

Aim: Recording Force of Air Expelled Using a Peak Flow Meter

Introduction:

A Peak Flow Meter (PFM) is a simple, portable, handheld device used to measure how fast a person can blow air out of their lungs. This measurement is known as the Peak Expiratory Flow Rate (PEFR) and reflects the function of the lungs and airway resistance. It is especially helpful in the monitoring and management of respiratory conditions such as asthma. Regular monitoring allows patients and healthcare professionals to detect early signs of airway narrowing and take timely action.

Materials Required:

- Peak Flow Meter
- Peak Flow Diary/Chart
- Alcohol wipes or disinfectant
- Healthy volunteers or patients

Procedure:

1. **Preparation:** Ensure the peak flow meter is clean and reset (marker at zero or lowest scale). Ask the subject to stand upright to allow full lung expansion.
2. **Inhalation:** The subject takes a deep breath, filling the lungs completely.
3. **Blowing into the Device:** The mouthpiece is placed in the mouth, lips sealed tightly around it (do not block with the tongue). The subject blows out as hard and as fast as possible in a single forceful breath.
4. **Recording the Reading:** Note the reading where the marker stops. Repeat the procedure three times, and record the highest value as the final PEFR reading.
5. **Personal Best Value:** The personal best PEFR is the highest value recorded over a 2-week period when the person is feeling well. This becomes the reference for interpreting asthma control.

Zones Based on Personal Best (Asthma Action Plan - AAP):

Zone	PEFR Range	Interpretation
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Green Zone	80–100% of personal best	Good control – continue regular medications
Yellow Zone	60–80% of personal best	Caution – airway narrowing; follow AAP steps
Red Zone	<60% of personal best	Danger – severe obstruction, seek emergency help

Sample Data Table: PEFR Readings

Subject No.	Name/ID	Trial 1 (L/min)	Trial 2 (L/min)	Trial 3 (L/min)	Best Reading (L/min)	Remarks
1	Subject A	370	390	400	400	Within green zone
2	Subject B	250	260	255	260	Yellow zone alert
3	Subject C	180	200	190	200	Borderline red zone
4	Subject D	420	410	430	430	Healthy lung output

Precautions:

1. Always ensure the subject is standing straight during measurement.
2. The peak flow meter must be clean and reset before each use.
3. Take multiple readings and always record the highest.
4. Do not allow the subject to cough or take shallow breaths during the test.

Conclusion:

Peak flow measurement is a valuable, quick, and non-invasive method to assess lung function and monitor asthma control. When combined with an Asthma Action Plan, it helps in timely decision-making and effective disease management.