

Freediving Safety

By Walter Steyn (revised 26/11/2012)



Freediving should always be done with a competent buddy for safety. For recreational freediving and spearfishing it is highly recommended to dive in pairs and dive one up, one down. The buddy watches the diver from the surface, then waits at least 30 seconds after the diver surfaces staying close by to make sure they are ok before diving themselves. Diving under close supervision of freedivers trained in rescue techniques is critical when performing apnea or competition style freediving. This type of freediving includes - diving for depth, static breath-holds or dynamics in the pool. With any type of freediving there is a risk if you hold your breath too long that you can lose consciousness which is called a blackout. The freediver should always try to dive within their limits, but for safety the buddy should recognise the danger signs and be prepared to know what to do in case a blackout does occur. The main thing in a blackout situation is to get the persons airway out of the water as soon as possible. In most cases the diver will then come to and start breathing on their own within 5-10 seconds. Without a buddy to help the diver will not be so lucky if the airway remains underwater. A summary of the main points :-

- **NEVER dive alone, always dive with a buddy**
- **If your buddy does black-out, get their airway out of the water immediately**
- **Remove their mask, support the head**
- **Say their name, encourage them to breathe**
- **If they don't come to and start breathing within 20 seconds their larynx may be shut, use 1-2 effective breaths of mouth to mouth resuscitation to re-open the airway.**
- **After a BO the diver should cease diving for the day and seek medical attention.**

On reaching the surface you need to support the persons head, remove their mask, blow across the face & eyes, talk to them, say their name and encourage them to breathe. We have sensors around the eyes, so removing the mask and blowing air across the eyes & face is a stimulation for the body to breathe. When someone blacks out you shouldn't shake them, slap them in the face or shout at them. The brain has shutdown, and is waiting for a safe moment, ie being in air and not water, to start breathing again. Shouting, getting slapped in the face may feel less safe so doesn't help the person coming round. In any case it doesn't make the person feel good when they regain consciousness. In a BO the first thing to go and the last thing to come back is your vision, the hearing is the last thing to go, so you can usually hear someone before you see them. Because of that saying the persons name like "Ok Dave, breathe now" can encourage them to come to. It is similar to when someone is sleeping, they often still respond to their own name.



On the Surface



Blackout rescue

The brain needs oxygen to stay conscious. If a diver stays too long underwater the oxygen level can get so low that the brain simply shuts down. This is commonly referred to as SWB - Shallow Water Blackout. A more accurate term would be Hypoxic blackout or just blackout (BO). A buddy must stay alert and watch out for signs of blackout. These include the diver releasing air, loss of direction, going limp not moving, erratic movement/seizures, failing to respond to a signal and eyes rolling back. The main thing in a BO situation is to get the person's airway out of the water immediately. If a diver suffers a blackout underwater the safety diver should bring the diver up whilst lightly supporting the head and closing the jaw. This further protects the airway to prevent water getting into the lungs. You can support the body by clamping the forearms down onto the divers chest. *See photo on the left - **Blackout rescue**.*

Be aware that in a bad black-out, particularly if it occurred underwater, the persons Larynx may close shut as a safety mechanism. While this prevents water getting into the lungs, it may stop the person from being able to take a breath on the surface. This takes positive pressure to over come, ie mouth to mouth resuscitation. You can actually feel it "pop" open. In most cases it usually only takes a single breath and the person should recover. But you must make sure the breath gets in. **After a BO, if the person does not start breathing on their own within 20 seconds, start mouth to mouth resuscitation.** Doing a first aid course is a good idea to learn how to do this. If the diver has gotten water into the lungs it's very important to seek medical attention. Sea water in the lungs can cause fluid build-up and lead to secondary drowning.

Depth Diving Safety



Diving on a line

For maximum safety when performing deep dives, the safety diver follows the diver up the last 10m. *See photo on top of page.* This is the danger zone of when a blackout is most likely to occur. Even when the diver is up the buddy must keep watching the diver since it is still possible to blackout several seconds after surfacing. Competitive freedivers use a rope or line when training for deep diving. This usually consists of a float on the surface with the line tied on and a weight on the end of a line. *See photo left.* The diver follows the line all the way down and up. This makes sure that the safety diver knows exactly where the diver comes up. It also gives the diver the option of pulling themselves up by rope in case they cramp up or loose a fin. In competitions the diver also wears a lanyard attached to the wrist or belt with a short leash and carabineer` which clips onto the line. This ensures the diver doesn't lose the rope in bad vis or with a current. For static breath-holds in a pool, safety divers use a tapping system to check on the diver. The safety diver taps the diver on the shoulder at set intervals. The diver must give an ok signal back or the safety diver will pull them out of the water.

One up, One Down

- Freediving safety for Spearfishing and Recreational freediving

When spearfishing or freediving recreationally, divers won't be using a rope or guide line. Keep in mind most of the same safety principles will still apply. The golden rule is to **dive one up, one down**. Whilst one diver is down, their buddy should be keeping an eye on them from the surface, or know at least roughly where they were last spotted if the vis is bad. When the diver surfaces their buddy should keep watching them for at least 30 seconds to make sure they are ok. The first 10 seconds upon surfacing is still the biggest danger zone for blackouts because of the delay between taking a breath and that oxygen reaching the brain. It would also be a good idea for the diver to actually face their buddy upon surfacing and giving them a quick ok after about 10 seconds to give their buddy more feedback. After checking that their buddy is ok, and its been 30 seconds since surfacing, the divers can swap over.