

## Chapter 12

# CARDIORESPIRATORY IMPAIRMENT

### Introduction

This chapter provides criteria for assessing permanent impairment from entitled cardiorespiratory conditions that affect the heart, lungs, and tracheobronchial tree.

Both loss of cardiac function and respiratory function may be manifested by similar clinical symptoms such as shortness of breath and/or decrease in exercise tolerance. Therefore, only one cardiorespiratory impairment assessment will be obtained for any condition or combination of conditions affecting the heart and/or lungs.

There are two exceptions as indicated below:

- A rating for impairment from tuberculosis conditions of the lungs may be applicable from Chapter 24, Tuberculosis Impairment and/or this chapter. The ratings are **compared** and the **highest** selected.

If pulmonary tuberculosis and another restrictive lung disease are both entitled, the conditions are bracketed for assessment purposes.

If pulmonary tuberculosis and other cardiorespiratory condition(s) (other than restrictive lung disease) are entitled, pulmonary tuberculosis is assessed separately. In these cases, there would be a tuberculosis impairment rating from Chapter 24, Tuberculosis Impairment and a cardiorespiratory impairment rating from Chapter 12, Cardiorespiratory Impairment.

- Impairment from obstructive sleep apnea is rated from **Table 12.8** and is not rated from other tables within this chapter.

If obstructive sleep apnea and other cardiorespiratory conditions are entitled, obstructive sleep apnea is rated separately. In these cases, there would be an obstructive sleep apnea impairment rating and a cardiorespiratory impairment rating.

Impairment from hypertension and vascular conditions such as varicose veins, peripheral vascular arterial disease, etc. are rated within Chapter 13, Hypertension and Vascular Impairment.

No rating for entitled cardiac or respiratory conditions is to be taken from tables within Chapter 17, Musculoskeletal Impairment.

Impairment from malignant cardiorespiratory conditions is rated within Chapter 18, Malignant Impairment. Follow the steps contained within the Malignant Impairment chapter.

## Rating Tables and Charts

This chapter contains three “Loss of Function” tables and five “Other Impairment” tables which may be used to rate entitled cardiorespiratory conditions. Three charts are also included to assist in evaluating information for impairment purposes.

### The tables and charts within this chapter are:

<b>Table 12.1</b>	Loss of Function - Exercise tolerance-Symptomatic Activity Level - METs	This table is used to rate impairment where there is effort/exercise intolerance.
<b>Table 12.2</b>	Loss of Function - Physiological Measurements	This table is used to rate impairment where there is pulmonary dysfunction.
<b>Table 12.3</b>	Loss of Function - Cardiac Failure	This table is used to rate impairment where there is cardiac failure.
<b>Table 12.4</b>	Other Impairment - Ischemic Heart Disease	This table is used to rate impairment where ischemic heart disease is present.
<b>Table 12.5</b>	Other Impairment - Valvular Heart Disease	This table is used to rate impairment where valvular heart disease is present.
<b>Table 12.6</b>	Other Impairment - Miscellaneous Cardiorespiratory	This table is used to rate impairment where miscellaneous cardiorespiratory conditions of the heart are present.
<b>Table 12.7</b>	Other Impairment - Lower Respiratory Tract	This table is used to rate impairment where lower respiratory tract disease is present.
<b>Table 12.8</b>	Other Impairment - Obstructive Sleep Apnea	This table is used to rate impairment where obstructive sleep apnea is present
<b>Chart 1</b>	Guide for use of Table 12.1 (Loss of Function - Exercise Tolerance-Symptomatic Activity - METs) and/or Table 12.2 (Loss of Function - Physiological Measurements)	This chart is used to determine when to use Exercise Tolerance (METs) and/or Pulmonary Function to determine the rating of impairment.
<b>Chart 2</b>	Cardiorespiratory Impairment: Activity Levels (with energy expenditure in METs)	This chart is used to determine the energy level that gives rise to cardiorespiratory symptoms.

<b>Chart 3</b>	Differentiation of impairment from Obstructive versus Restrictive Lung Disease	This chart is used to identify the presence of Obstructive and/or Restrictive Lung Disease.
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## Evaluating Functional Loss

Evaluating impairment of the cardiorespiratory system depends primarily on two evaluation tools - pulmonary function testing and exercise tolerance.

**Chart 1** provides a guide as to when exercise tolerance and/or pulmonary function measurements should be used to rate impairment.

