

Tips to Remember: What is a peak flow meter?

A peak flow meter for asthma is like a thermometer for a fever. It's a tool that helps you monitor what's going on inside your body. In some cases when you are not feeling well, you may feel "hot" or "feverish," but when you take your temperature with a thermometer, it is normal. With asthma, sometimes you may feel your breathing is fine, but when you measure it with a peak flow meter, your lung function is slightly decreased. A peak flow meter can help you determine airway changes and better manage your asthma.

Using a peak flow meter

A peak flow meter is a simple, portable, inexpensive device that measures air flow, or *peak expiratory flow rate (PEFR)*. Asthma sufferers blow into the device quickly and forcefully, and the resulting peak flow reading indicates how open the airways are, or how difficult it is to breathe. If used appropriately, a peak flow meter can be a valuable tool in your asthma management. It can be used as a tool to:

- Determine the severity of asthma
- Check your response to treatment during an acute asthma episode
- Monitor progress in treatment of chronic asthma and provide objective information for any possible adjustments in therapy
- Detect worsening in lung function and thereby avoid a possible serious flare-up in asthma with early intervention
- Assess asthma severity

One of the most important functions of the peak flow meter is to help you and your physician evaluate asthma severity. You will see a drop in peak flow readings even before the symptoms of asthma (like coughing or wheezing) get worse. Decreases in peak flow may indicate that you need to increase your medication. The earlier a warning sign is detected, the sooner the problem can be addressed.

Knowing your peak flow can be very helpful if you have to call your physician after hours because of increasing symptoms. The peak flow value can give the physician a better idea of how you are doing and how you are responding to treatment at home.

Another measure of asthma control is called *peak flow variability*. A person without asthma or with well-controlled asthma will consistently blow peak flows that vary less than 15%. Most patients who have asthma know that asthma symptoms are usually worse at night. A peak flow meter is useful in monitoring the severity of asthma at night. A decrease of 15% or greater from the previous night's measurement may indicate nocturnal asthma. This is an indication of how well your asthma is controlled.

How to use a peak flow meter

There are several steps to properly using a peak flow meter. You should blow hard on the meter to get the best reading possible, and repeat this attempt three times. Record the best of the three trials. All three measurements should be about the same to show that a good effort was made each time. This is especially important when parents are evaluating their child's asthma.

Follow these general steps when using a peak flow meter:

- Make sure the device reads zero or is at base level
- Stand up (unless you have a physical disability)
- Take as deep of breath as possible
- Place the meter in your mouth and close your lips around the mouthpiece
- Blow out as hard and as fast as possible (one to two seconds)
- Do not cough, spit or let your tongue block the mouthpiece
- Write down the value obtained
- Repeat the process two additional times, and record the highest of the three numbers in your chart

Your physician may ask you to record your peak flow before and after using your rescue inhaler. If your medicine is working you should see an improvement in your peak flow reading.

Keep a chart of peak flow readings, with each day recorded in a column, to show how your asthma symptoms are doing. Graphs for plotting peak flow readings often come with the devices and can be photocopied for regular use.

Peak flow meters need some care, so make sure to follow the cleaning instructions enclosed with each unit. This will help to ensure its accuracy.

Establishing your personal best reading

Although your predicted “normal” peak flow is determined by height, age and gender, it is preferable to gauge asthma control by comparing daily peak flow recordings with your “personal best” reading. The personal best peak flow is the highest peak flow number a patient can achieve over a 2-3 week period when his or her asthma is under good control.

To determine your personal best:

- Always use the same peak flow meter
- Record your peak flow twice a day for two weeks

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- Ignore outlying values

Personal best values will change as children grow taller and as disease status changes. Your physician will periodically readjust your personal best.

Traffic light system

Once you and your allergist/immunologist have established your personal best peak flow, you should make every effort to maintain values within 80% of this number so you feel your best. The following traffic light system can serve as an easy guide:

Green zone—Peak expiratory flow rate (PEFR) 80-100% of personal best. All systems “go.” You are relatively symptom-free and can maintain your current asthma management program. If you are on continuous medication and your peak flow is constantly in the green zone with minimal variation, your physician may consider gradually decreasing your daily medication.

Yellow zone— PEFR 50-80% of personal best. “Caution,” as asthma is worsening. A temporary increase in asthma medication is indicated. If you are on chronic medications, maintenance therapy will probably need to be increased. Contact your physician to fine-tune your therapy.

Red zone— PEFR below 50% of personal best. “Danger,” your asthma management and treatment program is failing to control your symptoms. Use your inhaled bronchodilator. If peak flow readings do not return to at least the yellow zone, contact your allergist/immunologist, who will help you employ aggressive therapy. Maintenance therapy will have to be increased.

These traffic light zones are broad guidelines designed to simplify asthma management. Successful control of asthma depends upon a partnership between the patient and the physician. This open communication and exchange of information can be improved with peak flow monitoring and reporting. Your physician can use this data to design and adjust your medication to achieve the best asthma control possible for you.

Your allergist/immunologist can provide you with more information on peak flow meters. *Tips to Remember* are created by the Public Education Committee of the American Academy of Allergy, Asthma and Immunology.

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