting, shortness of breath and weakness
- Death (rare).

### Treatment

- Carefully remove visible spines
- Apply direct pressure to bleeding areas
- Bathe the affected area in hot water of up to 45 degrees Celsius.
- Tetanus prophylaxis should be considered.
- Stonefish antivenin is available in some regions but may cause [anaphylaxis](#) (allergic reactions) so a test dose is recommended.

## Secondary infection

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Secondary bacterial infection is common after penetrating or abrasive marine injuries. Signs of secondary infection include redness, swelling and warmth.

*Staphylococcus aureus* is the most common source of [wound infection](#) and results in [impetiginisation](#) and [cellulitis](#).

*Vibrio vulnificus* infection is peculiar to marine injuries and may cause intense rapidly progressive cellulitis and death. Treatment should include [tetracycline](#) and a broad spectrum cephalosporin or aminoglycoside.

### Related information

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#### References:

- Bologna JL, Jorizzo JL, Rapini RP. *Dermatology* 2003. Pg1346–8

#### On DermNet NZ:

- [Sea bathers eruption](#)
- [Seaweed dermatitis](#)
- [Swimmers' itch](#)

#### Other websites:

- emedicine, the online textbook
  - [Environmental articles](#)
  - [Cutaneous Manifestations Following Exposures to Marine Life](#)

#### Books about skin diseases:

See the [DermNet NZ bookstore](#)

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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