

Why do jellyfish sting ?

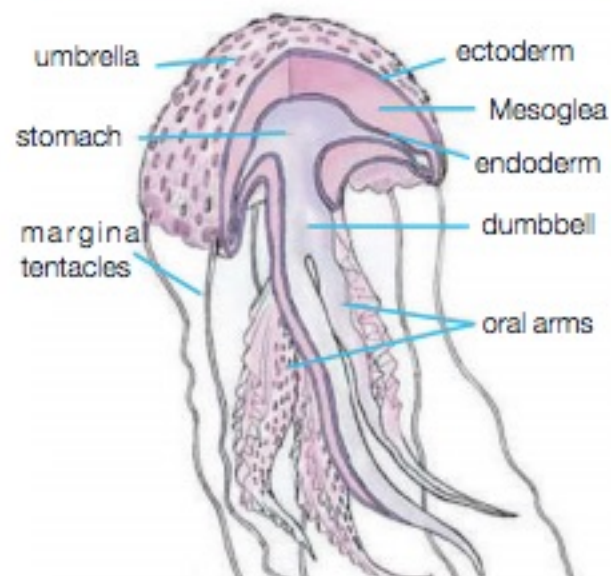


Cnidarians are marine animals which include jellyfish and other stinging organisms. They are equipped with very specialized cells called cnidocytes, mainly concentrated along their tentacles, which are able to inject a protein-based mixture containing venom through a barbed filament for defense purposes and for capturing prey. The mechanism regulating filament eversion is among the quickest and most effective biological processes in nature: it takes less than a millionth of second and inflicts a force of 70 tons per square centimetre at the point of impact.



The degree of toxicity of this venom, for human beings, varies between different jellyfish species. Most of accidental human contacts with jellyfish occur during swimming or when jellyfish individuals (or parts of individuals, such as broken-off tentacles) are beached.

General anatomy of jellyfish



Highly irritating

Irritating

Low irritation

Not irritating

Jellyfish life cycle



1) Adults perform sexual reproduction through external fertilisation (eggs and sperm cells are released in the water column).

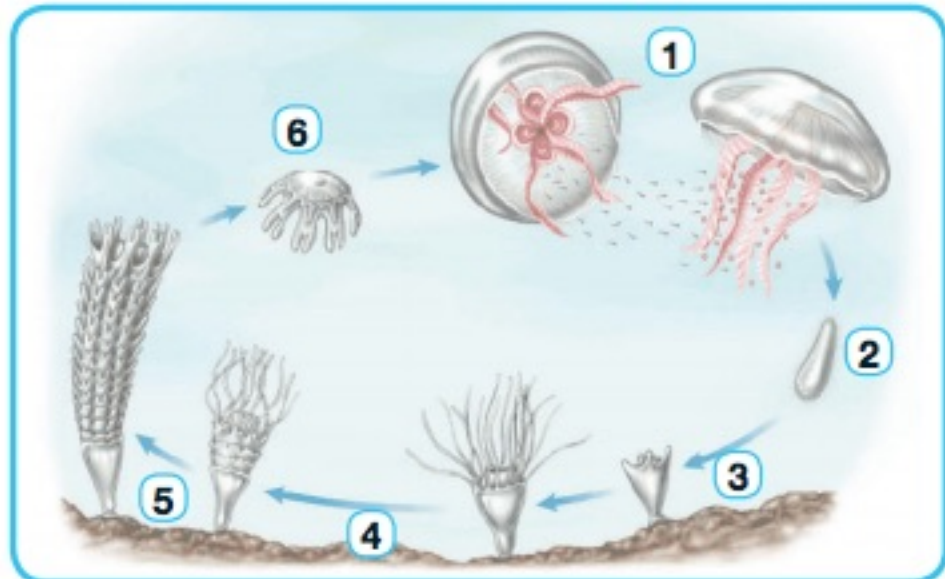
2) The young larval stage of the inseminated egg is called the planula (larva with cilia), which can only survive in an unattached form in the water column for short periods of time.

3) The planulae metamorphose into a polyp on the sea bed.