Pulmonary function testing is readily available and performed in most standard respiratory laboratories.

Exercise tolerance may be evaluated in a laboratory setting (exercise testing) or may be based on detailed clinical information obtained from the Member/Veteran/Client's history. In the majority of cases, no formal exercise testing is required.

## Pulmonary Function

Pulmonary function tests provide one means of measuring respiratory function. These tests evaluate airflow and lung volumes as well as diffusion capacity of carbon monoxide. These values are compared to predicted values.

Blood gas values such as partial pressure of oxygen (PO<sub>2</sub>) and oxygen saturation may also be useful in the determination of impairment from some lung conditions. Impairment may sometimes be underestimated on the basis of pulmonary function tests alone, and the evaluation of blood gases provides a further measure of impairment.

A level of impairment can also be determined if continuous oxygen therapy is required. Refer to **Table 12.2**.

The following pulmonary function values will be used to determine the type and/or extent of pulmonary impairment: FVC; FEV<sub>1</sub>; FEV<sub>1</sub>/FVC; and Dco (DLco).

**FVC** (forced vital capacity) is the total volume of air that can be exhaled with maximal force. For VAC purposes, this measurement is used to determine impairment from restrictive lung conditions.

**FEV1** (forced expiratory volume in one second) is the volume of air that is exhaled with maximum effort in the first second after a full breath. FEV1 usually accounts for about 75% of FVC. For VAC purposes, this measurement is used to determine impairment from obstructive lung disease.

**FEV1/FVC** ratio is a comparison between the amount of air exhaled in the first second, compared to the total amount of air exhaled in one breath. For VAC purposes, this measurement is used to differentiate impairment from obstructive versus restrictive lung disease.

**Dco (DLco)** represents the diffusion capacity of carbon monoxide. This measurement provides information on the efficiency of gas transport across the alveolar-capillary membranes. This is most useful in determining impairment from restrictive lung disease due to parenchymal fibrosis. However, for VAC purposes, this measurement is used to determine impairment from both restrictive and obstructive lung disease. In some cases, the pulmonary function values are the result of both entitled and non-entitled lung conditions. **Chart 3** indicates the relationship between lung volume and flow rate for restrictive versus obstructive lung disease, and will assist in determining the types of lung disease present. This knowledge is necessary in applying the criteria within **Table 12.2**.

### **Exercise Tolerance and Use of METs**

Exercise tolerance may be used as a measure of impairment for conditions affecting the heart and lungs. The ability to exercise requires energy. Energy production depends on the provision of oxygen to body cells which involves both the heart and the lungs.

The use of METs, or metabolic units, provides a method of evaluating an individual's ability to exercise. One MET unit represents the baseline amount of oxygen used by the body at rest. (More specifically, one MET unit is 3.5 cc of oxygen per kilogram of body weight per second.)

**Chart 2 (METs)** groups various activities according to the amount of energy expended; that is, activities using 1-2 METs require smaller amounts of energy than those requiring 3-4 METs.

METs values can be obtained from a detailed Member/Veteran/Client medical history that provides information related to physical activity. This information should assist in the evaluation of the "symptomatic activity level" or the type of activity/activities that produce symptoms such as dyspnea, fatigue, dizziness, and/or chest pain. The rating is assigned based on the level at which activities within one MET category **consistently**

give rise to symptoms.

When METs values are used, the activities to be considered should be performed in a sustained manner so that there is more than a short, sporadic expenditure of energy, and thus, a more accurate evaluation of the effects of exercise.

Responses of the type "I cannot do such and such" or "I do not do so and so" are not useful in assessing the symptomatic activity level. What must be established is the level of exercise which consistently results in cardiorespiratory symptoms.

In some cases it may not be possible to use exercise tolerance to evaluate cardiorespiratory conditions. This may occur when disease conditions exist that prevent walking or exercising, when the Member/Veteran/Client is frail, or when the Member/Veteran/Client has cognitive impairments that interfere with history taking.

Some cardiorespiratory conditions cannot be accurately rated using exercise tolerance. These include conditions that do not decrease exercise tolerance, conditions that do not produce symptoms, and some conditions which are intermittent.

## **Cardiac Failure**

The degree of cardiac failure, as determined by investigative findings, provides an additional measure of cardiac function. X-ray and/or echocardiography are used to evaluate the extent of cardiac failure. Echocardiography provides a more exact measurement of left ventricular function (ejection fraction), measuring the amount of blood that can be pumped or ejected by the left ventricle in one heart beat. The normal ejection fraction is greater than 60%. When cardiac failure is present, the ejection fraction is reduced.

