

## Synanceia First Aid: The New Burn's Risk? First aid protocols for Stonefish stings: a burn's risk case study.



Figure 1<sup>1</sup>: *Synanceia verrucosa*, a Reef Stonefish.  
Found in coastal regions of predominantly north Australia.

### Case:

35 year old male stepped on a Stonefish during a triathlon. First aid provision was hot water application, which included:

1. Onsite- hot water of unknown temperature poured over his right foot by a "trained" first aid provider.
2. At a regional hospital- hot water of an unknown temperature was used as a footbath for the patient to immerse his right foot in for THREE hours.

The patient was discharged home after three hours with analgesia and a hot pack. He represented to a tertiary centre with deep partial thickness burns to his right foot that required skin grafting whilst an inpatient.

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### Current Guidelines (for fish sting envenomation first aid):

Australian Resuscitation Council (ARC)<sup>4</sup>:

- "If the sting is to a limb, place the victim's stung hand or foot in hot water (no hotter than the rescuer can comfortably tolerate)".

St John Ambulance Australia (SJAA) Guidelines<sup>5</sup>:

- "Check the water to ensure it is as hot as you can comfortably tolerate before treating the patient.
- Place the stung area in hot water for 20 minutes—help patient under a hot shower, place a stung hand or foot in hot water, or pour hot water over the stung area.
- Do not burn the patient.
- Remove briefly before re-immersing.
- Continue this cycle if pain persists.
- Urgently seek medical aid at a hospital if symptoms are severe."



Figure 2<sup>1</sup>: The Reef Stonefish's Australian distribution pattern as per Fishes of Australia.

### Issues with current guidelines:

1. Non specificity of the temperature of the water.
2. Variation in application technique.

#### TEMPERATURE:

- It takes 42.1 degrees for 20 minutes to denature Stonefish venom in cardiomyocytes<sup>2</sup>.
- BUT 10 minutes at 49 degrees can cause full thickness burns of adult skin<sup>3</sup>.

#### APPLICATION

- There is more uncontrollable variability in pour technique.
- Immersion is more consistent and reliable.

### Updated Recommendations:

- Hot water application to continue as primary first aid.
- The temperature check of the hot water should be undertaken by thermometer.
- The injured area should receive hot water application by immersion technique only.
- The water should be not hotter than 45 degrees.
- The application period should be 20 minutes, followed by removal for a period of time dictated by patients' pain (between 2-5 minutes).
- Continue to cycle the immersion of the injured area in 20 minute aliquots as required.
- Transfer to a medical centre as soon as able.

### Affiliations:

- (1) The State Burns Unit of Western Australia
- (2) Thank you to the Freemasons Travel Award and the Fiona Wood Foundation for their support for this presentation.

### References:

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