4) Once established on a substratum, the polyp performs asexual reproduction to produce new polyps, i.e. by producing one or more medusae through a process known as strobilation.

5) This process initially produces ephyrae, i.e. immature medusae.

6) Each ephyra or juvenile medusa disperses to metamorphose eventually into a jellyfish having all the characteristics of an adult individual, able to initiate once again the reproductive cycle.



The life cycle may be shorter when the larvae metamorphose directly into juvenile medusae, as happens for *Pelagia noctiluca* (see below), the most common jellyfish in the Mediterranean.

Jellyfish species have different lifecycles. This image illustrates a generalised jellyfish lifecycle, including the polyp phase, which is typical for a number of Mediterranean jellyfish species.

Catostylus

Distribution

The Australian species is found in Queensland, Victoria and NSW and into South East Asia.

Common names

Blubber

Size and appearance

Mushroom-shaped bell 5-30cm in diameter. They are a creamy white brown colour (blue if found further north). No tentacles but eight 'fronds' or 'frills' hang underneath. The sting causes minor skin irritation.

First aid

1. Remove casualty from water if safe to do so
2. DRSABCD
3. Wash area with sea water (not freshwater)
4. Keep casualty at rest and reassure
5. Do not allow rubbing of the sting area
6. Place casualty's stung area in hot water (no hotter than the rescuer can comfortably tolerate) for 20 minutes
7. If local pain is unrelieved by heat or if hot water is not available, apply a cold pack or ice in a bag
8. Send for medical aid if symptoms persist or covers a sensitive area (e.g the eyes) and seek assistance from lifesavers/lifeguards

Did you know?

- Blubbers are in a group of jellyfish called rhizostomes; other rhizostomes have been demonstrated to use a sun compass navigation to migrate
- Australia is home to many different species of blubbers — most are larger, colourful and give only minor stings
- Blubbers are often home to a lot of strange marine life including crabs, brittle stars, barnacles and fish and crustaceans



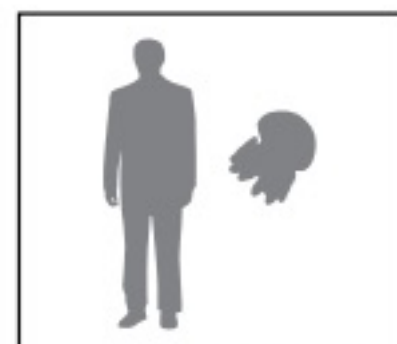
Catostylus mosaicus



Distribution in Australian waters



Catostylus sting



Size relative to human

Cassiopea andromeda (SCYPHOZOA)

Common name: upside-down jellyfish

Umbrella diameter up to 15 cm

Low irritation

locally abundant

Spring - Summer



This species is native of the Indo-Pacific region and reached the Mediterranean a few years ago, probably through the Suez Canal. It is currently present in some areas of the eastern Mediterranean, but it has been occasionally also spotted in the Gulf of Palermo in Sicily and within Maltese harbours.



GENERAL PROTOCOL

FIRST-AID GENERAL TREATMENT PROTOCOL FOR JELLYFISH STINGS

(to apply if the jellyfish species is unknown)

NO

USE VINEGAR, FRESH WATER, ALCOHOL, AMMONIA

NO

USE TIGHT BANDAGES

YES

APPLY COLD PACKS

1

Carefully rinse with sea water, no rubbing

2

When available, apply a mixture of **SEA WATER** and **BAKING SODA (1:1 ratio)** for **2 minutes** to stop any further release of venom from any stinging cells left on the skin

3

Remove any residual tentacles and excess baking soda mixture with a plastic card (e.g. driving license, credit card)

4

Apply **COLD** packs (plastic ice bag, or even a cold drink wrapped in a cloth or t-shirt) for 5-15 minutes

5

Assess the degree of pain, re-apply the **COLD** pack if required for a further 5-10 minutes.

6

If pain persists, consult a physician or pharmacist, ask for local **painkillers/anti-inflammatory creams or gels (e.g. 3-4% lidocaine + hydrocortisone)**.