## **Loss of Function - Exercise Tolerance -Symptomatic Activity Level - (METS)**

**Table 12.1** is used to rate impairment of the cardiorespiratory system based on exercise tolerance. Only one rating may be selected irrespective of the number of cardiac and/or pulmonary diseases present.

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

## Loss of Function - Physiological Measurements

**Table 12.2** is used to rate impairment of the cardiorespiratory system based on pulmonary function tests (PFT). Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

When evaluating pulmonary function test results, the percentage of predicted **post-bronchodilator** lung values should be used.

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

## Loss of Function - Cardiac Failure

**Table 12.3** is used to rate impairment from cardiac failure. Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

**Table 12.3** is of particular importance in assessing a Member/Veteran/Client who is unable to be rated using exercise tolerance because of other significant conditions such as hemiplegia.

When entitled cardiac failure conditions result in permanent impairment of other organ systems, a consequential entitlement decision is required. If awarded, the resulting impairment of that organ system(s) will be rated using the applicable body system specific table(s).

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

## Other Impairment - Ischemic Heart Disease

**Table 12.4** is used to rate impairment from ischemic heart disease. Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

When entitled ischemic heart conditions result in permanent impairment of other organ systems, a consequential entitlement decision is required. If awarded, the resulting impairment of that organ system(s) will be rated using the applicable body system specific table(s).

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

### **Other Impairment - Valvular Heart Disease**

**Table 12.5** is used to rate impairment from valvular heart disease. Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

When entitled valvular heart conditions result in permanent impairment of other organ systems, a consequential entitlement decision is required. If awarded, the resulting impairment of that organ system(s) will be rated using the applicable body system specific table(s).

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

### **Other Impairment - Miscellaneous Cardiac Conditions**

**Table 12.6** is used to rate impairment from miscellaneous cardiac conditions. Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

When entitled miscellaneous cardiac conditions result in permanent impairment of other organ systems, a consequential entitlement decision is required. If awarded, the resulting impairment of that organ system(s) will be rated using the applicable body system specific table(s).

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

### **Other Impairment - Lower Respiratory Tract**

**Table 12.7** is used to rate impairment from lower respiratory tract conditions. Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

When entitled lower respiratory tract conditions result in permanent impairment of other organ systems, a consequential entitlement decision is required. If awarded, the resulting impairment of that organ system(s) will be rated using the applicable body system specific table(s).

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

### **Other Impairment - Obstructive Sleep Apnea**

**Table 12.8** is used to rate impairment from obstructive sleep apnea. Only one rating may be selected. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

When entitled obstructive sleep apnea conditions result in permanent impairment of other organ systems, a consequential entitlement decision is required. If awarded, the resulting impairment of that organ system(s) will be rated using the applicable body system specific table(s).

If non-entitled conditions or conditions rated within another chapter/table of the Table of Disabilities are contributing to the overall impairment, then the Partially Contributing Table (PCT) must be applied to arrive at the rating which is due to the entitled condition(s) rated within this chapter.

**Chart 1 - Guide for Use of Table 12.1- (Loss of Function - Exercise Tolerance - Symptomatic Activity Level - METs) and/or Table 12.2 - (Loss of Function - Physiological Measurements)**

Cardiac and respiratory conditions may exist alone or together. ***When they both exist, regardless of whether the conditions are entitled or non-entitled***, it is important to know which criteria should be used for the determination of the extent of cardiorespiratory impairment. The following guidelines apply:

- If cardiac condition(s) exist without respiratory condition(s), cardiorespiratory impairment is measured using METs and **Table 12.1**;
- If respiratory condition(s) exist without cardiac condition(s), the rating is the **average** of that obtained from METs (**Table 12.1**) and Pulmonary Function (**Table 12.2**);
- If both cardiac and respiratory conditions co-exist, the ratings are **compared** and the **highest** is taken from METs (**Table 12.1**) and Pulmonary Function (**Table 12.2**);
- If it is not possible to rate cardiorespiratory impairment using **Table 12.1** or **12.2**, ratings can be established using **Table 12.3** (Cardiac Failure), **Table 12.4** (Ischemic Heart Disease), **Table 12.5** (Valvular Heart Disease), **Table 12.6** (Miscellaneous Cardiorespiratory), **Table 12.7** (Lower Respiratory Tract) or **Table 12.8** (Obstructive Sleep Apnea).

