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HAND BOOK OF DROWNING

Positioning the drowning victim

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For centuries, people falsely believed that draining water from the lungs of drowning victims was an essential part of the resuscitation process. In the 18th Century, this was the main reason why victims were positioned hanging vertically head down.

Water in the lungs

Massive aspiration during the drowning process is seldom observed in humans ¹.

Placing the victim head down does result in the drainage of some aspirated fluid, mainly after salt water drowning, but the disadvantages outweigh the benefits. In particular, such action does not improve oxygenation of the patient during a resuscitation attempt ^{2,3,4}. Although it does not take long to drain water from the lungs (1-3 minutes), such delay before resuscitation can be significant as far as outcome is concerned ^{2,5}.

During pre-hospital resuscitation, attempts at active drainage by placing the victim head down increases the risk of vomiting more than fivefold, and leads to a small (19%) but significant increase in mortality when compared with keeping the victim in a horizontal position ⁶. The presence of vomit in the airway can result in further aspiration and impairment of oxygenation by obstruction of the airways; it can also discourage rescuers from attempting mouth-to-mouth resuscitation ^{7,8}.

The abdominal thrust (Heimlich) manoeuvre should never be used as a means of expelling water from the lungs – it is ineffective and carries significant risks ⁹.

In water rescue

If resuscitation is started whilst the drowning victim is still in the water the chances of survival without sequelae are increased threefold ¹⁰. Chest compression is not a practical option, but rescue breathing can be undertaken, preferably with support, in deep water (fig 1) or at the water's edge.

Rescue from the water

Maintaining the victim in a head-up vertical position during rescue from the water reduces the incidence of vomiting¹¹ and facilitates spontaneous respiration (fig 2). In the presence of hypotension or shock, the victim should be rescued in a near-horizontal position, but with the head still maintained above body level¹². Horizontal recovery is important after prolonged immersion, particularly in cold water, when a combination of the release of hydrostatic pressure and the effect of the cold may result in severe, sometimes irreversible, hypotension¹³.

On-land resuscitation

All victims should initially be placed in a position parallel to the waterline⁶, as horizontal as possible, lying supine, far enough away from the water to avoid incoming waves. On sloping beaches or riverbanks, rescuers attending the victim should kneel with their backs towards the water so as to facilitate evaluation and CPR manoeuvres, if needed, without falling over the victim (fig 3).

During CPR, the brain is most effectively perfused with oxygenated blood if the victim is in a horizontal position¹⁴.

The unconscious breathing victim

On land, the airway of an unconscious victim who is breathing spontaneously is at risk of obstruction by the tongue and from inhalation of mucus and vomit. Placing the victim on the side (recovery position) helps to prevent these problems, and allows fluid to drain easily from the mouth.

The Basic Life Support Working Group of the International Liaison Committee on Resuscitation (ILCOR) agreed on six principles that should be followed when managing the unconscious, spontaneously breathing victim¹⁵: 1. The victim should be in as near a true lateral position as possible with the head dependant to allow free drainage of fluid; 2. The position should be stable; 3. Any pressure on the chest that impairs breathing should be avoided; 4. It should be possible to turn the victim onto the side and return to the back easily and safely, having particular regard to the possibility of cervical spine injury; 5. Good observation of, and access to, the airway should be possible; and 6. The position itself should not give rise to any injury to the victim.

Drowning Positioning Recommendations according to the setting and level of consciousness

SETTING	LEVEL OF CONSCIOUSNESS	
	Conscious victim	Exhausted, confused or unconscious victim
In-water (during rescue)	Position according to the rescue technique chosen	Whenever possible keep the victim's face out of the water, extend the neck to open the airway and keep it clear during the rescue process (fig 1).
Recovery to dry land	Transport vertically with head up (fig 2) (Keep horizontal if prolonged immersion or cold water)	Transport in as near a horizontal position as possible but with the head still maintained above body level ¹² Keep airway open. (Keep horizontal if prolonged immersion or cold water)
Dry land	Maintain supine with head up.	<u>If CPR required</u> : Place victim supine, as horizontal as possible, and parallel with the waterline (fig 3). <u>Unconscious but breathing</u> : Place in recovery position (fig 4)

NOTE: If cervical spine injury is suspected, see appropriate chapter.

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PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

