

Pulmonary Rehabilitation

“Use it or lose it???”

By John R. Goodman BS RRT

Of all the forms of Rehabilitation that are available in medicine, pulmonary rehabilitation is a relative newcomer. For example Cardiac Rehabilitation has been available to patients with cardiac disease since at least the 1940's. Actually exercising for 30 minutes a day for 6 months was prescribed by a Dr. William Heberden for his cardiac patients way back in 1772. Staying with Cardiac Rehab for a moment, the term “Myocardial Infarction” a heart attack in layman's terms was first used in 1912. About that time it was thought that the damaged heart muscle needed time to heal completely. Therefore 6 weeks of bed rest was the order of the day, with stair climbing prohibited for a full year after the MI!



Wm.Heberden MD



Bed rest for 6 weeks



No Rehab for this patient

In the 1930's an incredible 80% of post heart attack patients were on full disability. In the 1940's hospitals began to develop “cardiac work evaluation units” to evaluate a patient's ability to go back to work. These evolved into the modern Cardiac Rehabilitation programs. During and following WW2 manpower needs spurred cardiologists to review the need for absolute bed rest following cardiac events. Well designed studies proved that long term bed rest decreased functional capacity, sapped morale, and caused its own set of complications.

The big breakthrough came with the heart attack of President Eisenhower in 1955. Eisenhower was in Denver when he had his heart attack. He was naturally taken to Fitzsimmons Army Medical Center. His cardiologist, Paul Dudley White, prescribed graded exercise to include swimming, walking and golf. At first it was considered dangerous and reckless, but it was so successful it led to the creation of the “President’s Fitness Council.” The last 50 years has led to the research that proved the value of Cardiac Rehab services beyond any doubt.



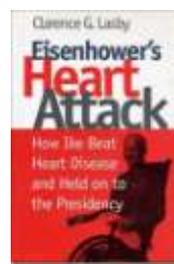
Ike’s first day out of hospital



Fitzsimmons hospital



Dr. Paul Dudley White



Ike was a tough military man



Ike’s favorite form of Cardiac Rehab

The road to Pulmonary Rehab has not been so straight forward. The reason for this is probably due to the fact that Cardiac Rehab is primarily directed towards patients who have already suffered a heart attack. Patients in Cardiac Rehab often follow a uniform pattern where post heart attack patients are closely monitored during group exercise. In fact, the current Medicare guidelines for reimbursement for Pulmonary Rehab allow for 36 one hour sessions which is exactly what they allow for Cardiac Rehab. The big difference is most pulmonary patients spend more than one hour at their sessions, while the facility can only bill for one hour of contact time. Pulmonary rehab patients tend to be far more diverse and complex and require much more individualized professional attention than Cardiac Rehab patients.

In the beginning Pulmonary Rehabilitation guidelines were based primarily on well established Cardiac Rehab guidelines. It was thought that since dyspnea (shortness of breath) on exertion was the major troubling symptom, avoiding dyspnea was more or less the appropriate way to manage this disease. This would of course preclude the introduction of any sort of graduated exercise program. It wasn’t until the 1950’s that one of the true pioneers of pulmonary medicine, Dr. Alvan Barach, began to offer a different opinion. Dr. Barach understood and appreciated the significance of the increased work of breathing COPD patients had to contend with, and sought ways to lessen their burden. An insight into Dr. Barach’s understanding of the physiology of COPD can be appreciated from the following quote from a paper he wrote in 1952, “*In 2 patients with pulmonary emphysema in*

whom dyspnea on exertion was relieved during the inhalation of oxygen, an exercise program was instituted with subsequent improvement in capacity to exercise without oxygen. The progressive improvement in ability to walk without dyspnea suggested that a physiologic response similar to a training program in athletes may have been produced.”



Dr. Alan Barach



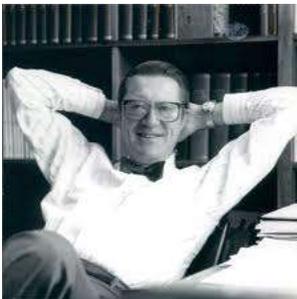
Dr. Barach wearing O₂



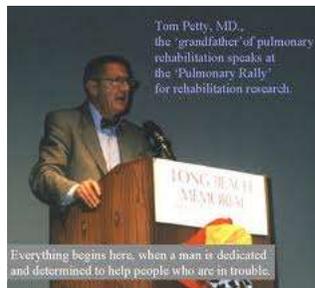
Metal O₂ cannula

Dr. Barach obviously understood that the treatment of complex pulmonary patients involved a multidisciplinary approach. Dr. Barach’s early observations were proven scientifically in peer reviewed literature some 40 years later. If Dr. Barach was the “originator” of the idea of Pulmonary Rehabilitation, than surely Dr. Thomas L. Petty put all the separate components of pulmonary rehabilitation together to establish the modern day Pulmonary Rehab Department.