**Chart 1 - Guide for Use of Table 12.1( Loss of Function - Exercise Tolerance- Symptomatic Activity Level - METs) and/or 12.2 (Loss of Function - Physiological Measurements)**

**FI = Functional Impairment.**

		Respiratory Disease Present		No Respiratory Disease Present
		Pulmonary function studies available	Pulmonary function studies not available	
<b>Cardiac Disease Present</b>	METs data available	FI = highest rate of METs and pulmonary function studies	FI = METs	FI = METs
	METs data not available	FI = pulmonary function studies	No FI from this Table	No FI from this Table
<b>No Cardiac Disease Present</b>	METs data available	FI = average of METs and pulmonary function studies	FI = METs	
	METs data not available	FI = pulmonary function studies	No FI from this Table	

## Chart 2 - Cardiorespiratory Impairment - Activity Levels (With Energy Expenditure in METs)

Chart 2 - Cardiorespiratory Impairment - Activity Levels (With Energy Expenditure in METs)

Symptomatic Activity Level	Energy Expended
<b>1-2 METs</b>	<p><b>Energy expended at rest or minimal activity</b></p> <ul style="list-style-type: none"> <li>• Lying down</li> <li>• Sitting and knitting</li> <li>• Using sewing machine (electric)</li> <li>• Sitting down</li> <li>• Sitting and talking on telephone</li> <li>• Travelling in car as passenger</li> <li>• Standing</li> <li>• Sitting and drinking coffee</li> <li>• Playing cards</li> <li>• Strolling (slowly)</li> <li>• Light Sweeping</li> <li>• Clerical work (desk work only)</li> </ul>
<b>2 - 3 METs</b>	<p><b>Energy expended in performing light household duties</b></p> <ul style="list-style-type: none"> <li>• Light household duties</li> <li>• Washing dishes</li> <li>• Walking slowly (3.5 km/h)</li> <li>• Walking less than 1 block (200m) at normal pace</li> <li>• Climbing less than 1 flight of stairs at normal pace</li> <li>• Playing piano, violin or organ</li> <li>• Typing</li> <li>• Cooking or preparing meals</li> <li>• Playing billiards</li> <li>• Clerical work including filing</li> <li>• Setting table</li> <li>• Driving power boat</li> <li>• Playing golf (with power buggy)</li> <li>• Bench assembly work (seated)</li> <li>• Dressing, showering</li> <li>• Horseback riding at walk</li> <li>• Using self-propelled mower or ride-on mower</li> <li>• Light tidying, dusting</li> <li>• Lawn bowling</li> <li>• Polishing silver</li> <li>• Driving car</li> </ul>

Symptomatic Activity Level	Energy Expended
<p style="text-align: center;"><b>3 - 4 METs</b></p>	<p><b>Energy expended in walking at an average pace</b></p> <ul style="list-style-type: none"> <li>• Walking at average pace (5 km/h)</li> <li>• Walking 1 - 2 blocks (100 - 200 m) at normal pace</li> <li>• Climbing 1 flight of stairs at normal pace</li> <li>• Golf (pulling buggy)</li> <li>• Machine assembly</li> <li>• Cleaning car (excludes vigorous polishing)</li> <li>• Minor car repairs</li> <li>• Tidying house</li> <li>• Shifting chairs</li> <li>• Light gardening (weeding and watering)</li> <li>• Light welding</li> <li>• Cleaning windows, waxing floors</li> <li>• Table tennis</li> <li>• Vacuuming</li> <li>• Cycling (10 km/h)</li> <li>• Making beds</li> <li>• Hanging out washing</li> <li>• Pushing light power mower</li> <li>• Driving heavy truck</li> <li>• Stocking shelves</li> </ul>
<p style="text-align: center;"><b>4 - 5 METs</b></p>	<p><b>Moderate activity: encompasses more strenuous daily activities with the exclusion of manual labour and vigorous exercise</b></p> <ul style="list-style-type: none"> <li>• Walking more than 2 blocks (400 m) at normal pace</li> <li>• Climbing more than 1 flight of stairs at normal pace</li> <li>• Mopping floors</li> <li>• Golf (carrying bag)</li> <li>• Light carpentry (e.g. chiselling, hammering)</li> <li>• Scrubbing floors</li> <li>• Ballroom dancing</li> <li>• Beating carpets</li> <li>• Polishing furniture</li> <li>• Wallpapering</li> <li>• Carrying groceries (10 kg)</li> <li>• Gentle swimming</li> <li>• Tennis doubles (social)</li> <li>• Stocking shelves with light objects</li> <li>• Painting outside of house</li> <li>• Hoeing (soft soil)</li> <li>• Stacking firewood</li> <li>• Carrying trays, dishes</li> </ul>

