

## What is the risk?

Anything below 15°C is defined as cold water and can seriously affect your breathing and movement, so the risk is significant most of the year. In water of 15°C, a typical coastal water temperature for New Zealand, the predicted survival time would be about 4-5 hours before hypothermia leads to unconsciousness and drowning. Rivers and lakes are usually colder, even in summer.

## Entering cold water

1-10-1 is an easy way to remember the first three phases of cold water immersion and the approximate time each phase takes (1 minute – 10 minutes – 1 hour) (Retrieved from [www.coldwaterbootcamp.com](http://www.coldwaterbootcamp.com)).

**1 Minute – Cold Shock.** If a person enters cold water quickly, the sudden cooling of the skin by cold water also causes an involuntary gasp for breath. This may last for about one minute, and they will breathe up to ten times faster than the normal rate. This fast, shallow breathing could lead to dizziness, panic, loss of orientation and the inhalation of water, and possibly lead to drowning.

Cold water shock causes the blood vessels in the skin to close, which increases the resistance of blood flow. The heart rate is also increased, and as a result the heart must work harder, and blood pressure increases. Cold water shock can therefore cause heart attacks, even in the relatively young and healthy.

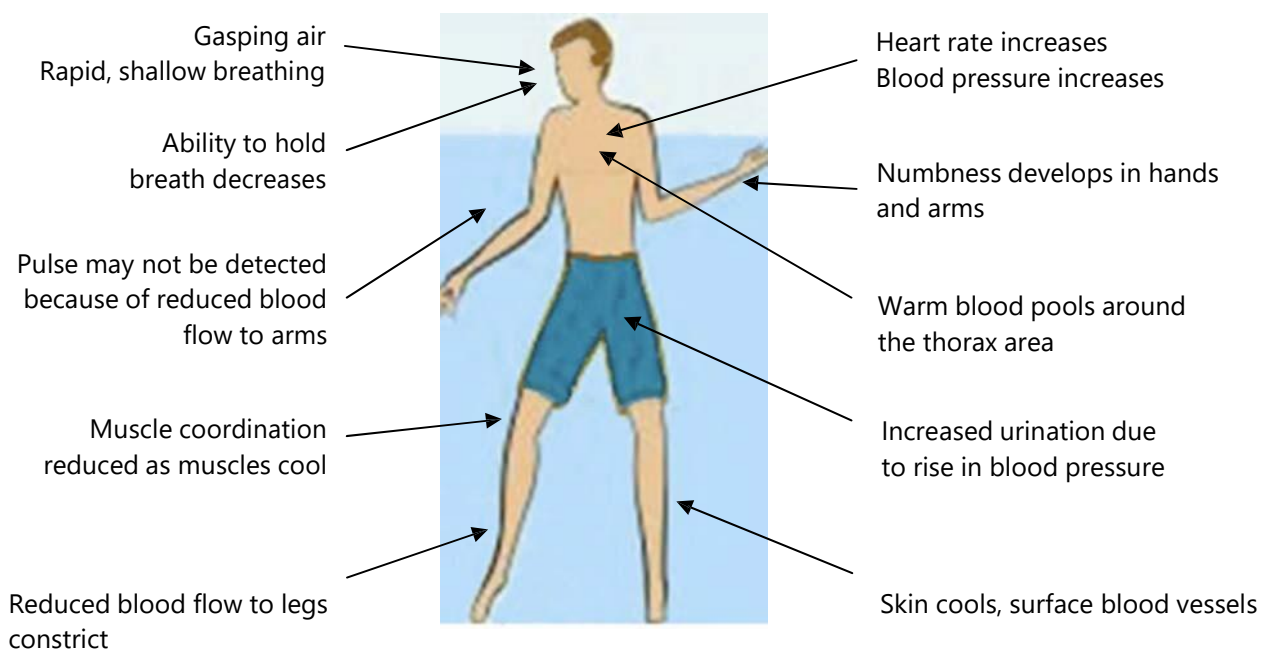
This can all happen very quickly: it only takes half a pint of sea water to enter the lungs for an adult to start drowning.

**10 Minutes – Cold Incapacitation.** Over approximately the next 10 minutes effective use of your fingers, arms and legs for any meaningful movement is lost. If a cold victim tries to swim or tread water, their body temperature will decrease faster. Warm blood from the core travels to these cold limbs and the cold blood is returned to the heart. This hastens the decrease of core body temperature. Children, because of their small size and lack of fat, will tend to lose heat faster than adults.

Lifejackets are imperative to keep the airway out of the water, and useful to reduce heat loss.

**1 Hour – Hypothermia.** Unconsciousness due to hypothermia may occur after one hour of being in cold water (below 15°C).

## What Cold Water Will Do to You



The following graph shows estimated survival times dependent on water temperature, gender, and body mass.

