

Spirometry in practice

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How can I interpret PEF measurements?

In healthy subjects peak flow is mainly an index of resistance to flow through the larger airways, bronchi and the larger bronchioles, which are subject to reflex bronchoconstriction in the hyper-responsive patient. It is not independent of respiratory effort; therefore it may be unsuitable for debilitated patients.

A vast number of respiratory abnormalities and diseases will have the effect of reducing peak flow. Click on the arrow icons below to see some examples:



- ▶ Diseases that cause obstruction in the upper airway (trachea and main bronchus), i.e. bronchial carcinoma, goitre.
- ▶ Obstructive airways disease, i.e. asthma, COPD.
- ▶ Restrictive lung disease, i.e. fibrosing alveolitis, rheumatoid lung.
- ▶ Chest wall abnormalities, i.e. neuromuscular disease, scoliosis.

By far the most common cause of reduction of peak flow is obstructive airways disease. A differential diagnosis cannot be made from peak flow results alone and further investigations such as spirometry have to be employed when this is needed.

Unfortunately, we cannot assume that a patient with a normal peak flow is free of respiratory disease. This is due to the fact that peak flow is reached very early in a blow and represents the air blown from the central airways. Many diseases will only affect the peripheral (small) airways especially early on in the disease process.



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