Cardiovascular Fitness, Diving Diet and Exercise Go A Long Way, But Watch Your Medications, Too

Got Heart?

We all do when it comes to diving: it's why we dive. Our hearts are figuratively in our diving because we enjoy our sport. But our hearts are literally in it as well. Your cardiovascular health can play a formidable part in the safety of any dive you make. So, how's your own heart health?

Checking the Numbers

When DAN dive researchers look at the injury and fatality cases in our database, they glean a great deal of varied information. One of the most important facts they offer is that high blood pressure and heart disease have consistently been the most frequently reported chronic health conditions contributing to diving fatalities in the 15 years DAN has formally compiled fatality statistics.

According to the recent DAN Reports on Decompression Illness, Diving Fatalities and Project Diving Exploration, more than 14 percent of the fatalities reported had a chronic history of high blood pressure and / or heart disease. Obesity, another factor reported in 55 percent of fatalities, is connected to heart disease and hypertension, with resulting links to poor health and poor exercise tolerance. In combination with other contributing factors, poor cardiovascular health can increase the risk of a severe or fatal diving incident.

Lowering the Odds

These issues can compromise your cardiovascular health: high blood pressure, coronary heart disease, congenital heart disease, cigarette smoking and a family history of heart disease. What, then, can help improve cardiovascular health? What medications for cardiovascular disease can influence someone's ability to dive safely?

Stop smoking

Cigarette smoking compromises heart and lung function, and nicotine can constrict blood vessels resulting in hypertension.

Exercise regularly

Even a moderate increase in activity will improve physical fitness and increase exercise tolerance. This, in turn, will improve stamina and endurance while diving.

Eat sensibly

A diet low in saturated fats and cholesterol will naturally reduce the risk of obesity and heart disease. While a family history of heart disease cannot be changed, controlling diet and increasing exercise can reduce the risk of health-related accidents and injuries. In understanding the risks, divers can make choices that positively affect their diving.

MEDICATIONS, ANYONE?

With increasing age and declining cardiovascular health, Americans and Europeans lead the way in using medications to help control high blood pressure and coronary disease, and other First-World nations see a similar trend. Chronic hypertension is associated with damage to the heart, kidneys and an increased risk of stroke. Antihypertensive medications, however, can help reduce the risk of serious illness. A common

question to the DAN Medical Information Line asks about the safety of diving while taking these medications. Here are some of the more common medications and their possible adverse reactions for divers:

Beta Blockers

Commonly used to treat hypertension, beta blockers have a big drawback: they can reduce the heart's capacity for exercise and therefore affect your exercise tolerance. In addition, if medication restricts the heart's function during exercise, then there is an increased risk of loss of consciousness, which could prove fatal underwater.

Because of this effect on divers, doctors often recommend a stress test. According to Dr. Alfred Bové (Bové and Davis' Diving Medicine, 4th Ed.), divers who use beta blockers and who can achieve a strenuous level of exercise without severe fatigue may be cleared for diving. Bové also mentions that although diving does not usually represent the maximum workload on the heart, divers taking beta blockers should avoid extreme exercise because their maximum capacity for exercise may be reduced.

ACE Inhibitors

(Angiotensionc onverting enzyme) inhibitors have less effect on exercise than beta blockers, so doctors prescribe them for people who exercise more often. Although ACE inhibitors seem to have fewer adverse effects on divers, they can produce a cough and airway swelling: both conditions can cause severe problems underwater. Most people can usually tolerate a mild cough on land, but if a cough due to the drug persists, many physicians will change medications. In the presence of kidney disease, ACE inhibitors should be avoided.

Calcium Channel Blockers

Calcium channel blockers don't typically pose problems for divers: they relax the walls of blood vessels, reducing blood flow resistance and thus lowering blood pressure. In some cases, especially in moderate doses, a change in position from sitting or lying down to standing may cause excessively low blood pressure and a subsequent momentary dizziness. This postural blood pressure change may be a cause for concern with divers, but calcium blockers appear to have no other adverse reaction for diving.

Diuretics

Diuretics reduce the amount of excess water and salt in the body, thus lowering the blood pressure. Divers seem to have very little trouble with diuretics, although in very warm environments, they may cause excessive water loss and dehydration. Because dehydration seems to be a contributing factor to the risk of decompression sickness, divers may want to reduce the dosage on the day of diving. Before changing dosages, however, check with your doctor.

Antiarrhythmics

Antiarrhythmics are designed to help maintain a stable heart rhythm. Dr. Bové warns that some of the antiarrhythmics, when combined with exercise and a loss of potassium, could increase the risk of injuring the heart. Although these medicines normally do not interfere with diving, the dysrhythmia, or abnormal heart rate, for which the medication is being taken may be a contraindication to diving. Through consultation, a cardiologist and a dive medicine physician should evaluate anyone who has an abnormal heart rate and requires medication.

Anticoagulants

A diver who has been prescribed an anticoagulant, e.g., Coumadin® or Warfarin®, should be warned of the potential for bleeding: excessive bleeding can occur from even a seemingly benign ear or sinus barotrauma. There is a potential risk that, if decompression illness occurs, it may then cause significant

bleeding in the brain or spinal cord.

Get in the Know

Cardiovascular disease can contribute to dive injuries as well as fatalities. Both are preventable. With increased information about cardiovascular health and fitness, divers can make better choices and increase the opportunity that every dive will be accident- and injury-free. Read all you can about your medications, consult with your doctor, and when you have questions about diving and drugs, call DAN.