

# Simple Spirometry – The Simple Explanation

by Helen Sorenson MA RRT CPFT FAARC

I am going to presume that if you are reading this article on Jane's website, you have COPD [or other lung disease]. I am also going to take a big leap and presume that you have all done a breathing test called spirometry? I ask this because statistics show that a surprising number of people have been diagnosed with COPD, but have never had spirometry done. That is like diagnosing a patient with diabetes without ever testing their blood sugar level.

Spirometry is done using a piece of equipment called a spirometer. The term *spiro* comes from the Latin language and means to breathe, and *meter* (derived from either Old English, French or Greek...take your pick) means to measure. The spirometer is not a new invention. In 1846 an Englishman named John Hutchinson developed the first spirometer and used it to measure the vital capacity (inhale completely then blow all the air out of your lungs) on 2000 human subjects. Our equipment today is newer; we have computerized versions, small hand-held versions, spirometers that calibrate themselves, store data for years... do just about everything for us except perk the coffee and shave our legs, but the principle is the same – spirometers measure the amount of air we can breathe in and then exhale through the equipment.

How important is spirometry? Very – if you want to know what disease you have and how the disease is progressing. Let me be a little clearer with that statement. Spirometry cannot diagnose every lung disease. Spirometry is a screening tool. The results of a spirometry test can tell us whether your lungs are functioning normally or not. If they are not, the test can also tell us whether the problem with your lungs is obstructive (can't get the air out easily) or restrictive (can't get the air in easily). A dear pulmonary physician friend of mine once explained it to my patients in a Better Breathers meeting as the Big Lung Syndrome vs. the Little Lung Syndrome. The Big Lung Syndrome is obstructive

disease; COPD, emphysema, chronic bronchitis, and/or asthma. For some reason, with obstructive disease, something is obstructing the flow of air out of the lungs; either secretions in the airway, airways that are fragile and collapse easily, or airways that are narrower because something has caused the muscles surrounding the airways to constrict. These patients cannot easily exhale all of their air, leaving some air in the lungs at the end of exhalation. We refer to this as air trapping. Patients with the Little Lung Syndrome can't get air in because something is restricting the flow of gas into their lungs. Imagine someone putting a wide, very tight belt around your rib cage...what would happen when you tried to take in a deep breath? You couldn't! With restrictive disease; pulmonary fibrosis, interstitial lung disease, asbestosis, etc...your lungs are very stiff, and they do not inflate easily, so it is hard to take in a deep breath.

If after doing a spirometry test, the therapist determines that your lungs are not functioning normally, we give the results to your doctor and he/she will order more specific tests in a pulmonary function lab to see what exactly the problem is. You have no doubt heard or read the National Lung Health Education Program (NLHEP) slogan; "Test your lungs, know your numbers". Spirometry gives you the numbers. If you have high cholesterol, you know your numbers...I know, because I do.☺ I also know that I do not have diabetes because I know my numbers.☺ If you don't know your spirometry numbers – ask for them and write them down.

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