Shallow Water Black Out

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What is Shallow Water Black Out?

SWB is loss of consciousness caused by oxygen starvation to the brain in water less than 5 meters deep

Can also be called cerebral hypoxia or hyperventilation proceeding extended breath-holding

Thought to be the number one cause of drowning in experienced swimmers, specifically young adults

Unlike a regular drowning where there may be 6-8 minutes before brain damage and death, there are only 2.5 minutes before brain damage and death in shallow water black out due to the reduction in the oxygen to the brain BEFORE the black out

In many cases the swimmer hyperventilates, swims underwater for a relatively short distance, and dies silently after black out

The Role of Hyperventilation

Over breathing involves faster or deeper than normal breathing with the MISTAKEN belief that this increases body oxygen (O2) saturation

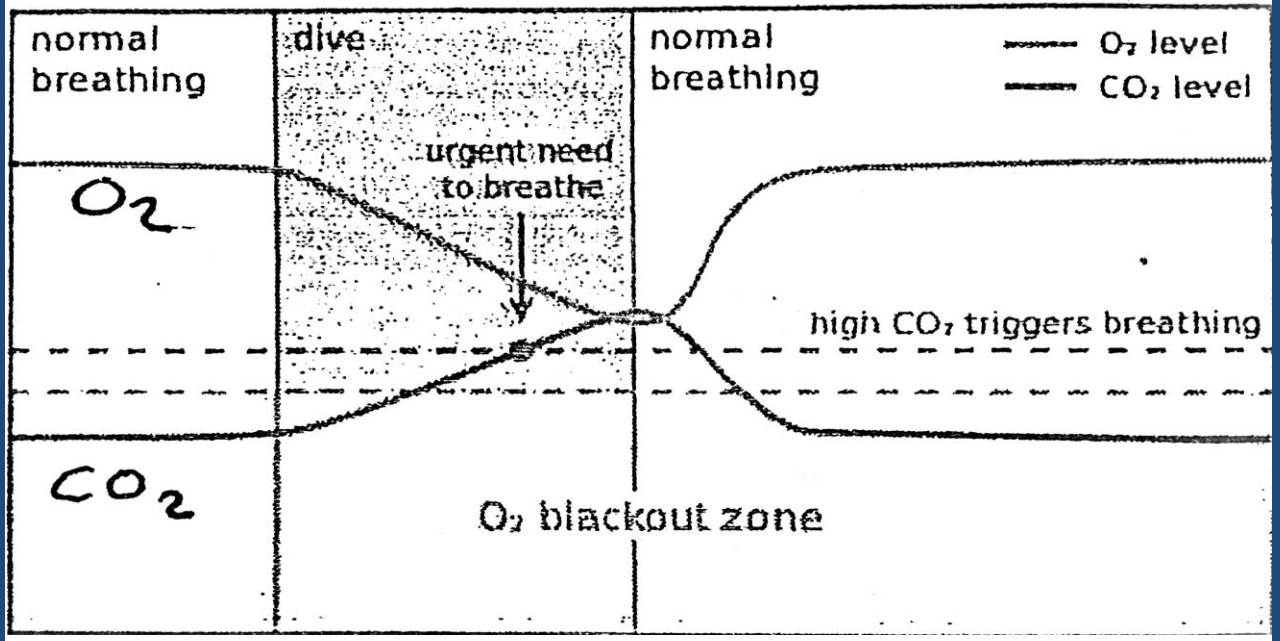
Hyperventilation effectively drives DOWN the carbon dioxide level with as few as 4-5 breaths (HYPOCAPNIA)