Symptomatic Activity Level	Energy Expended
5 - 6 METs	<b>Heavy exercise: manual labour or vigorous sports</b> <ul style="list-style-type: none"> <li>• Walking slowly but steadily up stairs</li> <li>• Carpentry (e.g. using hand tools)</li> <li>• Pushing a full wheelbarrow (20 kg)</li> <li>• Walking 6.5 km/h (sustained brisk walk discomfort in talking at the same time)</li> <li>• Swimming laps</li> <li>• Digging in garden</li> <li>• Shovelling dirt</li> <li>• Using hand saw</li> <li>• Lifting and carrying (20 kg)</li> <li>• Sexual intercourse without stopping</li> </ul>
6 - 7 METs	<ul style="list-style-type: none"> <li>• Badminton (competitive)</li> <li>• Tennis (singles, non-competitive)</li> <li>• Using a pick and shovel to dig trenches</li> <li>• Water skiing</li> <li>• Loading truck with bricks</li> </ul>
7 - 8 METs	<b>Very heavy exercise or labour</b> <ul style="list-style-type: none"> <li>• Carrying heavy objects (30 kg)</li> <li>• Horseback riding (galloping)</li> <li>• Jogging (8 km/h)</li> <li>• Sawing wood with hand tools</li> </ul>
8 - 9 METs	<ul style="list-style-type: none"> <li>• Running (9 km/h)</li> <li>• Chopping hardwood</li> <li>• Squash (non competitive)</li> <li>• Skiing (cross - country)</li> <li>• Calisthenics</li> </ul>
10+ METs	<b>Arduous work</b> <ul style="list-style-type: none"> <li>• Carrying loads (10 kg) up a gradient</li> <li>• Cycling quickly (25 km/h)</li> <li>• Running quickly (10 km/h)</li> <li>• Football</li> </ul>

***The activities listed under each heading are examples. Other activities that have the same METs expenditure can be used for reference if their METs level is recognized in medical or scientific literature.***

### Chart 3 - Differentiation of Impairment from Obstructive Versus Restrictive Lung Disease

Certain pulmonary function values or combination of values help differentiate between restrictive and obstructive lung disease and the effect that each or both are having on pulmonary function (will assist when applying the PCT).

**Chart 3 - Differentiation of Impairment from Obstructive Versus Restrictive Lung Disease**

Interpretation	FVC%	FEV1%	FEV1/FVC%
Normal	≥ 85%	≥ 85%	≥ 75%
Airway Obstruction	Normal or Low	Low	Low
Lung Restriction	Low	Normal or Low	Normal or High
Both Obstruction and Restriction	Low	Low	Low

### Table 12.1 - Loss of Function - Exercise Tolerance - Symptomatic Activity Level - METs

Only one rating may be given from **Table 12.1**. The rating is determined by using the METs value obtained from **Chart 2**.

**Table 12.1 - Loss of Function - Exercise Tolerance. Symptomatic Activity Level - METs**

Ratings	Symptomatic Activity Level (METs)
Nil	> 8
Four	7 - 8
Nine	6 - 7
Eighteen	5 - 6
Twenty-six	4 - 5
Thirty-four	3 - 4
Forty-three	2 - 3
Seventy-one	1 - 2

### Table 12.2 - Loss of Function - Physiological Measurements

Only one rating may be given from **Table 12.2**. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

The FVC measurement is used to rate impairment from restrictive lung disease.

The FEV1 measurement is used to rate impairment from obstructive lung disease.

Dco (DLco) is used to rate impairment from both restrictive and obstructive lung disease.

