CALIFORNIA DIVER

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Fitness for Diving Series Introduction: Aerobic Exercise for SCUBA Diving

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The adventurous spirit of divers is most evident in the willingness to travel thousands of miles to explore the oceans of the world. Closer to home, passionate divers take the sport to quarries, rivers, lakes and caves. Dedicated divers dive in all climates and conditions. One of the best ways to keep the spirit, passion and dedication among divers at this all time high is to keep divers healthy and fit to best enjoy life, travel and diving.

Divers need to be able to dive safely and comfortably in any location, with different types of equipment and logistics, in varying conditions and during spontaneous events. Travel itself takes a toll on the body and once at the diving destination, divers experience accommodations, weather and food different than at home. Travel research and planning combined with physical fitness preparation helps divers improve safety, performance and comfort above and below anywhere in the world.

This series considers: how far in advance divers plan for travel; whether dive training, equipment, health, physical fitness and practical experience match the type of diving, travel, destination and dive operator logistics; recommends an annual medical check-up and consult with a physician before lengthy and remote travel; and a minimum of three months of consistent fitness training for easy, shallow, introductory diving.

Divers benefit by: prioritizing aerobic exercise to improve and maintain cardiovascular health, diving performance and reduce risks associated with the altered physiology and stresses of an underwater environment; eating to fuel diving activity, fitness and maintain a healthy body composition; making fitness for diving a lifestyle by exercising regularly (at least four days a week) including strength and flexibility; finding the best individualized workout; and focusing on diving as motivation.

Guidelines for Aerobic Exercise for SCUBA Diving

The most important fitness component for scuba diving is cardiorespiratory fitness. Generally speaking, the purpose of cardiorespiratory fitness is to maintain and improve the efficiency of the heart, lungs and vascular system. This is accomplished through aerobic exercise which is any activity that utilizes oxygen. Greater oxygen demand is created through exercise by moving primarily the large muscles of the body repeatedly and rhythmically at intensities beyond the usual activity of rest or relaxation. Repeated and regular aerobic exercise produces permanent favorable changes in health and performance, strengthens the heart, improves the ability of the body to transport and utilize oxygen, regulates blood sugar levels, is also beneficial for weight loss, and at the same time adds some muscle strength. Aerobic exercise is best performed consistently as part of a healthy lifestyle.

To maximize the benefits of aerobic training for diving it is important to establish heart rate zones. These training zones are based on individual maximum heart rate, which is the highest number of times the heart can contract in one minute. Working within 60% to 80% of maximum heart rate is most beneficial for overall health. The aerobic training zone of 70% improves the ability of muscle cells to utilize oxygen, trains the heart to pump more blood, metabolizes stored body fat as the primary source of energy, is preferred for weight management and is a good intensity for moderate scuba diving conditions. The aerobic training zone of 80% is good for overall cardiovascular fitness, improves the ability of the body to transport oxygenated blood to the muscle cells and carbon dioxide away from the cells, is effective for overall muscle strength and a good intensity for more demanding scuba diving conditions, i.e. swimming against moderate current. Beginners may start in the 60% aerobic training zone and progress gradually. Consult a physician before beginning any exercise program. One of the most respected fitness standards for calculating training heart rate zones is the Karvonen Formula.

Karvonen Formula – Training Heart Rate Calculation

Upon waking in the morning before getting out of bed place two fingers under the back corner of the jaw (on the carotid artery) and count the number of heart beats for one minute. This pulse is the Resting Heart Rate (RHR). Use it to perform the Karvonen calculation.

An example of a 45 year-old diver with a RHR of 68 looks like this: 220 – {AGE} 45 = 175; 175 – (RHR) 68 = 107; 107 x 70% = 75; 75 + (RHR) 68 = 143 (THR). Using this example training in the 70% heart rate training zone, divers will attempt to maintain a minimum pulse of 143 beats per minute. The 80% heart rate training zone provides a maximum pulse of 154 beats per minute.

It is important for divers to prioritize aerobic exercise to maintain cardiorespiratory fitness, help correct medical conditions, improve diving performance and greatly reduce risks associated with diving.

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Story by Gretchen M. Ashton, CFT, SFT, SFN, NBFE