

Diving After Flying (PADI & DAN)

PADI

- Flying after Diving Recommendations For Dives within the No-Decompression Limits
 - Single Dives: A minimum preflight surface interval of 12 hours is suggested.
 - Repetitive Dives and/or Multi-Day Dives: A minimum preflight surface interval of 18 hours is suggested.
 - For Dives requiring decompression stops: A minimum preflight surface interval of greater than 18 hours is suggested.

DAN Medical Research

DAN FLYING AFTER DIVING

In the past, guidelines for flying after diving were quite varied. For example, a single no-stop dive, the U.S. Navy recommended a 2-hour surface interval time (SIT), DAN recommended 12 hours SIT, and the U.S. Air Force recommended 24 hours SIT.

A focal point in DAN's research is repetitive dives across the range of depths common in recreational diving, using a series of different surface intervals. Researchers analyze experimental data to develop a model for estimating decompression risk at the Center for Hyperbaric Medicine and Environmental Physiology at Duke University Medical Center.

For this study, more than 500 subjects participated in the experiments at the Center for Hyperbaric Medicine and Environmental Physiology at Duke University Medical Center. Dives spanned the typical recreational depth range: 40 fsw (feet of seawater), 60 fsw, and 100 fsw, and dive times were near the recommended recreational limits. Researchers tested both single and repetitive dives.

Following the dives, participants took a four-hour flight at a simulated altitude of 8,000 feet in the chamber. This is the maximum cabin altitude allowed by the Federal Aviation Administration for pressurized commercial aircraft.

The objective of the study was to estimate the relationship between the pre-flight surface interval and DCI incidence for each dive series. A pre-flight surface interval was accepted or rejected within the study based upon the number of DCI incidents and total exposures. Acceptance and rejection rules were chosen to allow mild DCI but limit more serious DCI. The Duke Institutional Review Board of Duke Medical Center approved these rules.

All subjects were dry, and at rest, throughout the dives and flight. The subjects were certified recreational divers who went through medical history reviews and physical examinations by a DAN diving physician. In addition, they had to be at least 18 years old, not pregnant if female, and body composition must be within 40% of their ideal weight. Subjects were eligible for more than one study as the profiles changed, but a subject could participate in only one profile series.

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DAN FLYING AFTER DIVING : RESULTS

The study was conducted from 1993 to 1999 for 802 exposures. There were 40 DCS (decompression sickness) incidents (5%), of which 21 were moderate DCS, 18 mild DCS, and 1 serious DCS.

Data were presented at a Flying After Diving Workshop at DAN in May 2002 and the following guidelines were the consensus. They apply to air dives followed by flights at cabin altitudes of 2,000 to 8,000 feet (610 to 2,438 meters) for divers who do not have symptoms of decompression sickness (DCS). The recommended preflight surface intervals do not guarantee avoidance of DCS. Longer surface intervals will reduce DCS risk further. For a single no-decompression dive, a minimum preflight surface interval of 12 hours is suggested. For dives requiring decompression stops, there is little evidence on which to base a recommendation and a preflight surface interval substantially longer than 18 hours appears prudent.

A second flying after diving study began in 2002 with support from the U.S. Navy. The study is investigating additional dive profiles and oxygen breathing in the surface intervals as a possible method for making the surface intervals shorter