

Pulmonary Rehabilitation Program Helps Breathing Impaired

When the U.S. Olympic rowing team needed to select its best oarsmen, it came to the Princeton Medical Center. The same capability that allowed them to discover which rowers had an extra reserve of winning energy is also improving the quality of life for patients with breathing impairments.

The Medical Center's pulmonary rehabilitation program promises "a better way of breathing for a better way of life." The simple fact is, life can be easier and more enjoyable for people with breathing difficulties if they learn to use their muscles more efficiently. The Medical Center's holistic program teaches them how to do that, and looks at their eating habits and use of medicines as well.

People are referred to the program by their physicians. Breathing difficulties can result from asthma, emphysema, COPD (chronic obstructive pulmonary disease) or bronchitis. First the Cardiopulmonary Medical Staff conducts a thorough diagnostic evaluation, which includes an interview, review of patient history and pulmonary function studies.

Depending on the results of the evaluation, one of four basic plans or "protocols" will be tailored to the individual's needs. A protocol is a combination of teaching and exercise, all intended to help the patient breathe more easily and understand his or her body and its condition.

Videotapes, colorful models of the heart and lungs, and standard exercises are used to teach better breathing techniques and ways to keep breathing passages clear.

Regular exercise is a key element in the eight-week program. Exercise is prescribed based on the patient's measured ability. During the program, exertion levels are increased, while being monitored by medical staff. This helps the patient become stronger, more fit and ultimately able to do more comfortably.

Patients learn how to perform ordinary daily tasks with greater efficiency, using less oxygen. For example, it takes less effort to brush your teeth with a wrist motion rather than using your whole arm, and it's easier to walk in flat shoes than high heels. Common sense adjustments like these make living with a breathing problem more manageable.

Some people's breathing problems are brought on by stress, so they learn how to use relaxation techniques to control stress and its effects on their breathing. Similarly, the rehabilitation program teaches patients how to recognize warning signs and avoid an emergency, as well as how to react swiftly and appropriately to a real emergency. Again, common sense is prescribed. For example, patients who are able to jog are advised not to do so on hot, humid days.

One of the pulmonary rehabilitation program's goals is to prevent unnecessary use of medication. Patients are often referred to the program when their breathing disorder has begun to interfere with their normal routine. Over years of medical care they may have obtained multiple prescriptions. During the program they're asked to bring in all their medication. The medical staff reviews the prescriptions, disposing of those that are out of date. A method for identifying current medication is suggested, decreasing the likelihood that the wrong medicine will be used. Likewise, a simple schedule is written. And patients are taught what effect each medication should have, which ones work slowly, and which to take for a sudden acute problem.

The program is eight weeks long, consisting of three one-hour visits to the Center each week. Progress is measured by comparing the results of the initial evaluation to another evaluation at the end of the eight weeks. All the same cardiopulmonary functions are monitored: heart rate and ventilation, oxygen uptake and carbon-dioxide production. The point is to answer the question: Can the patient do more?

So far none of the patients have been recruited for the Olympic rowing team. But for most, their progress is just as gratifying. For those with severe problems, climbing stairs or getting in and out of cars is easier. Others are more secure in understanding their breathing problem and how to overcome it on a day-to-day basis. In all cases the program can help if the patient is interested and works his or her protocol.

The diagnostic evaluation procedure is also available to anyone who wants a checkup before beginning an exercise program. This is recommended as a precaution to identify potential problems that could become acute under the stress of exercise. A more thorough and precise checkup than the standard treadmill cardiac stress test, the Center's computerized Aerobic Measurement System measures oxygen consumption, carbon-dioxide production, arterial blood gases and heart rate — information that can make winners of future Olympians and weekend athletes alike.