CYSTIC FIBROSIS Western Australia

CF Fact
cystic fibrosis fact sheet

Spirometry

Spirometry, or lung function testing, is a relatively easy, non-invasive test used to assess how well the lungs are working in people with respiratory illnesses.

Spirometry is often used to monitor patients with CF and can help health professionals decide whether treatments should be continued, changed or are no longer needed. It can also be used as an outcome measure in clinical trials of potential new CF therapies to determine how effective the new treatment is.

What does spirometry testing involve?

Spirometry involves taking a full breath in while sealing lips tightly around the mouthpiece of a small device called a spirometer, and then blowing out as hard and fast as possible until the lungs are completely empty. Normally, patients will have a peg placed on their nose to stop air from escaping while they breathe. This is then repeated a number of times to make sure the results are accurate. How the test is performed can change depending on exactly what is being measured. Spirometry testing can be done in adults and children over the age of seven.

What does it measure?

Spirometry measures the speed and volume of air moving in and out of the lungs and can be used to assess how well the lungs are functioning. Some of the measures might include:

- FEV1: Total amount of air exhaled in one second (FEV= forced expiratory volume).

- FVC: Forced vital capacity is the total volume of air that can be exhaled quickly and forcefully in one breath.
- FEV1/FVC: Calculates the proportion of the total inhaled volume that can be exhaled in one second.

What do the results mean?

Spirometry results are compared with normal values for someone of the same age, height and gender. These comparisons will then give information about whether lung function is normal, obstructive, restrictive, or a combination.

Airways that are obstructed, such as by the thick mucus produced in CF patients, can reduce the speed at which air can be exhaled. Restrictive spirometry results indicate a reduced lung capacity, relative to what is normal for a person's age, size and sex.

In CF patients, for example, this can be due to scarring (fibrosis) in the lungs. Many CF patients can show a combined obstructive/restrictive pattern. Your CF team will discuss the results with you.

Useful resources

- How is Lung Function Measured? (CF Physio)
- A Guide to Hospital: Spirometry- Lung Function Testing (Royal Children's Hospital)