

SHALLOW WATER BLACKOUT

Factsheet

What is Shallow Water Blackout?

Simply put, Shallow Water Blackout is a faint underwater. All swimmers are susceptible to Shallow Water Blackout regardless of ability, health or age, in swimming pools or open water.

Within the UK, very little is known about Shallow Water Blackout and the risks associated with swimming underwater following exercise. A Shallow Water Blackout is brought on when:

- The body has been working extremely hard - exercising lowers the oxygen level in the body;
- By taking deep breaths in preparation to swim under water, the body expels carbon dioxide from the lungs;
- The body's desire to breathe is brought on by a build up of carbon dioxide in the lungs - we breathe carbon dioxide out to breathe oxygen in;
- The lungs have reduced levels of carbon dioxide, and this fools the brain into thinking that there is not yet the need to breathe;
- The brain is low on oxygen from the initial hard exercise and this brings on a faint.

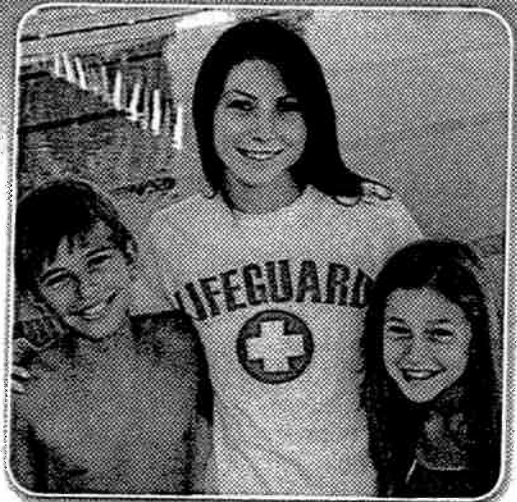
Shallow Water Blackout is a Silent Killer.

On land, a faint would send oxygen racing to the brain and 'bring round' the patient. However, in a swimming pool the swimmer inhales water, and without immediate aid will subsequently drown.



Every year, at least fifty children die from accidental drowning within the UK, in fact drowning is the third most common cause of accidental death in young people under the age of 16 in England and Wales*. Whilst most deaths are recorded as 'Accidental Death', seldom are cases investigated as fully as that of Luke Jeffrey who died from drowning following Shallow Water Blackout in 2006.

* ROSPA Press Release October 2006



Do Not Swim Alone!

When swimmers faint they must be rescued immediately to prevent drowning. How could you be rescued if you were swimming alone?

Ask yourself this: You're in a pool, river or the sea, and you're on your own. You may be a fit, accomplished, competitive swimmer - but what if you faint? Who would rescue you? Who would know you are in difficulty? How long would it take to be rescued? You would need to be brought to the water's surface within seconds - otherwise your lungs will fill with water and you will drown.

Even confident, ambitious swimmers can drown - you don't have to be a novice or poor swimmer to find yourself in difficulty. Supervision is vital at all times.



Shallow Water Blackout FAQ

Why can't you tell when a Shallow Water Blackout is about to happen?

Normally, when we push ourselves really hard we know when we are at our limit - we "feel the pain". This is especially the case with exercising whilst holding our breath - we feel an overwhelming desire to breathe, caused by the rising level of CO₂. In Shallow Water Blackout, the CO₂ level remains low and we don't feel the urge to breathe even though the brain is critically short of oxygen. Because we have no warning signal to obey - no strong desire to breathe - we don't know how short of oxygen we are and we suddenly faint. It's a bit like driving a car whose fuel gauge is stuck on half-full - by the time the engine cuts out it's too late to fill the tank!

How long does it take to drown?

This varies from person to person. There is some evidence that the conditions that cause Shallow Water Blackout may result not only in a faint caused by lack of oxygen to the brain but also in abnormal heart rhythms which may be particularly lethal. Pathologists recognise that people are sometimes rescued from water within a short time of immersion but cannot be resuscitated whilst others may survive many minutes underwater. A person who drowns because they cannot swim would spend a minute or two struggling and inhaling water before running out of oxygen and losing consciousness; in Shallow Water Blackout a person will already have run out of oxygen by the time blackout happens; after that, death, or permanent brain damage, will happen quite quickly.

How does the body get tricked into thinking it has plenty of oxygen?

Usually, we let our bodies take control of breathing - we don't have to think about when to take a breath, it's done automatically. This way the body can best regulate the levels of oxygen and carbon dioxide. Of course, sometimes we take control of breathing for ourselves and we need to know if we are taking enough breaths. The way we know this is by the sensation we get when our carbon dioxide level gets high - an overwhelming desire to breathe. For some reason we don't have the same feeling when our oxygen level gets low. If we hyperventilate, or possibly if we breath-hold after prolonged vigorous exercise, our oxygen levels can go critically low whilst our carbon dioxide level isn't high enough to make us uncomfortable. By doing these things - breath-holding and hyperventilation - we are going outside the body's "design limits" which is hazardous. It is worth remembering that hyperventilating won't actually get any more oxygen into your body - it just gets rid of carbon dioxide.

I am young and fit, talented and strong swimmer, why should Shallow Water Blackout worry me?

First, the whole point of this website is that you should be able to push yourself to your limits safely, without being worried by Shallow Water Blackout. No-one is telling you to give up competitive swimming. Those who are most at risk are those who are fit and talented who are pushing themselves to achieve more. If that's you, you should train with qualified supervisors, be aware of the risks of hyperventilation before prolonged underwater swimming, and never swim alone. Scuba divers don't dive alone - they have buddies. The reason for this is that if you are underwater and something happens to you or your gas supply, you are likely to die. Prolonged underwater swimming carries similar dangers but they can usually be avoided with little effort and no adverse effect on your performance.

How often does it happen?

Shallow Water Blackout has been recognised for decades in Australia where it was first described in deaths of young, fit snorkelers. It is increasingly recognised in the US where some pools now carry warnings, and across the world where there have been detailed investigations of swimming deaths. Underwater video cameras are now being used in some UK pools to alert lifeguards of a Shallow Water Blackout as it happens, and an immediate rescue limits the chance of death or brain damage.

Does Shallow Water Blackout only occur in shallow water?

No. The term 'Shallow Water Blackout' is a medical term for a faint in any depth of water (brought on by a lack of oxygen and carbon dioxide). You could be in the deep end of a swimming pool, outside in open water, or even in the bath.

What can my Club do to protect members from Shallow Water Blackout?

Club officials, teachers and parents should discuss the risks of hyperventilation, over-exertion during swimming and prolonged breath-holding with swimmers of all ages; supervise swimmers at all times; promote the Shallow Water Blackout website.