Chapter 25: Occupational and Functional Assessments

Factors associated with a return to work assessment:

- Patient’s desire to return to work
- Job satisfaction
- Perception of disability
- Previous employment record
- Age
- Education level
- Work tolerance in relation to job demands
- Disease severity
- Family concerns
- Coworkers’ and supervisor’s attitudes or restrictions
- Support mechanisms, psychological variables
- Available financial resources (e.g., disability income, insurance, savings)
• Returning to work often provides positive psychosocial, physical, and material benefits.
  – Some with chronic disease/conditions are considered disabled and never work again
  – Social Security Disability Insurance (SSDI) reports that of those disabled secondary to ischemic heart disease, 65% had a work capacity ≥5 METs and 12% had ≥7 METs

• Not returning to work is important because of societal economic implications and the social well-being of patients.

• Coronary heart disease is the leading cause of disability in many countries.
• Risk stratification of cardiac patients into low-, moderate-, and high-risk categories for future events can be helpful in counseling patients on resuming physical activity.

• The GETP8 lists risk stratification schemes in Boxes 2.2 and 2.3.

• Individuals who have physically demanding jobs, especially those in moderate and high clinical risk categories, may require further diagnostic evaluation or intervention before work resumption.

• Identification of signs of depression and other psychological disorders may be beneficial because psychological issues can have a negative influence on work-related decisions in some patients.
Return to work should be discussed as early as possible with patients (e.g., hospitalization, early convalescence, initial clinic visit, cardiac or pulmonary rehabilitation).

Early positive affirmation about return to work, especially for women, may improve return to work rates and psychological status.

Timetables for return to work will vary depending upon:
- Cardiac event
- Disease severity
- Prognosis
- Job requirements
- Safety regulations
- Employer attitudes or concerns

Concern for public safety (firefighters, ambulance drivers, police, etc.) should also factor into return to work discussions.
• Assess disease severity and prognosis of patient after event.
• Ask the patient about preadmission employment status.
• Discuss expected recovery course with the patient, including return to work.
• Establish a tentative timetable for work resumption, when appropriate.
• Ask the patient about any work return concerns.
• Be prepared to discuss qualifying criteria for disability benefits.
• Determine if a job analysis, including an employer contact/work-site visit, is warranted.
• Suggest that the patient contact the employer to maintain contact and, if appropriate, discuss return to work.
• Encourage participation in a progressive exercise program to enhance work resumption potential.
• Consider referrals for procedures or treatments that may assist patients in returning to work.
• A job analysis performed soon after a major cardiac event or other significant health issue can serve as a basis for:
  – Delineating expected physical and psychological demands of the patient’s job, thus determining if an individual will be safe on the job
  – Identifying the patient’s concerns regarding work resumption
  – Establishing a tentative timeline for work resumption
  – Individualizing assessment or rehabilitation procedures that may be undertaken during the early recovery period to optimize return to work decisions and capability

• The following should be considered in a job analysis for energy requirements:
  – Weight lifting, stacking, carrying, pushing, and pulling requirements
  – Environmental conditions, including exposure to potentially hazardous materials
  – Psychological stressors
• Return to work planning needs to also consider:
  – Work demands from the employer’s perspective
  – Employer’s expectations
  – The return to work policy
  – Sick leave
  – Worker’s compensation,
  – Possibilities for a gradual return to work in terms of hours and duties or modifications
  – Specific job/union regulations


• It is noted that job energy expenditure can vary greatly due to many factors including equipment (type, age), time on the job, how a task is performed, etc. Most jobs require <4 METs of continuous energy expenditure.
• Quantification of peak work capacity (peak METs) by treadmill or cycle ergometer is helpful in providing realistic vocational recommendations.

• Useful to evaluate submaximal and maximal exercise-induced hemodynamic responses, electrocardiographic responses, and possible symptoms.

• Over an 8-hour day, fatigue is more likely to occur when the average energy expenditure rate exceeds 50% of the individual’s peak MET capacity.

• The appropriate upper intensity level to recommend for short-term (e.g., 60-min) occupational work tasks should be individualized based on patient characteristics (e.g., severity of disease, serious arrhythmias), tolerance for physical work, type of work performed, duration and frequency of work tasks, and work environment.

• Most patients should be able to use the same physical activity guidelines that are individualized for them for home and leisure-time physical activities or for an unsupervised exercise program.
• Standard stress testing will fulfill most work evaluation requirements.

• However, some jobs require a significant amount of static workload (e.g., lift, carry, push, pull) that cannot be evaluated by a stress test.

• A weight-carrying test protocol and a repetitive weight-lifting test protocol can evaluate tolerance for static work combined with light to moderate dynamic work.

• Both protocols are graded and designed to be applicable to several types of work tasks requiring a static component.

• Blood pressure and heart rate responses may be measured.

• Specialized equipment (e.g., Baltimore Therapeutic and Valpar work simulators) is available also for simulated work testing.
The weight-carrying test protocol (Table 25-1) is designed to evaluate tolerance for light to heavy static effort combined with light dynamic work. In one protocol, the patient walks on a treadmill at a slow pace while carrying specified weight loads (e.g., dumbbell weights) in one or both hands.

