# PEAK-FLOW METER

## USE IN ASTHMA

**Prof. O.P. Jaggi**
M.D., Ph.D., FCCP (USA)

**Dr. Vikram Jaggi**
MD (Medicine), DNB

# The Authors

**PROF. O. P. JAGGI** has been Head of the Department of Clinical Research at the V. Patel Chest Institute, Delhi University. He has been the Governor of the North India Chapter, American College of Chest Physicians and Fellow of this College, as also of the American College of Allergy. He has been the Dean, Faculty of Medical Sciences, University of Delhi.

**DR. VIKRAM JAGGI** is a double gold medalist from Maulana Azad Medical College, New Delhi. He was the recipient of the prestigious Mohan Lal Nayar Award for the best Senior Resident of LNJP and GB Pant Hospitals. He did his MD in internal medicine and later did his DNB. He is Director of Asthma Self-Care Foundation. He has keen interest and specialization in asthma and allergy diagnosis & treatment.

**Q. What is a Peak-Flow Meter?**

A. It is an instrument that measures Peak Expiratory Flow Rate (PEFR). PEFR is the amount of air a person can blow out during a forced expiration after taking in as full a breath as possible.

A peak flow meter for an asthma patient is like a thermometer for a patient with fever. You may feel "hot" or feverish sometimes, but when you take your temperature with a thermometer, it is normal. With asthma, sometimes you may feel "tight" or your chest may feel "heavy", but you have normal lung function. The peak flow meter can help you to determine whether your sense of chest tightness is really an airway construction, just like the thermometer can help you to determine if your "hot" feeling is really a fever.

Its simplicity of use and light weight, enables it to be used at home, office or in a doctor's clinic.

**Q. What are its different parts?**

A. The diagram on the front page depicts the parts.

**Q. What are the steps for measuring PEFR?**

A. 1. Place the indicator at the base of the numbered scale.

2. Stand up.

3. Take a deep breath.

4. Place the meter in the mouth and close lips around the mouth-piece.

5. Blow out as hard and fast as possible.

6. Write down the achieved measurement or value.

7. Record the highest of the three measurements achieved.

**Q. What are the important points to be kept in mind while measuring PEFR ?**

A. Be in the same position each time you perform the peak expiratory flow test. Standing is the best position.

Hold the peak flow meter lightly, and be sure your fingers do not interfere with either the movement of the marker or the movement of air through the base of the meter.

Gripping the instrument too tightly may lower your readings.

The effort required to make the measurement is a short maximal blast of air, similar to that required in the initial effort to blow up a balloon. Because PEFR is effort-dependent, patients may need to be coached initially to give their best effort.

Most adults, as well as children as young as 5 years of age, can usually perform PEFR measurement.

**Q. Does the Peak Flow vary from person to person?**

A. Yes, it does. It is lower in children than in adults. It is highest in early adult life, and decreases in old age. It is higher in tall people than in short people. Men have higher peak flows than women of the same height and age.

**Q. What are the normal and the personal best values of peak flow? Which one of the two is important?**

A. Normal values are the average of peak flow measurements obtained from a large group of healthy people.

The personal best value of peak flow is obtained in a patient after he or she has been adequately treated so as to show the highest attainable result by the person. It is generally the highest PEFR measurement achieved in the middle of a good day. A patient's present value of peak flow compared to his personal best, gives the correct assessment of his asthma situation.

**Q. What are the different variables that can effect the peak flow reading in a patient ?**

A. There is a wide variation between morning and evening measurement of the PEFR, particularly at the start of treatment, before a good control is achieved. These variations occur because of the poor control of asthma, or due to the time at which the drug is given. It is recommended that home monitoring be done morning and evening at 7 a.m. and 7 p.m.

Different brands and models of peak flow meters often yield different values when used by the same person. Hence patients should always use the same model in the home or the doctor's clinic.

**Q. What is the significance of PEFR in asthma patients ?**

A. The decreased rates of expiration of air as expressed in decreased PEFR in asthma patients, occur earlier than the production of the symptom of breathlessness or even the signs of wheeze and ronchi detected through the stethoscope. By the time, wheezing is detected through the stethoscope, the PEFR has already decreased by 20 percent or more. Poor perception of the

severity of asthma, on the part of the patient and physician, has been cited as a major factor causing delay in treatment, and this may contribute to increased severity and mortality from asthma exacerbation.

