



In this regular column, Dr. John Parker, answers medical questions sent to us by our members and other divers.

## Hi DAN Doctor,

I love diving and I'm also a smoker for 12 years. Recently I did the Pulmonary Function Test. The conclusion from the Doctor is:

"Evidence of mild small airway obstruction consistent with history of smoking".

My questions are:

1. What are the consequences for diving ?
2. Will I consume more air than normal, therefore, my air tank finish faster ?

Thank you ! Regards,  
DAN Member, Malaysia.

## Dr. Parker replies ...

Thanks for your query about smoking and diving. This diver admits to smoking for twelve years but does not tell us his age or how many cigarettes he smokes. He also does not say why he had pulmonary function tests. Was it for a routine medical or did he have symptoms? I find it useful to assess someone's smoking habit by calculating the number of pack-years. A pack-year is smoking 20 cigarettes for one year. If someone has smoked ten cigarettes a day for six years they would have a three pack-year history. Someone who has smoked forty cigarettes daily for twenty years has a forty pack-year history. Although

this is a very crude estimate it will heighten suspicion of tobacco induced lung disease if a smoker has a ten year pack-year history and over.

***It should not be forgotten that smoking is a risk factor for both lung and heart disease.***

One set of pulmonary function tests is not a reliable indicator of lung disease. The accuracy of the lung function test is very dependant on calibration of the machine, operator technique and patient instruction and effort. The interpretation of the readings can also be very subjective so to accept a diagnosis of "mild small airway obstruction" just from one test is not reliable. Moreover, even if this test were correct it is not possible to say if this is due to an acute bronchitis or if there is permanent pathology. In this case it is therefore not possible to give any risk assessment.

But in general, several risks are possibly increased by cigarette smoking:

- Smoking causes an increase of mucus production in the nose, throat and bronchial tubes. These mucus plugs can cause blockages. If the blockage is in the Eustachian tube middle ear equalisation can be

compromised. Certainly smokers do seem to have a higher incidence of middle ear squeeze than non-smokers.

If blockages occur in the bronchial tree then localised air trapping in the lung can

occur. This has been well demonstrated with isotope studies. But smokers are not over-represented in the cases of pulmonary barotrauma so it does not seem to actually cause a problem. Probably the mucus plugs are easily pushed out of the bronchial tubes by the expanding air. Certainly many divers experience large amounts of mucus in their upper airways after a dive and spit it out on the surface.

- Smoking causes elevated levels of carboxy-haemoglobin because of the inhalation of the carbon monoxide produced by the burning tobacco. This can reduce peak exercise performance so in an emergency the diver who smokes will not perform to their full potential.

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- In the lung, recurrent bronchitis will inflame and constrict the bronchial tubes, reducing the ability to