



**Dear DAN Doc,**

I am 58 yrs of age and have been diving since I was 14.

I love the sport and now am told there is a strong possibility I may have to have a pacemaker, because of atrial fibrillation.

The surgeon I have spoken to said 'no scuba diving, only snorkeling' with a pacemaker. The information I have collected on the internet says otherwise. Please give me the benefit of your knowledge as to my possibilities. I love diving and desperately do not want to give it up, if possible.

Thankyou,

*DAN Member, Australia*

**Dr. Parker replies -**

This 58 year old man says he has *atrial fibrillation (AF)* for which he is told he needs a pacemaker. He does not say whether a cause for the AF has been identified, what symptoms he is suffering, what treatment he has had, and why the pacemaker is being inserted. I presume from his needing a pacemaker that he is having some symptoms such as dizziness or fainting.

AF is a common cardiac arrhythmia, the prevalence of which is increasing with the aging of the population. It causes abnormal and uncoordinated contractions of the atria. The abnormality can come and go, or be continuous. It can cause an increased heart rate.

The main dangers of AF are dizziness, reduced exercise tolerance, fainting, and the risk of strokes (caused by blood clots from the atria moving from the heart to the brain).

AF can be 'lone' (ie, there is no obvious or known cause) but is frequently associated with underlying heart disease (approximately 70%) including valvular heart disease, coronary artery disease, hypertension, cardiomyopathy, congenital heart disease, and most commonly in adults, atrial septal defect. It can be associated with an overactive thyroid, cardiac amyloidosis, hemochromatosis, endomyocardial fibrosis, atrial myxoma, and pheochromocytoma.

As in many chronic conditions, determining whether AF is the result or is unrelated to the underlying disease remains unclear.

It is treated commonly with a variety of anti-arrhythmic and anti-coagulant drugs depending on its severity. Because the use of these drugs is associated with substantial side effects and mortality in some patients many non-pharmacological techniques have been developed for its management. These include the use of atrial defibrillators, atrial pacemakers, and several surgical and radiofrequency catheter ablation procedures. Non-drug therapies are commonly performed in patients with symptomatic AF in whom a rapid ventricular rate cannot be slowed by drugs.

Diving with a history of AF poses numerous potential risks.

There are the risks of any underlying pathology, especially ischaemic heart disease. Ischaemic disease is rarely localised so there is a risk of anginal pain suddenly causing incapacity whilst diving, especially on those unexpected

occasions whilst diving when maximum effort is called for. Sudden ventricular arrhythmias can be induced causing sudden death.

- There are the risks of the AF itself. AF can cause dizziness, fainting, reduced exercise tolerance. If intermittent it may suddenly occur whilst diving causing sudden incapacitation. There are many provoking stimuli during scuba diving that could aggravate the risk including immersion in cold water.
- There are the risks of the pharmacological treatment. Most of the drugs used for AF have significant side effects.
- There are the risks of the pacemaker. The reliability of the pacemaker, especially under pressure needs to be confirmed.

I do not know what risks this man is running on the scant information given. At 58 years of age there is a strong probability that there is an underlying pathological cause to his heart problem. He needs to have a full cardiological assessment by a cardiologist trained in underwater medicine and have each risks assessed and evaluated.

I can sympathise with him. Having dived for 44 years it is part of his life and to give it away is a big call. Sometimes however there is a time to hang up the tank and stay on the surface. ●



A very accessible, readable and yet comprehensive guide to medical conditions relevant to recreational scuba diving,

Available from DAN SEAP