

**A** fatal drowning by a Pacific Air Forces staff sergeant last summer underscores the need for education on a phenomenon called “shallow-water blackout.”

According to the Naval Safety Center, shallow-water drowning is caused by oxygen starvation brought on by hyperventilation combined with underwater breath holding.

The Eielson sergeant was on vacation with his family at a popular California lake. While swimming in shallow-water, the NCO was entertaining several children by alternately holding his breath under water, then jumping up out of the water.

The children eventually got tired of watching and went to play on another side of the island they were playing by. When the sergeant didn't follow them after a short period of time, the children came back looking for him, and upon not being able to locate him, yelled at their grandfather for help who then called 911. A diver later found the staff sergeant's body in 8 feet of water that evening.

Officials believe he was a victim of shallow-water blackout.

During the process of jumping up and down in the water and holding his breath, the sergeant may have inadvertently breathed in a manner similar to hyperventilating, causing a low carbon dioxide level in his blood. Then, as he went under for the final time, he stayed under too long because he did not get the normal sensation to breathe until it was too late.

According to Naval Safety Center publications, shallow-water blackout occurs because hyperventilation lowers the amount of CO<sub>2</sub> in the blood and fools the body into believing it doesn't need to breathe even if available oxygen is nearing depletion. Someone who is exercising in the water compounds the problem by increasing the rate of oxygen consumption. The low oxygen levels in the blood stream can cause loss of consciousness.

Swimmers in this unconscious state often will fool observers because they don't appear to be in danger and appear to make coordinated movements, but at that point, brain damage from a lack of oxygen is only minutes away.

Some tips to avoid shallow-water blackout include:

- Don't hyperventilate while swimming
- Recognize that any strenuous exercise done under water will drastically limit the time one can stay underwater, and people should head to the surface much sooner
- Include shallow-water blackout as a topic prior to all training for water activities
- Explain to children at a young age what shallow-water blackout is and why they should never practice breath-hold diving
- Aquatics managers and life guards should prohibit swimmers from engaging in this activity

Don't let your vacation turn tragic playing a simple children's game in shallow water. Know the risks of shallow-water blackout. For more information about shallow-water blackout safety, people should contact their base safety office. ▶

# Shallowwater Death

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