**Q. How does knowing PEFR help asthma patient?**

A. 1. If the patient knows his best measurement of PEFR, drop in its value of upto 10 percent, indicates caution but no danger, as this much variation is not unexpected over a period of 24 hours.

A drop of 10 to 50 percent indicates that the patient is in danger of getting an attack.

If the drop is more than 50 percent, the patient is in an imminent danger of getting the attack. He must approach his physician who may examine him in the emergency department of the hospital. The correct knowledge of the reading of PEFR, predicts the condition of the patient and provides valuable time and opportunity to take all the necessary measures to prevent an attack of asthma.

2. A drop of PEFR also indicates that the patient

has been exposed to allergenic environments. He must try to localize the cause and prevent recurrence of the situation.

3. In some cases, there may be difficulty in making a diagnosis of the disease. It has been shown that if within a day, there is variability of PEFR of upto 20 percent or an improvement of upto 20 percent after giving a bronchodilator, the patient is suffering from asthma.

4. PEFR reading also helps in monitoring the improvement in the patient after a particular mode of treatment.

**Q. How dependable is the Peak Flow Meter for determining overall asthma control?**

A. It is quite dependable. The peak flow meter removes much of the guesswork in asthma management. Parents who once struggled with decisions such as when to administer medications, when to keep a child home from school, and when to take the child home from school, and when to take the child to doctor, find they are able to make these decisions more easily, based on the objective data provided by the meter. Children and adults with asthma find it easier to understand the information provided by the peak flow meter.

**Q. What is the importance of Peak Flow Monitoring at home?**

A. There are two very important reasons for taking peak flow reading at home. First, asthma doesn't behave the same way 24 hours a day. It tends to get spontaneously worse at night and get better during the day. Without peak flow meter at home, the physician can only guess how the patient was doing at home. Second, having a meter at home allows the patient to telephone the doctor during the night and get proper instructions for management of his case. Nine times out of ten, a physician experienced with home peak flow, can help get his patient out of trouble quickly and avoid uncalled for visit to an emergency room or hospital.

**Q. Which asthma patients are recommended to do Peak Flow Monitoring at home?**

A. The following patients should keep a peak flow monitor at home and use it:

1. Patients who experience severe attacks with little warning.

2. Patients who need to travel long distance to receive medical attention.

3. Patients who require high-dose inhaled corticosteroids or daily oral corticosteroids.

4. Patients with big ups and downs in peak flow, that is, greater than 20 percent of their best peak flow.

5. Patients whose medical history appears to provide an unsatisfactory guide to treatment.

# Available Publications

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| 1. | Managing Asthma | Rs. 30.00 |
| 2. | Asthma Attack : It Can be Prevented | Rs. 30.00 |
| 3. | Asthma : Facts and Fiction | Rs. 20.00 |
| 4. | Asthma Triggers: How to Avoid Them | Rs. 20.00 |
| 5. | Asthma Attack : Early Signs | Rs. 20.00 |
| 6. | Anti-Asthma Drugs : Their Proper Use | Rs. 20.00 |
| 7. | Metered-Dose Inhalers : Use in Asthma | Rs. 20.00 |
| 8. | Nebulizers : Use in Asthma | Rs. 20.00 |
| 9. | Space Inhalers : Use in Asthma | Rs. 20.00 |
| 10. | Peak-Flow Meter : Use in Asthma | Rs. 20.00 |
| 11. | House Dust Allergy | Rs. 20.00 |
| 12. | Food Allergy | Rs. 20.00 |
| 13. | Urticaria | Rs. 20.00 |
| 14. | Allergic Rhinitis (Sneezing Fits) | Rs. 20.00 |

# ASTHMA, CHEST & ALLERGY CENTRE

**New Delhi:** 128, Vasant Enclave, New Delhi-110057
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**Gurgaon:** U-25/11, DLF City Ph. III.
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Director:
**PROF (DR.) O.P. JAGGI**
M.D., Ph.D., FCCP, FACA

Deputy Director:
**DR. VIKRAM JAGGI**
MD (Medicine), DNB

Lab. Incharge:
**DR. NAMITA JAGGI**
MD (Microbiology)