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## 3.1 Principles of Assessment

Before using the information in this chapter, the *Guides* user should become familiar with Chapters 1 and 2 and the Glossary. Chapters 1 and 2 discuss the *Guides*' purpose, applications, and methods for performing and reporting impairment evaluations. The Glossary provides definitions of common terms used by many specialties in impairment evaluation.

### 3.1a Interpretation of Symptoms and Signs

Some impairment classes refer to limitations in the ability to perform daily activities because of symptoms. When this information is subjective and possibly misinterpreted, it should not serve as the sole criterion upon which decisions about impairment are made. Rather, the examiner should obtain objective data about the extent of the limitation and integrate the findings with the subjective data to estimate the degree of permanent impairment. See the functional classifications of cardiac disease in Table 3-1.

**Table 3-1** NYHA Functional Classification of Cardiac Disease<sup>a</sup>

Class	Description
I	Individual has cardiac disease but no resulting limitation of physical activity; ordinary physical activity does not cause undue fatigue, palpitation, dyspnea, or anginal pain.
II	Individual has cardiac disease resulting in slight limitation of physical activity; is comfortable at rest and in the performance of ordinary, light, daily activities; greater than ordinary physical activity, such as heavy physical exertion, results in fatigue, palpitation, dyspnea, or anginal pain.
III	Individual has cardiac disease resulting in marked limitation of physical activity; is comfortable at rest; ordinary physical activity results in fatigue, palpitation, dyspnea, or anginal pain.
IV	Individual has cardiac disease resulting in inability to carry on any physical activity without discomfort; symptoms of inadequate cardiac output, pulmonary congestion, systemic congestion, or anginal syndrome may be present, even at rest; if any physical activity is undertaken, discomfort is increased.

<sup>a</sup>Adapted from: Criteria Committee of the New York Heart Association. *Diseases of the Heart and Blood Vessels: Nomenclature and Criteria for Disease*. 6th ed. Boston, Mass: Little Brown & Co; 1964. This well-established classification is preferred over the newer classification introduced in the 7th edition.

### Exercise Testing

When feasible, the physician should attempt to quantify limitations due to symptoms by observing the individual during exercise.<sup>2</sup> A motor-driven treadmill with varying grades and speeds is the most widely used device for standardized exercise protocols. The protocols vary slightly, but they all attempt to relate the exercise to excess energy expended and to functional class. The excess energy expended is usually expressed in terms of the "MET," which represents the multiples of resting metabolic energy used for any given activity. One MET is considered to be 3.5 mL (kg/min). The 70-kg man who burns 1.2 kcal/min while sitting at rest uses approximately 3 METS when walking 4 km/h.

Table 3-2 displays the relationship of excess energy expenditures in METS to functional class according to the protocols of several investigators. With all protocols, the exercise periods last for 2 or 3 minutes; the time periods are represented in the table by boxes with numbers giving the estimated METS involved.