Dr. Petty published his landmark paper titled “A Comprehensive Care Program for Chronic Airway Obstruction,” in 1969. The program offered individualized education about the patient’s disease, bronchial hygiene techniques, breathing retraining, physical reconditioning, individualized medication instruction, and the use of oxygen therapy whenever indicated. By 1974 Dr. Petty’s program became the model approved by the American College of Chest Physicians, and in 1980 The American Thoracic Society officially endorsed Pulmonary Rehabilitation defining *exercise* as an essential component.



Dr. Tom Petty and his famous bowtie



Dr. Petty; mentor to so many pulmonologists over the years



Ironically, Dr. Petty needed oxygen himself in the last years of his life. Here he is wearing Oxy-View eyewear.

The 1980's saw a number of papers published doubting the value of rehabilitative exercise. It was pointed out that Pulmonary Rehab could not be shown to improve lung function. In fact, several papers looked for biologic markers that would show improvement in "muscle training" such as may be seen in athletes. No markers could be found and in the view of some, Pulmonary Rehab was labeled more of a "touchy-feely" therapy, rather than scientifically driven.

The 1990's saw a number of investigators doing better targeted studies looking at what could be measured following completion of a Pulmonary Rehab program. We now know that Pulmonary Rehab has both direct and indirect positive effects on patients with a variety of pulmonary disease. Pulmonary rehab can be easily defended to showing an improvement in dyspnea, exercise tolerance, and most definitely improvement in health related quality of life.

So what do we know about Pulmonary Rehab that you can take to the bank? What are some of the very realistic expectations a patient entering a pulmonary rehab program can expect? Pulmonary rehab is aimed at improving quality of life by:

1. Decreasing respiratory symptoms and their complications.
2. Encouraging patients to self-manage their disease and exert more control over their day to day functioning. (Manage your disease; don't let the disease manage you!)
3. Improving overall physical conditioning and exercise performance.
4. Improving emotional well-being.
5. Reducing hospitalizations for exacerbations of underlying disease.

How might Pulmonary Rehab help you?

By attending education classes you will learn many things about your lungs, how they normally work, and how your disease process interferes with the normal working of the lung. Classes on your medications, how to correctly use your inhalers, drug interactions, and when to call your doctor are all normally covered. One of the most important, yet overlooked component of Pulmonary Rehab is the effect of the group dynamic. During group meetings you will meet with other patients who have breathing problems. Sharing common concerns or asking questions of patients who have already "walked a mile in your moccasins" shows all participants that they are in the same boat together.



Pt. having stress test with technician monitoring ECG



Walking is good for both heart and lungs



Patients are always monitored by a clinician



Upper body strength also important

Exercise classes will teach you methods of breathing that will allow you to be more active and less short of breath. Most modern day rehab units look much like a well equipped gym. A number of pieces of equipment will be utilized to both build your strength and endurance. Exercise classes help you feel better and become stronger by helping you get in shape. This helps with self-image and self-image is important to all of us.

In Pulmonary Rehab you will be taught energy conserving techniques, breathing strategies, and nutritional counseling that will teach you what foods to avoid making it easier to breath. Most programs will help you control anxiety or depression, and even help with some of the more personal questions such as your sex life. Surely Pulmonary Rehab can't cure your underlying lung disease, or completely relieve your breathing problems. But Pulmonary Rehab is certainly one of the most important parts of a complete pulmonary program. If you haven't already been through a Pulmonary Rehab program, ask your family physician or pulmonologist if there is such a program at the hospital where he or she practices.

Remember it is important to set realistic goals. A little bit faster on the treadmill each week, and just a little bit farther than the week before. Kind of like losing weight, the hard part is actually starting the program. Once you begin to see and feel the results of your efforts, especially on your breathing, staying with the program becomes easier and easier. In the case of Pulmonary Rehab the old maxim "use it or lose it" is most definitely the operative phrase.