The repetitive weight-lifting test protocol (Table 25-1) is designed to evaluate tolerance for intermittent static work combined with a dynamic work component. In this protocol, the patient repetitively lifts specified weight loads, typically from the floor or pallet to a table or bench for a set period. Patients can be instructed to lift at a set pace or select a rate that simulates or somewhat exceeds their job requirement.

### TABLE 25-1. DYNAMIC-STATIC WORK SIMULATION TEST PROTOCOLS

#### WEIGHT-CARRYING TEST EXAMPLE Protocol

<table>
<thead>
<tr>
<th>Stage</th>
<th>Duration (min)</th>
<th>Speed (mph)</th>
<th>Load (lb)</th>
<th>Predicted METs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>2.0</td>
<td>0</td>
<td>2.4</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>2.0</td>
<td>20</td>
<td>3.0</td>
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<tr>
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<td>3</td>
<td>2.0</td>
<td>30</td>
<td>4.2</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>2.0</td>
<td>40</td>
<td>5.0</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>2.0</td>
<td>50</td>
<td>4.8</td>
</tr>
</tbody>
</table>

#### REPETITIVE LIFTING TEST EXAMPLE Protocol

<table>
<thead>
<tr>
<th>Stage</th>
<th>Duration (min)</th>
<th>Lift Rate</th>
<th>Load (lb)</th>
<th>Predicted METs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>Self-paced</td>
<td>30</td>
<td>3.8</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Self-paced</td>
<td>40</td>
<td>4.2</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Self-paced</td>
<td>50</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>Self-paced</td>
<td>30, 40, 50</td>
<td>4.2</td>
</tr>
</tbody>
</table>

METs, metabolic equivalents with 1 MET = oxygen uptake of 3.5 mL·kg⁻¹·min⁻¹.

*Test protocols can be modified to meet specific work conditions.

* A seated rest period of 1 to 3 minutes follows each stage.

* Weight load in weight-carrying test (e.g., dumbbell) can be carried in one or both hands; weight load in repetitive test can be lifted from floor or pallet to work bench.

* METs are based on tests using the specific protocol listed.

* The slightly lower MET level for carrying 50 lbs versus 40 lbs is likely because of the shorter walk time and the inability to achieve steady-state conditions.

• Performed if there are questions about whether work simulation was realistic or if the subject is having difficulty performing his or her job tasks
  – *Heart rate monitors can be used.*
  – *Alarms can be used when upper limit is attained*
  – *Holter monitoring for ECG evaluation is practical*
Cardiac rehabilitation (CR) is an appropriate referral for those with cardiac indications.

Tailoring of CR programs in the early phase of recovery to address the work-related concerns of patients resuming work may enhance work resumption potential.

- However, studies show mixed results with CR effect on factors related to return to work decisions.

Stress management, physical therapy, and work hardening programs are also potentially important programs for patients with appropriate indications.
Some patients apply and receive disability pay from:

- **The Social Security Disability Insurance (SSDI) in the United States**
  - Pays benefits for individuals who cannot work because they have a medical condition that is expected to last at least 1 year or result in death

- **The Canada Pension Plan-Disability (CPP-D) benefits in Canada**
  - Requires that an individual be between ages 18 and 65; has made contributions to CPP for a minimum qualifying period; and has a disability that is prolonged and severe, thus the person is incapable of regularly pursuing any substantially gainful occupation

- **Private long-term disability insurance**
- **The Veterans Administration service**
- **Non-service-related pensions**
A new line of employment after a cardiac or other event is an option:

- The Americans with Disabilities Act (ADA) "prohibits private sector employers who employ 15 or more individuals and all State and local government employers from discriminating against qualified individuals with disabilities in all aspects of employment."

- The Canadian Human Rights Commission ensures that the principles of equal opportunity and nondiscrimination are followed in all areas of federal jurisdiction.

- State or provincial vocational services may be available for individuals who need retraining for employment.

What is the position in Australia?
• Maintaining an active lifestyle after a disabling health event is important for both physical and mental health.
  – *Other disease prevention*
  – *Secondary prevention*
  – *Enhanced quality of life*
  – *Maintenance of independent living*

• Various guidelines suggest 30 to 60 minutes of moderate-intensity aerobic activity on most or preferably all days of the week, supplemented by an increase in daily lifestyle activities.
Patients need to consider the following conditions that may affect their ability to perform their job, intentional exercise, or physical activities and in some cases may significantly increase the risk of performing an activity:

- Heat stress
- Cold stress
- Altitude
- Pollutants
Enabling cardiac patients to resume as active and productive a lifestyle as possible for their disease state is an important goal.

- includes helping patients resume employment, when appropriate, as well as home and leisure-time activities.

Various techniques can be used to help optimize work and activity resumption for patients,

- including a job or activity analysis, exercise testing, simulated work testing, and activity monitoring.

Exercise training programs can also be tailored to enhance the potential of patients to resume specific types of work.

To help optimize the return-to-work process for patients, healthcare professionals should have a basic understanding of job requirements and governmental policies and procedures that can influence work resumption and work conditions for patients.