

Drowning

The following definition was accepted by the **World Congress on Drowning** in 2002 and subsequently by the **World Health Organization** in 2005: "Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid" including inhaled water, or blockage or muscular contract of the trachea which prevents the individual from breathing oxygen. This definition does not imply fatality, or even the necessity for medical treatment after removal of the cause, nor that any fluid necessarily enters the lungs. The World Health Organization further recommended "Drowning outcomes should be classified as: **death**, **morbidity** (abnormal condition), and **no morbidity**." There was also consensus that the terms **wet**, **dry**, **active**, **passive**, **silent**, and **secondary drowning** should no longer be used.

Whether-or-not these defining terms are used or not used, they do describe the different physiological functions that are considered "drowning". When a person is drowning, the air passages close to prevent water from entering the lungs. This also prevents air from entering the lungs, thus depriving the victim of oxygen and eventually leading to unconsciousness and death. Usually, only if the victim has been unconscious in the water for some time do the lungs fill up with water. More commonly, the water goes into the stomach. Drowning itself is quick and silent, although it may be preceded by distress



which is more visible. A person drowning is unable to shout or call for help, as they cannot obtain enough air. The instinctive drowning response is the final set of autonomic reactions in the 20 – 60 seconds before sinking underwater, and to the untrained eye can look similar to calm safe behavior.

Near Drowning

Near-drowning is a term used to describe almost dying from suffocating under water. It is the last stage before actual drowning, which often results in death. Near-drowning occurs when you are unable to breathe under water for a significant period of time. During near-drowning, oxygen intake decreases and major body systems shut down from the lack of oxygen flow. Near-drowning victims require medical attention to prevent related health complications. Recovery is directly related to the amount of time the body was without adequate oxygen (hypoxia). Brain damage is the major long-term concern in the treatment of near-drowning victims. Patients who arrive at an emergency department awake and alert usually survive with brain function intact, although they may initially have respiratory complications. **Pneumonia** is common following near drowning and often develops within the first 24 hours.

Symptoms They can differ from person to person depending in part on how long the individual has been submerged, the person's age, and the temperature of the water. Upon rescue, some victims are alert but agitated or disoriented, while others are comatose; breathing and heartbeat may have stopped, or the victim may be gasping for breath; bluish lips and ears, cold skin, pale appearance, coughing, vomiting, and frothy pink sputum. Rapid breathing and a rapid heart rate are common during the first few hours after rescue.

First Aid 1st priority is to ensure an open airway and that the person is breathing. Open the airway by tilting the head, checking the mouth, and lifting the chin. Check for breathing for up to 10 seconds. If the person's breathing has stopped, begin rescue breathing as soon as you can. This often means starting the breathing process while still in the water. Continue to breathe for the person every few seconds while moving him or her to dry land. Once on land, give CPR chest compressions as needed. Call 911. A major high-risk group comprises young children who almost drowned and whom spontaneous respiration has not occurred for at least 5 to 10 minutes after rescue, but appear to improve rapidly thereafter. These victims must be admitted to hospital for observation, irrespective of their apparent wellbeing within several hours after rescue. Rescuers and clinicians should expect primary lung function to deteriorate within four hours of rescue in about one in 20 survivors of drowning accidents. If the syndrome is anticipated, recognized, and hospital treatment provided, prognosis is optimistic.

Laryngospasm (Dry Drowning)

In 10 to 20% of the cases, people who are submersed in cold water, instead of gasping, experience a laryngospasm which can occur if the trachea below the vocal cords detects entry of water, resulting in an uncontrolled / involuntary muscular contraction (spasm) of the laryngeal cords which causes a partial blocking of breathing in. There is some correlation to the Mammalian Dive Reflex in that all mammals may experience this involuntary reflex where the larynx closes the throat. This is not the same as having one's breath knocked out from force, or swallowing wrong and choking, nor is it related to the shock of falling into cold water and having it "take your breath away".

Symptoms Persistent coughing which continues for an extensive amount of time, or often long after water has been taken in. Abruptness of breath and chest pain. Having trouble breathing freely, even after out of the water. Confusion and sluggishness, difficulty in realizing verbal instructions, or has trouble in expressing thoughts following inadvertent water consumption. Difficulty speaking.

First Aid If laryngospasm does not abate in 30 to 60 seconds seek medical assistance immediately. It is very important to undergo treatment at a hospital, which includes removing water from lungs and resupplying oxygen as early as possible. Oxygen is usually supplied with a ventilator or respirator, while the lungs are allowed to heal from any damage sustained due to the inhalation of water.