



Cold water can kill

By Anne-Rachelle McHugh

People working on or around the water should worry less about hypothermia and more about cold water shock, says WCB occupational safety officer Shane Neifer. “It takes time to develop hypothermia, but cold shock can kill in as little as three minutes.”

Neifer began studying the condition after investigating four eerily similar drownings in B.C.’s waters. In each case, the victims either did not aid in their own rescue or they appeared to give up while swimming to safety. “I looked at tapes of those accidents and wondered, ‘Why are these guys giving up? Why aren’t they trying to help themselves?’”

In one incident, a fisher fell in the sea and died after only nine minutes in the water. The crew, who thought the fall comical at first, couldn’t understand why the man didn’t just grab the rescue lines that were thrown to him.

Neifer investigated and discovered what researchers in the United Kingdom

have long known. Cold water shock is different than hypothermia and much more deadly. “Hypothermia takes time to develop – usually 15 or 20 minutes. Cold shock happens almost instantly. And when it occurs, the victims are unable to aid in their own rescue because their blood is being redirected from the extremities (such as the hands) to essential organs like the heart and brain,” says Neifer. “Muscles soon fail to respond, which leads to panic and quick drowning.”

The gasp factor

During the initial stage of cold water shock, victims gasp much as they would if ice cubes were poured down their back. Lungs fill with water, blood pressure increases, and the ability to breathe is impaired. Peripheral dexterity diminishes and the victims are unable to reach for lifelines. Panic ensues and death can occur quickly, within three to five minutes.

If victims survive the initial immersion and try to swim to safety, they may suffer the second stage of cold shock, swimming failure. As they swim, cold water pulls heat from the body, the body shuts down and the victims ultimately drown.

The third stage, hypothermia, is a well-documented physiological event that occurs 15 to 30 minutes after immersion. In most cases, blood drains from the limbs, shivering sets in, and the person loses consciousness or has a heart attack.

Death can occur even if the victim is rescued. In fact, up to 20 percent of all cold water immersion deaths occur after the victims are retrieved from the water. In this case, blood redirects itself to extremities, blood pressure drops, and a heart attack can result.

What’s most frustrating about cold water immersion is how quickly it kills and how helpless it leaves the rescuers.

“People who witness this type of an accident are often slow to respond,” says Neifer. “They think it’s no big deal. The person can just swim to the side of the boat and be pulled in. Nobody expects the person to simply bob up and down in the water, unable to help themselves.”

No one is immune

Although fishers are at greatest risk, no one is immune. Anyone who works on or around the water should be prepared. Longshoremen, highway crews, truck drivers, sports fishing guides, and towboat operators are all vulnerable.

In fact, Neifer recalls a forklift driver who drove off a pier and drowned. The man surfaced after the crash, bobbed in the water waving his arms, then lay down in the water face first. It was a classic case of cold water shock.

“A person may be struggling in the water, waving his arms in what looks like a plea for help,” says Neifer, “but the only thing going through their mind is ‘I need air.’”

How to stay safe

To prevent cold shock and buy precious rescue time, here are the rules you should follow. And remember, B.C. waters are cold – even in the summer.

A few simple precautions could save your life.

- Anytime you’re working on or around the water, always wear a personal flotation device (PFD) or lifejacket.
- Stay out of the water. If someone falls in, don’t go in after them.
- If you do fall in and are not wearing a PFD, try to keep your head above water and minimize movement.
- Get immediate medical attention for anyone who falls in cold water. Workers who appear to be unharmed after immersion can die minutes, even hours after rescue.
- If you regularly work near the water, consider wearing thermal protection such as a floater work suit. Even layered clothing helps.
- Develop and practice recovery drills to ensure your co-workers will be rescued on the first attempt.
- Safeguard all vessels. Install guardrails, wear safety harnesses, and make PFDs mandatory.
- Finally, if you’re a strong swimmer, don’t think you’re immune. Cold water shock has nothing to do with swimming ability. It’s a physiological reaction that can paralyze even the strongest athlete.

**Cold water immersion:
The numbers**

- In B.C., from 1976 to 2002, an average of five workers drowned on the job each year.
- According to the Ohio Department of Natural Resources, approximately half of all boating-related drownings are attributed to the effects of cold water immersion.
- How cold is cold water? Not all that cold. Adults can experience cold water shock when immersed in water ranging anywhere from 0 to 25 °C (32 to 77 °F) – although the effects are most significant in water colder than 15 °C (59 °F). In many parts of B.C., that’s the summertime water temperature. Off Tofino, for example, the ocean temperature hovers around 6 to 7 °C (43 to 45 °F) year-round.
- In warm water, a healthy adult can hold his or her breath for approximately one minute. In cold water (below 15 °C), the average is 10 seconds or less. That substantially lowers the odds of successfully escaping a capsized vessel.

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