**Table 12.2 - Loss of Function - Physiological Measurements**

Rating	% FVC	% FEV1	Dco DLCO	PO2 O2 Sat*
Nil	>85%	> 85%	>85%	
Nine	80-84%	80-84%	80-84%	
Eighteen	75-79%	70-79%	70-79%	
Twenty-five	70-74%	60-69%	60-69%	
Thirty-five	60-69%	50-59%	50-59%	
Forty-five	50-59%	40-49%	40-49%	
Fifty-five	40-49%	30-39%	30-39%	
Sixty-one	30-39%	20-29%	20-29%	
Seventy-one	<30%	<20%	<20%	PO <sub>2</sub> < 55 O <sub>2</sub> Sat < 88% <b>or</b> continuous oxygen therapy

\*O<sub>2</sub> Saturation Value above is measured at room air and at rest.

**Table 12.3 - Loss of Function - Cardiac Failure**

Only one rating may be given from **Table 12.3**. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

Each bullet (•) represents one criterion. In order for a rating to be established for **Table 12.3**, only one criterion must be met at a level of impairment for that rating to be selected.

**Table 12.3 - Loss of Function - Cardiac Failure**

Rating	Criteria
Nil	<ul style="list-style-type: none"> <li>No clinical signs or symptoms of cardiac failure; <b>or</b></li> <li>Ejection fraction &gt;60%.</li> </ul>
Nine	<ul style="list-style-type: none"> <li>Evidence of right ventricular failure; <b>or</b></li> <li>Ejection fraction of 51-60%.</li> </ul>
Eighteen	<ul style="list-style-type: none"> <li>Signs and symptoms of mild to moderate left or biventricular failure persisting despite optimal therapy; <b>or</b></li> <li>Ejection fraction of 40-50%.</li> </ul>

Rating	Criteria
<b>Thirty-one</b>	<ul style="list-style-type: none"> <li>• Persistent, severe clinical signs and symptoms of left or biventricular heart failure despite optimal therapy; <b>or</b></li> <li>• Ejection fraction &lt; 40%.</li> </ul>

### Table 12.4 - Other Impairment - Ischemic Heart Disease

Only one rating may be given from **Table 12.4**. If more than one rating is applicable, the ratings are **compared** and the **highest** rating is selected.

Each bullet (•) represents one criterion. In order for a rating to be established for **Table 12.4**, only one criterion must be met at a level of impairment for that rating to be selected.

**Table 12.4 - Other Impairment - Ischemic Heart Disease**

Rating	Criteria
<b>Nil</b>	<ul style="list-style-type: none"> <li>• No evidence of symptoms (e.g. dyspnea, fatigue, chest pain, dizziness, syncope); <b>or</b></li> <li>• Non specific electrocardiogram changes.</li> </ul>
<b>Nine</b>	<ul style="list-style-type: none"> <li>• Coronary artery disease, with a history of myocardial infarction; no evidence of cardiac failure and infrequent or no angina; <b>or</b></li> <li>• Coronary artery disease, with successful coronary artery surgery; infrequent or no angina; <b>or</b></li> <li>• Coronary artery disease as demonstrated on angiogram.</li> </ul>
<b>Eighteen</b>	<ul style="list-style-type: none"> <li>• Coronary artery disease with ongoing angina.</li> </ul>
<b>Thirty-four</b>	<ul style="list-style-type: none"> <li>• Coronary artery disease characterized by a history of myocardial infarction followed by frequent angina and/or further myocardial infarctions; <b>or</b></li> <li>• Coronary artery disease, with coronary artery surgery, followed by frequent angina and/or further myocardial infarctions.</li> </ul>
<b>Seventy-one</b>	<ul style="list-style-type: none"> <li>• Coronary artery disease with angina at rest the majority of the time (day and night) despite optimal therapy.</li> </ul>

### Table 12.5 - Other Impairment - Valvular Heart Disease

Only one rating may be given from **Table 12.5**. If more than one rating is applicable, the ratings are **compared** and the **highest** rating is selected.

Each bullet (•) represents one criterion. In order for a rating to be established for **Table 12.5**, only one criterion must be met at a level of impairment for that rating to be selected.

**Table 12.5 - Other Impairment - Valvular Heart Disease**

Rating	Criteria
Nil	<ul style="list-style-type: none"> <li>Mitral valve prolapse with minimal or no symptoms; <b>or</b></li> <li>Aortic sclerosis with minimal or no symptoms.</li> </ul>
Two	<ul style="list-style-type: none"> <li>Valvular heart disease (other than mitral valve prolapse or aortic sclerosis) with no symptoms; <b>or</b></li> <li>Valvular heart disease with use of intermittent antibiotic therapy for surgical/dental procedures.</li> </ul>
Four	<ul style="list-style-type: none"> <li>Valvular heart disease with valve replacement surgery, with no subsequent symptoms and no requirement for anticoagulant drug therapy.</li> </ul>
Nine	<ul style="list-style-type: none"> <li>Valvular heart disease with valve replacement, with no subsequent symptoms, but requirement for ongoing anticoagulant drug therapy.</li> </ul>

**Table 12.6 - Other Impairment - Miscellaneous Cardiac Conditions**

Only one rating may be given from **Table 12.6**. If more than one rating is applicable, the ratings are **compared** and the **highest** rating is selected.

