

The Division of Pulmonary Medicine at Cincinnati Children's Hospital Medical Center performs respiratory muscle strength tests.

What is Respiratory Muscle Strength Testing?

Respiratory muscle strength testing is three tests that measure the strength of the muscles you use to breathe. Besides normal breathing, you use your respiratory muscles for deep breathing during exercise and when coughing to clear your lungs. Respiratory muscle strength testing is particularly important for patients with generalized muscle weakness such as Muscular Dystrophy.

How is the test done?

Respiratory muscle strength is measured by having your child place padded nose clips on their nose and place their mouth around a clean filtered mouthpiece. Respiratory muscle strength testing is comprised of three separate tests:

- **Maximal Inspiratory Pressure (MIP)**

This test measures the strength of the muscles you use to take in deep breaths. You start with normal resting breathing. This is followed by blowing out all of your air until you are almost completely empty. Then, when the mouthpiece closes, you suck in as hard as you can. The mouthpiece closes for only a few seconds. The harder you can suck in, the stronger are your inspiratory muscles.

- **Maximal Expiratory Pressure (MEP)**

This test measures the strength of the muscles you use to cough. You start with normal resting breathing. This is followed by taking in very deep breaths. Then, when the mouthpiece closes, you blow out as hard as you can. The mouthpiece closes for only a few seconds. The harder you blow out, the stronger are your expiratory muscles.

- **Maximum Voluntary Ventilation (MVV)**

This test measures the strength of both your inspiratory and expiratory muscles. It also indirectly measures how well you can move air into and out of your lungs. You start with normal resting breathing. Then, when prompted, you start breathing in and out deeply and quickly, moving as much air as you can. The test ends automatically after 12 seconds of rapid breathing.

How long does it take?

This test usually takes less than 20 minutes to complete.

How does my child prepare for this test?

There are no special preparations for this test.

Are there any side effects?

You may get a little lightheaded for a few seconds after performing the Maximum Voluntary Ventilation (MVV) test. Otherwise, there are no side effects for Respiratory Muscle Strength Testing. You may resume normal activity after testing.