

The Ori

Hypoxic Hypoxia Symptoms

- Dizziness
- Euphoria
- Cyanosis (fingernails, lips)
- Poor judgment
- Numbness
- Tingling
- Loss of coordination
- Blurred vision
- Delayed reaction time

Effective Performance Times at Altitude

Altitude	Effective Performance Time
● 18,000	20 to 30 minutes
● 25,000	3 to 5 minutes
● 30,000	1 to 2 minutes
● 35,000	30 seconds to 1 minute
● 40,000	15 to 20 seconds
● 43,000	9 to 12 seconds

Class A Mishaps Related to Hypoxic Hypoxia

1989—F-14—Aircrew removed masks and helmets unaware of pressure leak inside of aircraft, became hypoxic and lapsed into unconsciousness. Aircraft departed controlled flight and hit ground.

2001—FA-18—Pilot became hypoxic, lost consciousness and crashed aircraft.

Hypoxic Hypoxia Treatment

- Breathe 100% oxygen
- Descend aircraft below 10,000 feet

By Lt. Derek Nalewajko

A good deal, cross-country flight from Lemoore to Oceana was the original plan. What happened on that trip caused the scare of my life and was the closest I have come to death.

The weather en route to Oceana was forecast to be good, and I looked forward to getting back to Virginia Beach and meeting old friends. Another IP and I took two Cat. 1 WSOs for their first flight in a Super Hornet. Neither student had flown in seven months, so I expected this trip to be a good warm-up for them.

The launch and climb-out were uneventful, and we leveled off at FL370. Since we flew wing for the first leg, I started to walk the student through all the displays and menus. After two minutes at altitude, we heard an aural-caution tone, the familiar deedle-deedle, but with no associated caution on the DDI. After we checked all our instruments, we figured this tone probably was an anomaly. We now were triggered to look at the DDI to see if a caution was displayed and quickly removed. Two minutes later, we heard two more caution tones, with nothing on the DDI. It now looked like my good deal was becoming another weekend in Lemoore.

A minute later, we got our last aural tone, with an OBOGS DEGD caution on the DDI. This caution was displayed for only four or five seconds before it disappeared for good.

Being a Tomcat transition guy, when our LOX bottle was empty, we would get the familiar lack of flow, telling us the bottle was empty. Unlike the LOX system, with OBOGS, you still can get “good” flow, regardless of the quality or oxygen content. The caution should have sent us into a heightened sense of urgency. I thought there was a faulty indicator. We told our lead about the problem and that we had had three deedle-deedles before the OBOGS DEGD.

This is where the situation got interesting. Our lead asked us to descend immediately and to pull the emergency O2 green ring. Our bold-face for an OBOGS DEGD is:

1. Emergency oxygen green ring—PULL.
2. Descend rapidly below 25,000 feet
3. OXY FLOW knob(s)—OFF.

Not realizing I already was hypoxic, I asked him to coordinate the break-up. I was unaware of the hard time I had conveying my intentions to lead. Still not seeing an OBOGS DEGD caution, I was more concerned I would not be drinking at the club in Oceana that night.

As my lead started to talk to LA Center for the break-up, I realized I was extremely hypoxic. I checked my finger nails for the traditional blue under the nail; I knew I was in trouble when I could not focus enough to see them. I immediately started a rapid descent to about 50 degrees

ginal PLAN



Photo by Matthew J. Thomas

nose-down, as I scrambled to pull my emergency O2 green ring. I was so impaired from the lack of oxygen, it took me about 30 seconds to find the green ring. I remember pulling the ring, but I could not tell whether it was on or not; I could not focus enough to read the indicator.

Passing through FL340 in the HUD, I felt like it took more than two minutes to descend from FL370. I remember an overwhelming feeling of panic because, now, my hands were shaking, and my vision was going in and out—like the TV snow effect. I was on the verge of passing out, and it felt as if I could not get down fast enough. Fortunately, there was a solid layer from 20,000 to 6,000 feet over all of R-2508. Somewhere below that cloud layer is mountainous terrain. As we started our moving-map penetration into the goo, my emergency O2 ran dry, and I had to turn back on the flow knob. After recreating the events, we estimated the seat-pan O2 lasted for two or three minutes, a far cry from the advertised 10 minutes. My seat-pan O2 was empty, and my hands still shook, but my vision was coming back.

During this entire time, ATC and my lead tried to contact us on the radio. I never heard a call for a full three minutes. We broke out of the goo at 2,000 feet AGL in Panamint Valley. I finally heard ATC call when we were level at 2000 feet. We quickly landed at China Lake.

Postflight maintenance found that the front cockpit “B nut” was loose and was not providing adequate O2 flow at altitude.

There are many lessons learned from this event. First, regardless of how long your OBOGS DEGD caution is displayed, you have to assume you are not receiving good O2. Second, the every-four-year, physiology chamber ride saves lives. I have no doubt without this training, I would not have realized my severe state of hypoxia.

The third and probably the most eye-opening lesson is how quickly hypoxia can happen without realizing it. My student got the FAM-1 from hell, while I got a new appreciation for the dangers of hypoxia. 🦅

Lt. Nalewajko flies with VFA-122.

BRAVO Zulu



AW2 Matthew Jirrels

During a crew swap to Proud Warrior 431, AW2 Matthew Jirrels discovered the pressure-differential indicator (PDI) for the main-gearbox filter was activated. A check of the indicator is not required by NATOPS during a hotseat event. Left undetected, a pressure differential can lead to a loss of main-gearbox-oil pressure. Petty Officer Jirrels spotted a condition that could have led to damage to the aircraft or loss of aircraft and crew.