Each bullet (•) represents one criterion. In order for a rating to be established for **Table 12.6**, only one criterion must be met at a level of impairment for that rating to be selected.

**Table 12.6 - Other Impairment - Miscellaneous Cardiac Conditions**

Rating	Criteria
Nil	<ul style="list-style-type: none"> <li>Flow murmurs.</li> </ul>
Two	<ul style="list-style-type: none"> <li>Chronic asymptomatic arrhythmia, e.g. atrial fibrillation, atrial or ventricular ectopic beats.</li> </ul>
Four	<ul style="list-style-type: none"> <li>Cardiac arrhythmia controlled by optimal therapy.</li> </ul>
Nine	<ul style="list-style-type: none"> <li>Cardiac arrhythmia with intermittent symptoms despite optimal therapy; <b>or</b></li> <li>Cardiac arrhythmia requiring ongoing anticoagulant therapy.</li> </ul>
Eighteen	<ul style="list-style-type: none"> <li>Cardiac arrhythmia with ongoing symptoms despite optimal therapy.</li> </ul>

**Table 12.7 - Other Impairment - Lower Respiratory Tract**

Only one rating may be given from **Table 12.7**. If more than one rating is applicable, the ratings are **compared** and the **highest** rating is selected.

Each bullet (•) represents one criterion. In order for a rating to be established for **Table 12.7**, follow the “**ands**” and “**ors**”.

Table 12.7 - Other Impairment - Lower Respiratory Tract

Rating	Criteria
<b>Nil</b>	<ul style="list-style-type: none"> <li>Asymptomatic pleural plaques.</li> </ul>
<b>One</b>	<ul style="list-style-type: none"> <li>Recurrent lower respiratory infections (at least 6 or more per year); <b>or</b></li> <li>Intermittent use of inhaled bronchodilator medication</li> </ul>
<b>Two</b>	<ul style="list-style-type: none"> <li>Daily use of one inhaled medication (glucocorticosteroid, bronchodilator, nonsteroidal anti-inflammatory agent) <b>or</b> daily use of an oral leukotriene receptor antagonist or bronchodilator; <b>or</b></li> <li>Chronic cough, with production of sputum in the morning only.</li> </ul>
<b>Four</b>	<ul style="list-style-type: none"> <li>Daily use of inhaled glucocorticosteroid <b>and/or</b> nonsteroidal inhaled anti-inflammatory agent <b>and/or</b> oral leukotriene receptor antagonist <b>and</b> intermittent use of inhaled bronchodilator. Inhaled anticholinergic medication may also be used.</li> </ul>
<b>Nine</b>	<ul style="list-style-type: none"> <li>Daily use of inhaled glucocorticosteroid <b>and/or</b> nonsteroidal inhaled anti-inflammatory agent <b>and/or</b> oral leukotriene receptor antagonist <b>and</b> inhaled bronchodilator. Inhaled anticholinergic medication may also be used; <b>and</b></li> <li>Intermittent use of systemic glucocorticosteroids once a year or less <b>or</b> daily use of an oral bronchodilator; <b>or</b></li> <li>Chronic cough productive of sputum throughout the day.</li> </ul>
<b>Thirteen</b>	<ul style="list-style-type: none"> <li>Daily use of inhaled glucocorticosteroid <b>and/or</b> nonsteroidal inhaled anti-inflammatory agent <b>and/or</b> oral leukotriene receptor antagonist and inhaled bronchodilator. Inhaled anticholinergic medication may also be used; <b>and</b></li> <li>Intermittent use of systemic glucocorticosteroids <b>more</b> than once a year.</li> </ul>
<b>Eighteen</b>	<ul style="list-style-type: none"> <li>Permanent systemic glucocorticosteroid use.</li> </ul>

**Table 12.8 - Other Impairment - Obstructive Sleep Apnea**

Only one rating may be selected from **Table 12.8**. If more than one rating is applicable, the ratings are **compared** and the **highest** selected.

