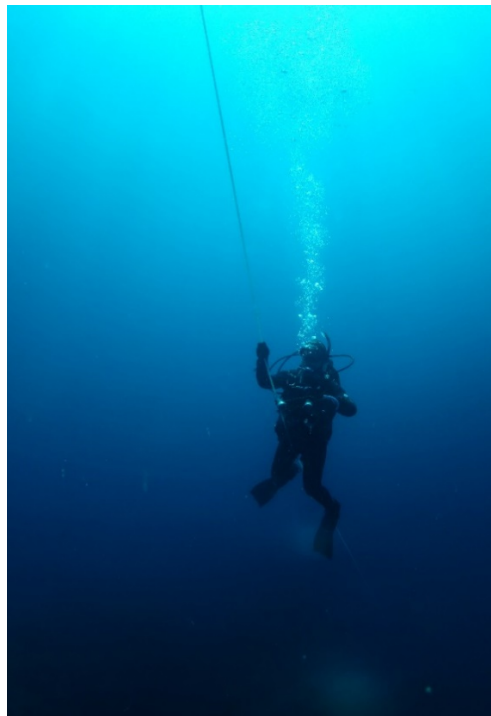


Fathoms Quiz

Decompression Illness

Peter Mosse

How often have you taken the time to think about your knowledge and understanding of diving theory. In speaking to divers, I am sometimes surprised at how little they remember about important topics such as decompression illness. I recently asked some of the group at Lord Howe Island to list predisposing factors to decompression sickness. Mostly they didn't do too well. So here is a quiz for the rest of the VSAG club members.



Decompression Illness Quiz Questions

1. List 8 predisposing factors for decompression illness?
2. List 12 signs and symptoms of decompression illness?
3. How long does it take for signs and symptoms of decompression illness to appear?
4. What is the DAN recommendation for flying after diving?
5. What is the immediate first aid for decompression illness?
6. Do you know how to change the settings on your dive computer?
 - a. Air dive to Nitrox dive.
 - b. Change the Nitrox percentage.
 - c. Increase your personal protection factor or level.
7. Do you know what all the information provided on your dive computer means?

Write your answers down. The answers are on page ?? (But don't peak until you have written down your answers).

The reference for the answers is Lippmann and Mitchell, Deeper into Diving (2005)

Fathoms Quiz Answers

Decompression Illness Predisposing Factors

Factor	Evidence	Comment
The Diver		
Body fat/obesity	Some	
Age	Moderate	<i>Set your dive computer to the "personal" protection level appropriate to your age.</i>
Being female	Weak	Apologies for misleading the Lord Howe Island Group on this one. I thought there was some definite evidence.
Dehydration	Moderate	Remember, alcohol plays an important role here. Moderate to heavy alcohol intake results in dehydration. Being well-hydrated but not over-hydrated is important.
Fitness	Some	Maintaining a good level of fitness is important for you to enjoy your diving and may reduce the risk of decompression illness as well. Respiratory health is particularly important in the case of arterial gas embolism (AGE).
PFO	Strong	Patent Foramen Ovale. This is an opening between the left and right heart that should close over after birth but doesn't always do so.
The Dive		
Repetitive diving	Strong	
Multiday diving	Moderate	
Deep diving	Moderate-Strong	

Variable depth diving	Moderate	Particularly toward the end of a dive.
Reverse profile repetitive diving	Some	Reverse profile is deeper dives following a shallower dive.
Heavy exercise during a dive	Strong	Some gentle exercise while at a decompression stop or safety stop may be beneficial.
Factor	Evidence	Comment
The Dive (continued)		
Cold	Some	Particularly if the diver starts off warm and then chills rapidly on entering the water.
Maintaining a cramped position	Some	For example, holding a cramped position hanging onto an anchor line or deco line.
Rapid ascent	Strong	
Ascending too slowly	Some	
Post Dive		
Exercise	Strong	Don't rush to pull the anchor up.
Rapid warming	Strong	For example, a hot shower soon after completing a dive.
Altitude	Yes Strong	Careful about driving over hills. And don't fly too soon.

Decompression Illness Signs and Symptoms

"Decompression Illness (DCI) may present in many different ways and very commonly follows dives that did not violate dive tables or computer limits" (Lippmann and Mitchell, Deeper into Diving).

Read the article by David Geekie "A Bent Experience" in the January 2022 edition of Fathoms on this subject.

It is convenient to think of symptoms according to which tissues are affected.

Skin (Rashes)

- Skin mottling, red itchy rash

Joints (Bends)

- Mild to severe deep-seated ache, usually involving more than one site.
 - In order of incidence: shoulders, elbows, hips and knees

Inner Ear

- Dizziness, nausea and vomiting
- Ringing
- Hearing loss

Lungs (Chokes)

- Cough
- Chest discomfort
- Shortness of breath

Brain and Spinal Cord

- Loss of consciousness
- Disorientation
- Loss of coordination of movement
- Visual changes
- Speech changes
- Confused thinking
- Weakness
- Peripheral sensory changes (may affect only one side)
 - Tingling to complete numbness
 - Weakness
 - Paralysis
- Impaired bladder and bowel control
- Headache

The **six most common symptoms**, in order of occurrence based on a 2011 Lancet report are listed below.

- Pain (head, torso, limb)
- Numbness and tingling
- Fatigue and malaise
- Dizziness/vertigo
- Muscular weakness
- Skin mottling or rash

DAN Recommendation for Flying After Diving

1. Single no decompression dive: 12 hours
2. Multiple dives per day or multiple days of diving: 18 hours
3. Dives requiring decompression stops: >18 hours

It is interesting to note that some dive computers give much shorter “no fly” times. ***Be careful. Be conservative as computers do not measure what’s actually going on in your body physiologically .*** Remember, dive computers are just “number crunchers”. It is generally recommended to avoid flying for at least 24 hours after your last dive. Why ruin your holiday by coming back sick and possibly having your diving restricted from then on?

Onset of Symptoms

As short as a few minutes after surfacing and usually within 6 hours, but some symptoms may occur up to 24 hours or more after diving, especially if flying or driving to altitude post dive is involved.

In the words of one of the very early books on Underwater Medicine by Miles and Mackay, “any symptom however vague after exposure to pressure should be treated as decompression sickness until proved otherwise” or something pretty close to that.

Immediate First Aid

- Commence CPR if necessary
- 100% oxygen.
 - If neurological symptoms occur within 30 minutes of surfacing, lie the diver down flat and ensure they do not sit or stand unless absolutely necessary

Longer Term First Aid and Treatment

- Seek medical advice
 - First call 000 if diver appears seriously ill
 - Then call the closest hyperbaric chamber (The Alfred Hospital in Vic 03 9076 2000) and follow the advice given
- Treatment will mostly be recompression.

SO HOW DID YOU GO?

Recommended Follow Up to this Quiz

There is a very useful little book written by John Lippmann. Get it and read it. And then re-read it, each dive season!

If you don't have a copy and would like one, let the club know and we can organize a copy for you.

