Are Asthmatics Fit to Dive?

Asthmatics as a group should not be routinely disqualified. I personally do not think any mild asthmatic should be disqualified. By the newest national guidelines, these are asthmatics who fall into the first (Mild Intermittent) and second (Mild Persistent) steps of severity. What they do need is a quantifiable, verifiable test to show that they are FUNCTIONALLY normal on medication with exercise. They also need careful counseling as to the known and theoretical risks of diving with bronchospasm. Asthmatics also must be willing to be on aggressive medication which completely controls all symptoms and underlying inflammatory processes. The asthmatic athlete has proven in competition that maximal performance is possible and in fact, safe. My role as a physician with regard to asthma is to assess the diver's physical and psychological condition, treat the underlying airway inflammation and the resulting airway obstruction, and to teach patients the true limitations of their disease. Many divers with asthma fail to realize the most basic facts about bronchospasm. Even mild asthma is a chronic inflammatory disorder with underlying airway pathology early in the course of the disease. Helping the diver to fully understand the disease process goes hand in hand with helping them to pass the physical exam.

An international symposium was held on the subject in 1995 sponsored by the Undersea and Hyperbaric Medical Society (UHMS) in conjunction with Dr. David Elliott, OBE of the UK. Dr Elliott's symposium was actually a consensus conference on various issues related to diving risk (theoretical vs real). The conference proceedings are published in a book titled "Are Asthmatics Fit to Dive?" and it can be purchased from the UHMS or by calling (301) 942-2980. In a nutshell, our previous attitudes regarding Asthma were based on a **theoretical** risk to the diver which was overwhelmingly negative. Now that accident reporting and data collection are improved worldwide, no greater incidence in pulmonary barotrauma has been found. This fact has put additional pressure on the American diving medical community to justify its position (prohibition of diving) with data. There isn't any. This happened to correspond with the timing of an article by Tom Neuman, MD and Fred Bove, MD on asthma [Annals of Allergy 73 (Oct 1994): 344-350]. The article concludes that "...available data suggest asthmatic patients with normal airway function at rest, and with little airway reactivity in response to exercise or cold air inhalation, have a risk of pulmonary barotrauma similar to that of normal subjects."

The consensus from international experts in diving medicine is that emphasis should shift away from an exclusionary view to one that emphasizes "function". For sport divers, the position of that international group is to challenge a diver candidate with a maximal exercise test followed by PFT's (methylcholine has too many false positives). The diver is allowed to use a bronchodilator, inhaled steroid, inhaled anti-inflammatory or any of the drugs indicated for the treatment of asthma, just so long as he or she uses it all the time before exercise or diving. Bear in mind these are known asthmatics, so we just want to know if they will have bronchospasm with provocation after taking their regular medication. Of course the diver must be fit enough to take an exercise test maximal enough to induce bronchospasm (13 mets or greater).

The test should be relatively brief and maximal, and can be a treadmill or stair step protocol or even a vigorous supervised run outside (as is often done in the UK), but does not usually require EKG monitoring (unless the testing facility requires it, or the diver has cardiac risks). Remember, it is an "airway challenge" not a "cardiac challenge". Fitness has enormous significance as exercise induced asthma gets worse and sometimes first appears as an individual becomes less fit. There should be less than 15% reversible airway obstruction after the test for it to be considered negative. The diver fails the test if the reversible obstruction is greater than 20%. Between 15% and 20% the test is equivocal and the outcome of the test is not clear. Any of my diver candidates with greater than 15% obstruction have their medication "fine tuned" to improve control of bronchospasm. Then the test is repeated. No one is permanently disqualified unless they are unwilling to improve control of their airway function with more vigorous attention to medication.

The problems with this approach are obvious as diving is not only exercise but exposure to cold, dry air, and to unexpected stressful emergencies. Is the provocation adequate to give a realistic challenge? The consensus of medical experts now says "probably yes", which is a lot better than the old "definitely no". Studies are underway to provide even more data on the subject which should quell the fears of the doubters. If you have bothered to read through all this, you will find the book mentioned above very interesting and informative. You might even want to give it to your favorite physician if they haven't heard of it yet. As always, let me know if you have any questions.

Please be aware that the opinions expressed herein are my own. My views are not sanctioned, supported or endorsed by either the University of Washington or the Undersea and Hyperbaric Medical Society (UHMS). As an opinion based on and expressing "state of the art" scientific knowledge, it might change as more data becomes available. I will attempt to keep information on asthma as current as possible.

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