

The Rescue of a Diving Casualty – A Discussion Paper

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The UKDMC recommends that in-water ventilation should no longer be required as part of the rescue of a casualty recreational diver. The reasons for this recommendation are set out below:

- There is no effective way of carrying out resuscitation in drowning persons underwater. Casualties should be brought to the surface as quickly and safely as possible, bearing in mind the risks to the rescuer and the likelihood of pulmonary barotrauma and decompression illness if the casualty has been scuba diving and therefore breathing gas at more than one atmosphere pressure. In divers, the reason for resuscitation is less likely to be drowning than in swimmers, and more likely to be due to a circulatory problem, such as immersion pulmonary oedema, cardiac arrhythmias or pulmonary gas embolism. Pulmonary oedema in particular can make ventilation by mouth particularly difficult.
- The question whether in-water resuscitation (IWR) at the surface lowers mortality and the incidence of severe neurological damage (SND) was addressed in a retrospective study [1]. The conclusions were that IWR was associated with an improvement in the likelihood of survival but that there was a high incidence of SND in survivors.
- A manikin study [2] showed that IWR was associated with a delay in the rescue procedure and considerable aspiration of water by the manikin even in a pool when experienced lifeguards performed the rescue. The authors recommended that laypersons should not perform IWR because the effectiveness of ventilation was poor, there was considerable aspiration of water, and problems associated with physical exhaustion.
- Trained individuals should only consider in-water ventilation (with the support of a buoyant rescue aid) if there is likely to be a delay in reaching land or a rescue craft. The latest guidelines issued by the European Resuscitation Council [3] say that “*the rescuer may start ventilation when trained to do so before moving the victim to dry land or rescue craft*” but in divers the success or otherwise of rescue breaths may be extremely difficult to assess in a timely manner, owing to the diver wearing a wet- or drysuit together with other equipment, such as a buoyancy compensator (BC), that may cover the anterior chest wall partially or completely. Additionally, the diver’s wet- or drysuit, BC, and other equipment will make ventilation of the chest more difficult by restricting ventilation. Add to this scenario the fact that most divers, whether rescue trained or not, will not have had recent (within the last month (or even year)) practice at resuscitation, and the chance of successful resuscitation in-water becomes rather remote. For the vast majority of divers conducting an in-water rescue, the safest method of rescue would be to tow the victim to the shore or the rescue boat. Only if the rescue diver has had recent rescue training in open water conditions should rescue breaths be attempted on the surface. Under these conditions, swimming between rescue breaths should not be attempted; success is more likely if good breaths are given whilst the rescue diver and victim remain in the same place in the water and await arrival of a rescue vessel/dive boat. Maintaining the casualty’s head above water, and conserving strength for the effort of getting the casualty into the rescue vessel must be the priorities.

References

1. Szpilman D, Soares M. In-water resuscitation – is it worthwhile? *Resuscitation* 2004;63:25-31.
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3. Truhlar A, Deakin CD, Soar J *et al.* European Resuscitation Council Guidelines for Resuscitation 2015. Section 4. Cardiac arrest in special circumstances. *Resuscitation* 2015;95:148-201.