Classes of Respiratory Impairment

Overview: The impairment to a person caused by a respiratory disorder can be assessed from pulmonary function tests. Both the American Medical Association (AMA) and American Thoracic Society (ATS) have developed schemes for rating impairment to the whole person.

Parameters studied:

(1) FVC
(2) FEV1
(3) FEV1/FVC
(4) diffusing capacity of carbon monoxide
(5) exercise capacity in mL of oxygen per kg per min or as METs

NOTE: The division based on measured oxygen capacity is similar to that used for impairment in ischemic heart disease (above).

AMA Rating Scheme

Class 1: No impairment of the whole person (0%)

• FVC: >= 80% of predicted AND
• FEV1: >= 80% of predicted AND
• FEV1/FVC: >= 0.70 AND
• diffusing capacity D(CO): >= 70% of predicted

OR

• VO2 max (measured exercise capacity): > 25 (mL O2)/kg/min; > 7.1 METs

Class 2: Mild impairment of the whole person (10-25%)

• FVC: 60-79% of predicted OR
• FEV1: 60-79% of predicted OR
• diffusing capacity D(CO): 60-69% of predicted

OR

• VO2 max (measured exercise capacity): 20 - 25 (mL O2)/kg/min; 5.7 - 7.1 METs

Class 3: Moderate impairment of the whole person (26-50%)

• FVC: 51-59% of predicted OR
• FEV1: 41-59% of predicted OR
• diffusing capacity D(CO): 41-59% of predicted

OR

• VO2 max (measured exercise capacity): 15 - 20 (mL O2)/kg/min; 4.3 - 5.69 METs

Class 4: Severe impairment of the whole person (51-100%)

• FVC: <= 50% of predicted OR

• FEV1: <= 40% of predicted OR

• diffusing capacity D(CO): <= 40% of predicted

OR

• VO2 max (measured exercise capacity): < 15 (mL O2)/kg/min; < 4.3 METs

where:

• The FEV1/FVC is expressed as an absolute number and not as a percentage of the predicted value.

• Equations to predict expected values: These are described in Crapo. A more complete overview is available in the chapter on Respiratory and Acid-Base Disorders.

• The resting maximum oxygen consumption in mL per minute per kilogram is defined as 1 MET = 3.5 (mL O2)/kg/min.

ATS Rating Scheme

This is similar to the AMA rating scheme.

Additions

• Class 2 FEV1/FVC: 0.60 to 0.74

• Class 3 FEV1/FVC: 0.41 to 0.59

• Class 4 FEV1/FVC: <= 0.40

Differences

• Class 1 FEV1/FVC: >= 0.75

• Class 1 diffusing capacity D(CO): >= 80% of predicted

• Class 2 diffusing capacity D(CO): 60-79% of predicted

• measured exercise capacity not utilized
References:


