

DIVING SAFETY

Preparing for dive travel

Planning for diving related travel is a key part of remaining safe and avoiding illness or injury when diving. Diving is a very physically demanding cardiovascular activity. People with known cardiac disease of any type should consult with their doctor before initiating dive activity. Although serious dive related injuries are rare, few medical providers are trained to recognize medical illness related to diving. As a result, it is even more important that divers are educated and trained to recognize dive related illness and seek qualified dive medicine help.

DIVING DISORDERS

Barotrauma: Ears and Sinus

Ear barotrauma is the most commonly recognized injury in divers. The injury occurs during descent. If proper equalization techniques are not employed a depth related pressure gradient develops across the eardrum. This can result in a variety of problems from fluid accumulation in the middle ear to ear drum rupture.

Barotrauma Symptoms

Ear Pain
Ringing in the ears
Vertigo or Dizziness
Sensation of ear fullness
Decreased Hearing

Decompression illness (DCI)

Decompression illness is a term that is loosely applied to describe both arterial gas embolism (AGE) and decompression sickness (DCS). AGE and DCS can be difficult to distinguish in the field at the dive site. DCI can occur to even experienced divers who have followed the standard decompression protocols and the principles of safe diving. As a general rule, any diver who surfaces unconscious or loses consciousness with 10 minutes after resurfacing should be suspected of having possible AGE. This should prompt administration of the highest fraction of oxygen

available and immediate transport to a medical facility, preferably one that has a hyperbaric chamber.

Arterial Gas Embolism (AGE)

Due to the pressure changes that occur when diving on both descent and ascent, precautions must be taken to allow the body time to acclimate to these pressure shifts. Rate of ascent and breathing must be performed at the correct rate as recommended by a qualified diving instructor. Failure to do this can result in overinflation of the lung. This can not only injure the lung but can also cause gas bubbles to track under the skin; in serious cases, gas bubbles can enter the blood stream and cause AGE or even stroke. AGE is a medical emergency and requires immediate care at a hospital or emergency room with dive medicine expertise.

SIGNS OF ARTERIAL GAS EMBOLISM

NUMBNESS

WEAKNESS

TINGLING

DIZZINESS

BLURRED VISION

CHEST PAIN

PERSONALITY CHANGE

SEIZURES

PARALYSIS

LOSS OF CONSCIOUSNESS

Decompression sickness (DCS): "The Bends"

When diving, air supply is delivered under pressure. This results in excess gas (especially nitrogen) dissolving in body tissues. The amount of dissolved gas is related to both dive depth and time. When ascending this excess dissolved gas must be allowed to clear through controlled respiration. There are a number of variables involved in DCS but in general if the amount of dissolved gas crosses a threshold, it can supersaturate the tissue it is residing in and form bubbles. These bubbles can interfere with blood flow to the brain and other tissues. This illness has been called "the bends".

SIGNS OF DECOMPRESSION SICKNESS

JOINT ACHES/PAINS	WEAKNESS
NUMBNESS/TINGLING	PERSONALITY CHANGE
MOTTLING OF SKIN	INCONTINENCE
COUGHING SPASMS	STAGGERING/LOSS OF COORDINATION
BREATHING DIFFICULTY	TREMORS
ITCHING	PARALYSIS
UNUSUAL FATIGUE	COLLAPSE

Flying after diving

The risks to divers of decompression illness is increased in those who fly or are exposed to dramatic altitude changes after diving. Most commercial aircraft are pressurized to an 6000-8000 ft altitude equivalent.

PREVENTING DIVING DISORDERS

Recreational divers should consider risk carefully and dive conservatively. With this in mind, dives should be well within the decompression limits specified by dive tables or computers and by the limits of their training. Even experienced divers can suffer from DCI so this advice is particularly important to recreational divers. Of particular note are those engaging in multiple dives, strenuous exercise and dives greater than 60 feet. Diving is a very challenging and potentially very dangerous activity and should be done after proper training, in well hydrated, sober and rested individuals and always in the presence of a companion diver.

DIVING-FLYING INTERVAL RECOMMENDATIONS[§]

≥ 12 HOURS AFTER SURFACING FROM A SINGLE NO-DECOMPRESSION DIVE

≥ 18 HOURS AFTER REPETITIVE DIVES OR MULTIPLE DAYS OF DIVING

≥ SUBSTANTIALLY LONGER THAN 18 HOURS AFTER DIVES WHERE DECOMPRESSION STOPS WERE REQUIRED

[§] INTERVALS RECOMMENDED DO NOT ELIMINATE RISK OF DCS. LONGER INTERVALS FURTHER REDUCE RISK.



DIVING EMERGENCY RESOURCES

DIVERS ALERT NETWORK (DAN) - 919-684-2948 24 HR. EMERGENCY CONSULTATION AND EVACUATION ASSISTANCE - COLLECT CALLS ACCEPTED

DAN CAN HELP ASSIST MANAGEMENT OF DIVING EMERGENCIES, INCLUDING INFORMATION ON RECOMPRESSION NEED, ASSISTANCE WITH EVACUATION TO A RECOMPRESSION FACILITY, INCLUDING TRANSPORT ASSISTANCE.

DAN OFFERS DIVING RELATED TRAVEL HEALTH INSURANCE. **CHECK YOUR TRAVEL INSURANCE TO MAKE SURE DIVING RELATED INJURIES ARE COVERED.**

DAN- NON-EMERGENCY CONSULT 919-684-2948 EXT. 222

DAN WEBSITE: WWW.DIVERSALERTNETWORK.ORG