

PFT Interpretation – Rapid Guide

Before the numbers / Quality control

- Review age, gender, smoking status, BMI, indication, flow-volume curves
- Quality control
 - Three acceptable maneuvers with repeatable values: Two highest values of FVC and FEV₁ should be within 150mL (100mL if FVC ≤ 1L)
 - Good start (back extrapolation < 5% of FVC or 150 mL)
 - No cough or artifact in initial expiratory loop
 - Post-expiratory flow should be ≥ 6 seconds or 1 second plateau

Spirometry

- Normal FEV₁ and FVC 80-120% predicted
 - FEV₁/VC increased: suggests restriction
 - FEV₁/VC < LLN (ATS) or < 70% (GOLD): airflow obstruction present
 - Severity* FEV₁ (% pred)
 - Mild ≥80%
 - Moderate 50-79%
 - Severe 30-50%
 - Very severe <30%
- Either forced (FVC) or slow (SVC) vital capacity can be used to determine FEV₁/VC ratio
- *No universally agreed upon severity measures. These are GOLD

Bronchodilator response

- Positive response: ↑ FEV₁ or FCV by ≥ 12% and ≥ 200ml
- Lack of bronchodilator response does not preclude bronchodilator therapy

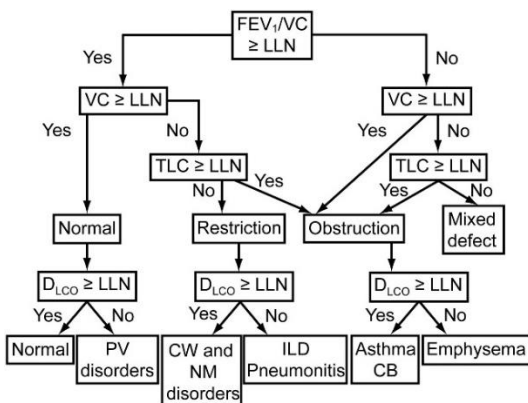
Lung volumes

- TLC < LLN (ATS) or < 80% (GOLD): restriction present
 - Severity TLC (% pred)
 - Mild >70%
 - Moderate 50-69%
 - Severe <50%
 - TLC > 120%: hyperinflation (if obstruction present)
- Other Lung Volumes:
VC: ↓ in restriction or air trapping
RV & FRC: ↑ with air trapping
RV & FRC: ↓ with restriction
ERV: ↓ in obesity, look at BMI

Diffusion capacity

- DL_{CO} >120%: L → R shunt, alveolar hemorrhage, polycythemia
 - DL_{CO} < LLN (ATS) or < 80% (GOLD): low; context to interpret
 - Severity DL_{CO} (% pred)
 - Mild >60%
 - Moderate 40-60%
 - Severe <40%
- Context:
- Obstruction present: emphysema
 - Restriction present: parenchymal disease, lung resection
 - Normal spirometry & lung volumes: anemia, early interstitial lung disease, pulmonary vascular disease

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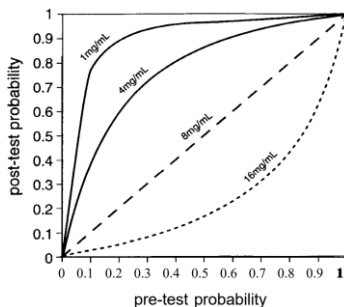
Methacholine Challenge

PC₂₀ (mg/ml)

- >16 Normal bronchial response
- 4-16 Borderline BHR
- 1-4 Mild BHR
- <1.0 Moderate-severe BHR

PC₂₀ = provocation concentration at which there is a 20% decrease in FEV₁

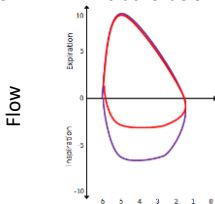
Contraindication = FEV₁ < 60%



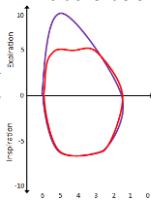
Flow-volume Loop Abnormalities

Obstruction:

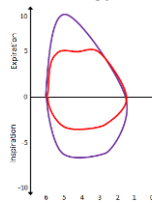
Extrathoracic



Intrathoracic



Fixed



volume