



The Incidence of Decompression Illness (DCI) within the Military Population of Okinawa

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INTRODUCTION

The Ryukyu Islands lie ~900 miles south of Tokyo. The military population on the main island of Okinawa includes 40,000+ Marine, Air Force, Navy, Army, and dependents. There is hypobaric and hyperbaric chamber training as well as recreational diving. Three major vendors offer tank fills for servicemen (either free or at reduced rates). Assuming one tank to one dive, tank fills offer a reasonable surrogate for total dives. Since, the recompression chamber on Kadena AB treats all military DCI, incidence of DCI can be estimated.

METHODS

Hypobaric and hyperbaric chamber training records were collected from 2000-2008. The tank fill records of the three vendors were collected. Torii Station had monthly records from 1997-2008 and Kadena Marina had records from 2004-2008 (for 1997-2003, monthly tank fills were estimated). Tsunami Scuba had compressor time records; an estimate of monthly tank fills was generated. All DCI treatment records were collected from 1997-2008 (from files at Kadena AB and Brooks City-Base).

Incidence of Decompression Illness (DCI) within the Military on Okinawa

Exposure	Type of DCI (incidence/number of cases)			Total
	Type I	Type II	AGE	
Hypobaric Chamber (2000-2008)	0.18% (10)	0.05% (3)	0.0% (0)	0.24% (13/5,517)
Hyperbaric Chamber (2000-2008)	0.14% (2)	0.28% (4)	0.0% (0)	0.41% (6/1,448)
Recreational Diving (1997-2008)	0.005% (25)	0.012% (61)	0.002% (11)	0.019% (97/500,474)

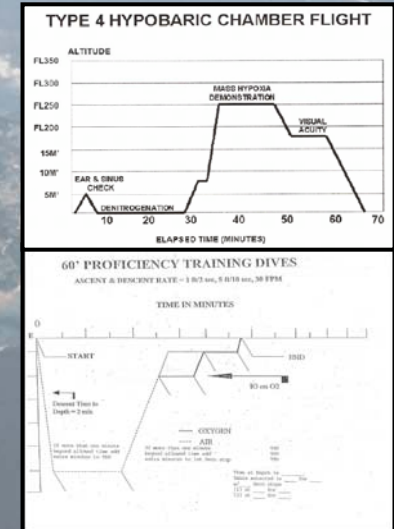
Typical Okinawan Dive Site



CONCLUSION

Over the time studied, chamber training DCI rates have trended down. The recreational DCI rate, as compared to the 0.013% rate of 1989-1995 (Arness, 1997), has risen; however, it, too, has trended down and remains comparable to other published populations (Trevett et al, 2001---0.038%; Vann et al, 2004---0.010%, 0.032%, 0.028%, 0.099%). Of note, the persistence of recreational DCI was a major factor in the decision to replace the 1967-era treatment chamber.

Most Common Chamber Training Profiles



Typical Okinawan Dive Site



RESULTS

The DCI incidence for hypobaric chamber training was 0.24% while that of hyperbaric chamber training was 0.41%. The DCI incidence in recreational diving was 0.019%. While Type I DCI dominated in hypobaric chamber training, Type II DCI had at least a two-fold preponderance in both hyperbaric chamber training and recreational diving.