Each bullet (•) represents one criterion. In order for a rating to be established for **Table 12.8**, only one criterion must be met at a level of impairment for that rating to be selected.

**Table 12.8 - Other Impairment - Obstructive Sleep Apnea**

<b>Rating</b>	<b>Criteria</b>
<b>Nil</b>	<ul style="list-style-type: none"> <li>• Documented obstructive sleep apnea but asymptomatic.</li> </ul>
<b>One</b>	<ul style="list-style-type: none"> <li>• Nightly use of dental appliance.</li> </ul>
<b>Four</b>	<ul style="list-style-type: none"> <li>• Minimal clinical symptoms (daytime fatigue/sleepiness, irritability) with minimal interference despite optimal therapy; <b>or</b></li> <li>• Nightly use of CPAP (Continuous Positive Airway Pressure) machine.</li> </ul>
<b>Nine</b>	<ul style="list-style-type: none"> <li>• Moderate daytime somnolence/fatigue; falls asleep several times a day with regular interference in some daytime activities despite treatment.</li> </ul>
<b>Thirteen</b>	<ul style="list-style-type: none"> <li>• Excessive daytime somnolence; memory lapses and difficulty with concentration; interference with the majority to all daytime activities despite treatment.</li> </ul>

## Steps to Determine the Cardiorespiratory Impairment Assessment

If non-entitled conditions are contributing to the impairment then the Partially Contributing Table (PCT) must be applied to the applicable Table rating(s).

Refer to **Chart 1** (Guide for use of **Table 12.1** and/or **Table 12.2**) to select the appropriate Tables for evaluating cardiorespiratory impairment - **Table 12.1** (Loss of Function - Exercise Tolerance-Symptomatic Activity Level - METS) and/or **Table 12.2** (Loss of Function - Physiological Measurements).

- Step 1:** Determine the METs level that consistently produces cardiorespiratory symptoms using **Chart 2** (Cardiorespiratory Impairment: Activity Levels) and apply **Table 12.1** (Loss of Function - Exercise Tolerance-Symptomatic Activity Level - METs) to arrive at a rating for Exercise Tolerance.
- Step 2:** Does the Partially Contributing Table apply? If **yes**, then apply to rating at Step 1.
- Step 3:** Determine rating based on Pulmonary Function using **Table 12.2** (Loss of Function - Physiological Measurements), if applicable.
- Step 4:** Does the Partially Contributing Table apply? If **yes**, then apply to rating at Step 3.
- Step 5:** Determine Cardiorespiratory rating using **Table 12.1** (Loss of Function - Exercise Tolerance-Symptomatic Activity Level - METs) rating and/or **Table 12.2** (Loss of Function - Physiological Measurements) rating in accordance with **Chart 1** (Guide for use of **Table 12.1** and/or **Table 12.2**).
- Step 6:** Determine rating from **Table 12.3** (Loss of Function - Cardiac Failure) if applicable.
- Step 7:** Does the Partially Contributing Table apply? If **yes**, then apply to rating at Step 6.
- Step 8:** **Compare** ratings from Step 5 and Step 7. Select the **highest** rating.
- Step 9:** Determine a rating from "Other Impairment" **Tables 12.4 - 12.7**, if applicable. If more than one rating is obtained from these tables, the ratings are **added**.
- Step 10:** Does the Partially Contributing Table apply? If **yes**, then apply to rating at Step 9.

**Step 11:** Compare the “Loss of Function” rating from Step 7 with the “Other Impairment” rating obtained in Step 10. Select the **highest** rating.

**Step 12:** Determine the Quality of Life rating.

**Step 13:** Add ratings at Step 11 and Step 12.

**Step 14:** If partial entitlement exists, apply to rating at Step 13.

**This is the Disability Assessment for cardiorespiratory conditions.**

### **Obstructive Sleep Apnea**

**Step 15:** Determine a rating from **Table 12.8** (Other Impairment - Obstructive Sleep Apnea).

**Step 16:** Does the Partially Contributing Table apply? If **yes**, apply to the rating at Step 15.

**Step 17:** Determine the Quality of Life rating.

**Step 18:** Add the ratings at Step 16 and Step 17.

**Step 19:** If partial entitlement exists, apply to rating at Step 18.

**This is the Disability Assessment for obstructive sleep apnea.**