

STING OPERATIONS

THE WEIRD NEW SCIENCE OF DEALING WITH JELLYFISH BY JIM THORNTON

FACT: THE STINGING CELLS OF A JELLYFISH CAN EJECT VENOM-FILLED "NEEDLES" AT A FORCE OF 40,000 G'S, EQUAL TO THAT OF A BULLET FIRED FROM A GUN.

BAD: YOU'RE COOLING OFF in the Chesapeake Bay when mild stings begin speckling you from head to toe.

Worse: You're frolicking in the Florida surf when suddenly it feels as if molten metal has just been ladled over your arm.

Worst: You're splashing about in coastal waters off Australia when one of the deadliest creatures on Earth pierces your skin, leaving you with only two miserable minutes to settle your affairs.

The nettlesome sea nettle, the agonizing Portuguese man-of-war, the lethal assassin's hand: These are but a few of the nearly 10,000 species of coelenterates (including corals, sea anemones, and jellyfish) inhabiting the world's oceans and bays, killing their prey—and sometimes us—by means of lightning-fast stinging cells called cnidocytes. Millions of beach adventurers each year feel some form of the tentacle's lash. And the problem may be getting worse. According to a recent report in *Science*, the population of certain jellyfish species is exploding.

OUCH AVOIDANCE

Though most victims suffer no lasting ill effects, being assaulted can make an otherwise great day at the beach seem anything but. Symptoms can range from faint prickles (as is usually the case with the moon jelly, or *Aurelia*

aurita, a squishy fixture on Atlantic beaches) to excruciating pain (the Portuguese man-of-war, or *Physalia physalis*, which sends dozens of victims to hospitals each year with nasty stings characterized by welts and skin lesions). "Most vacationers and ocean explorers are ill-prepared to deal with jellyfish," says Paul Auerbach, M.D., a Stanford University expert



on marine envenomization and the author of *Medicine for the Outdoors* (The Lyons Press).

Now comes the first hope of avoiding the sting altogether. In what Auerbach describes as "one of the most significant advances" he's

»» PREVENTION

KNOW YOUR ENEMY. Check with local lifeguards, dive shop owners, or marine science programs about current conditions.

LOOK BEFORE YOU LEAP. Jellyfish are difficult to spot; their fragmented tentacles are virtually invisible. Stay out of the water if you see gas-filled bluish or purple floats, the signature of the man-of-war, whose stinging tentacles can measure up to 165 feet.

TRY SAFE SEA LOTION OR A WET SUIT. A Lycra "swim skin" can also make an effective barrier.

»» TREATMENT

GET THE VICTIM ON LAND. Drowning is a possibility with those who go into shock.

BEWARE OF ALLERGIC REACTION. Shortness of breath, hives, and wheezing are all symptoms of life-threatening anaphylactic shock. A life-guard should have counteractive drugs on hand; if you're going to a remote area, ask your doctor to prescribe epinephrine or antihistamines.

KEEP FRESHWATER AND ICE OFF THE AFFECTED AREA. They will only cause more stinging cells to fire.

NEUTRALIZE THE VENOM. For mild to moderate stings, apply rubbing alcohol, ammonia, or urine. (Yes, really.) Use baking soda to counter sea nettles; choose unflavored meat tenderizer to treat sea bather's eruption; opt for vinegar against the box jellyfish.

SHAVE THE AREA. Remove any last stinging cells with cream and a razor—or, in a pinch, a sand-and-seawater paste and a clamshell.

GET MEDICAL HELP if you're not sure that the patient is OK. —J.T.

seen in his past ten years of providing clinical advice on the subject, a lotion recently developed by scientists in Israel has been shown in clinical trials to successfully block the firing mechanism of numerous species of coelenterates. The only product of its type, Safe Sea (www.safesea.net) combines a jellyfish-sting inhibitor with sunblock.

Safe Sea inventor and marine biologist Amit Lotan, Ph.D., whose work on the toxin-delivery pathway of jellyfish was first published in *Nature*, says he and his colleagues modeled their product in part on naturally occurring compounds on the skin of clown fish, which live unharmed among stinging sea anemones, and in certain snails that eat jellyfish. Safe Sea, in effect, lets you make like the marine life: If you brush up against a jellyfish, the lotion prevents the creature's cnidocytes from firing. The product has not yet been tested on humans against a man-of-war or the deadly Indo-Pacific box jellyfish (gung-ho volunteers are presumably hard to come by), but it may just prevent you from driving home from the beach with a big red welt on your backside. ▲

WE JUST HAD TO ASK

WHAT EXACTLY IS PRICKLY HEAT?

THE EXPERT: **HOWARD BACKER, M.D.**, past president of the Wilderness Medical Society.

SO WHAT IS IT? Prickly heat, or heat rash, is caused by the blockage of sweat glands in areas of heavy sweating beneath clothing. This leads to red, itchy, inflamed bumps. Your tolerance for heat is reduced, since evaporation of sweat is the body's main cooling mechanism. **WHAT, IF ANYTHING, CAN BE DONE ABOUT IT?** Seek shade, and give your sweat glands a rest. Swim or shower frequently, and consider using medicated acne pads, which have alcohol and salicylic acid to unblock pores. **ANY HOPE FOR A MIRACLE CURE ON THE HORIZON?** It's doubtful, but maybe they can put a dome over some of these tropical countries and air-condition them. Or maybe somebody will invent a personal climate-control suit so we'll never have to be hot again. —J.T.