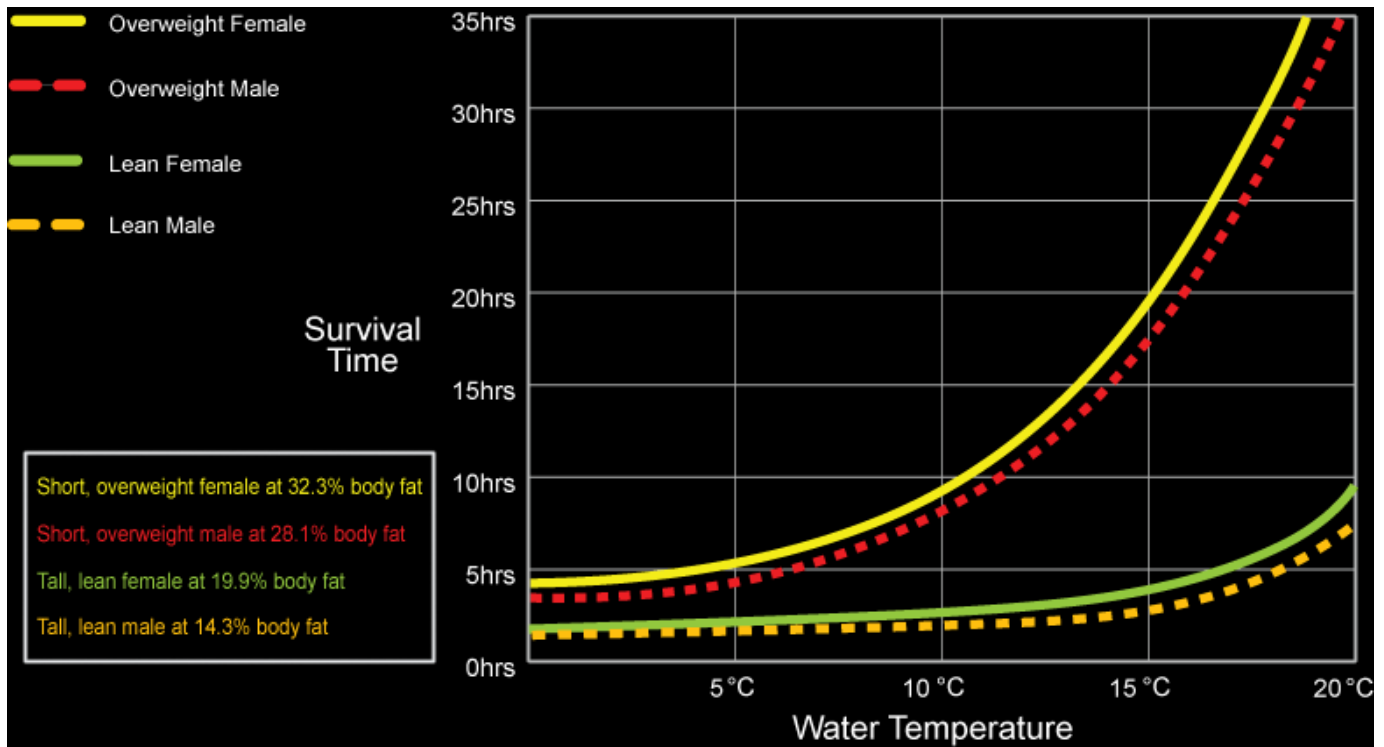


Table 1: Estimated Survival Times (Downloaded March 2018 from Cold Water Bootcamp, [www.coldwaterbootcamp.com](http://www.coldwaterbootcamp.com))

## What is hypothermia?

Hypothermia is the condition when a person's core body temperature drops below that required for normal body function. Normally the body functions at a core temperature of 37°C Centigrade (C). The temperature of the skin and muscles can vary but these changes stimulate the body's internal systems to maintain equilibrium that is homeostasis. If the body is exposed to cold conditions, it may be unable to replenish the heat loss. This is when the body could show signs of hypothermia.

## Treatment of hypothermia

On rescue, dry the victim and rewarm slowly. Remove wet clothing, and shelter from elements. Blood pressure will fall as blood flows back into the arms and legs. It is important to keep the victim horizontal, treat for shock and call for professional help. If there is no pulse begin CPR. The cold water will slow body processes (metabolism). This will allow the brain to withstand longer periods with no oxygen. Some children have been resuscitated over an hour after losing consciousness.

## Prevention of hypothermia in water

### If you enter the water unexpectedly:

- **Take a minute.** The initial effects of cold-water pass quickly so try not to panic.
- **Relax and float** on your back to catch your breath. Try to get hold of something that will help you float and adopting the H.E.L.P. (Heat Escape Lessening Position) or HUDDLE position if there are other people in the water as well.

### If you are planning on enjoying the water:

- **Wearing a wetsuit** or clothing, including a hat and some types of shoes will help to slow the onset of hypothermia.
- As heat loss is quicker in water than in air of the same temperature, it may be best to get as far out of the water as possible, for example on top of an upturned boat or at least with head and chest out of the water (depending on wind chill factor).
- **Wearing a lifejacket/PFD** will help you stay afloat, keep vital organs warmer, and increase your chances of making it through the initial cold-water shock.