Safe breath-hold diving requires an appreciation of the risks involved and strategies for protecting yourself. Here are some points for your consideration:

**What we know:**

Breath-hold diving has evolved from a not-so-harmless children’s game into a pseudo-sport that involves trained athletes who participate in underwater breath-holding as a challenge, or to try and increase their oxygen reserve and thus their competitive edge.

In reality, hyperventilating adds very little oxygen to an individual’s reserve. What it does is force carbon dioxide (that signals the brain to breathe) out of the lungs.

This technique is known to cause severe hypoxia, which produces muscle relaxation and respiratory-system suppression.

Death can occur within two-and-a-half minutes after breathing has stopped in a drowning that does not involve breath-holding.

Breath-hold diving is also a popular children’s activity—both static, where the children see who can hold their breath the longest, and dynamic, where they see who can swim the farthest without taking a breath. Both forms place the children at risk and increase a lifeguard’s burden.

**AN UNCONSCIOUS** drowning victim probably will not appear significantly different from a motionless, breath-holding person. Permitting such behavior increases the criticality of lifeguard scanning and decreases the level of safety in a pool.

Anyone who practices competitive and repetitive underwater breath-holding is at risk for shallow-water blackout.

**What we don’t know:**

- How many programs endorse and/or allow underwater breath-holding.
- How many individuals (swimming coaches, athletes, and employees) are educated properly.
In this graphic, hyperventilation before the dive has artificially depressed CO\(_2\) levels, without elevating the O\(_2\) level. Hence, this pre-dive state is likely to result in shallow-water blackout. Note how the O\(_2\) level drops into the diver’s blackout zone before the CO\(_2\) can rise enough to force the diver to resurface and breathe. The dive is extended a little, but this diver may not survive.

How many pools actively correct children who play such games.

*What must be remembered:*

The dangerous practice of underwater breath-holding should not be implemented in any type of aquatic swim program. It also should be prohibited in all lap, open, public, or family swim sessions.

All types of breath-holding are dangerous and should be prohibited, including static, dynamic and hypoxic training.

Hypoxic training and hyperventilation do not have to occur for shallow-water blackouts to occur. Kids playing breath-holding games and swimmers swimming as far as they can underwater also are dangerous activities and should be prohibited.

Any vigorous exercise done underwater will limit the amount of time one can stay underwater. Swimmers should be encouraged to head to the surface well before their limits are exceeded.

The risks of shallow-water blackouts should be explained to children, along with how breath-holding games can lead to blackouts.

It’s important to increase awareness of the potential risk factors associated with underwater breath-holding.

An increase in carbon-dioxide levels will signal the brain that it’s time to breathe. Hyperventilating depletes the carbon-dioxide level, which fools the body into believing it doesn’t need oxygen and can lead to a loss of consciousness, which can result in death.

Teaching material should be updated to increase awareness of why this practice should be prohibited.

It’s highly encouraged that swimming coaches, lifeguards and all hands be educated on the possible risk factors associated with this technique.