The urge to breathe or exhale is triggered by RISING CO2 in the bloodstream

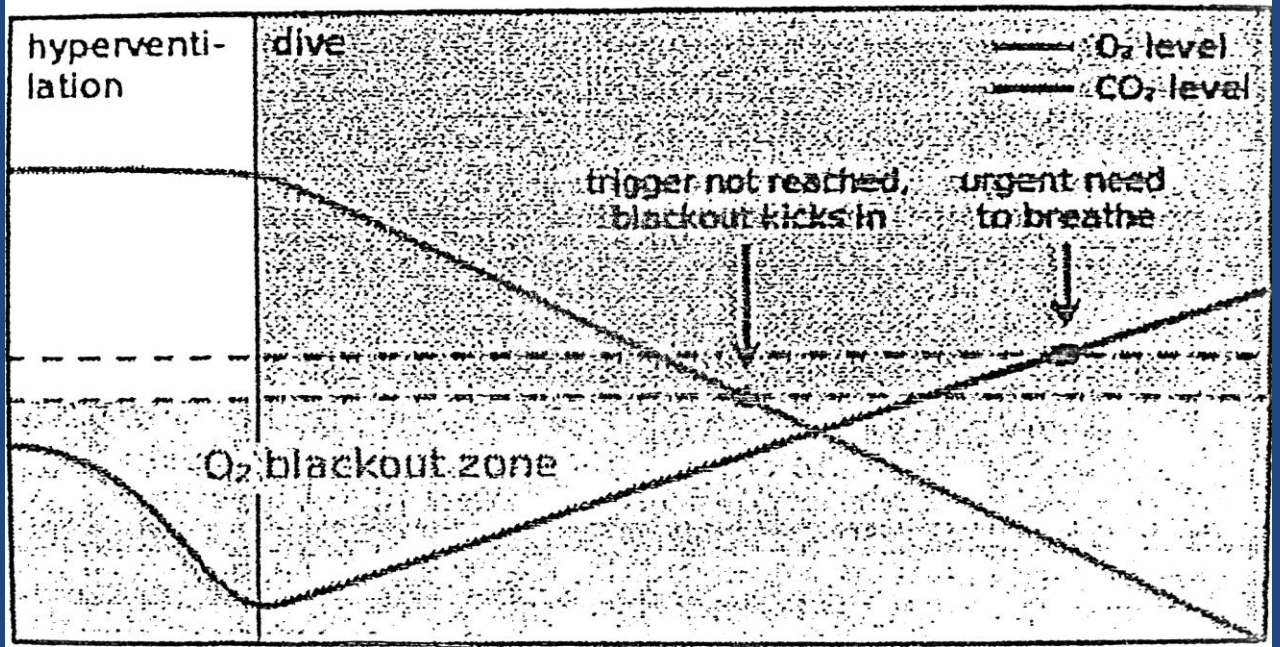
Under water the low CO2 levels rise very slowly and the starting point is so low that there is a delay in the respiratory drive to breath causing the swimmer to be susceptible to a blackout from hypoxia

In many cases the loss of consciousness triggers a deep breath under water flooding the lungs with water

Normal dive



Dive with hypocapnia



How can we reduce the risk?

Education … swimmers, parents, coaches, lifeguards

NEVER swim or train alone

Before diving take a minute to relax and re-equilibrate oxygen and carbon dioxide levels

Do not encourage prolonged breath holding or hypoxic training

Do not encourage hyperventilation…it does not improve oxygen capacity

How can we reduce the risk?

Teach swimmers to recognize the urge to breath

Do not allow swimmers to practice breath holding while floating face down or while sitting on the bottom of the pool, the increased relaxation increases the risk of black out

Recognize that repeated hyperventilation during the course of training sessions increases the risk of black out

Recognize that increased exertion under water increases the risk by driving the oxygen level down faster

Develop a Safety Plan

USA Swimming has already instituted safety courses for coaches and background checks for coaches and other adults who have contact with our swimmers…Make sure all USA Swimming required safety regulations are up to date

Insurance … Look at all insurance policies for your facility as well as for your board of directors if applicable

Think about specifics about your team and the day to day operation

Post reminders on the walls of the pool

Educate your swimmers about daily safety protocol

NBAC Safe Practices and Procedures

We ask for total support from all parents at our opening team meeting

We set up a plan for 20 minutes BEFORE practice and 20 minutes AFTER practice

- Arrival and departure from each facility
- Upon arrival at the facility
- During practice
- Post-Practice
- During Dryland
- During time in the locker room

Hold team day activities throughout the year to educate parents

Coach in service training and meetings