Post CABG Rehabilitation

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Definition

Cardiac rehabilitation services are comprehensive, long-term programs involving:

- medical evaluation.
- prescribed exercise.
- cardiac risk factor modification.
- education and counseling.
Aim of Rehabilitation

➤ These programs are designed to limit the:

- physiologic and psychological effects of cardiac illness.
- reduce the risk for sudden death or reinfarction.
- control cardiac symptoms, stabilize or reverse the atherosclerotic process.
- and enhance the psychosocial and vocational status of selected patients

Indication

➤ Comprehensive cardiac rehabilitation is indicated to all stable patients after CABG.
Contraindications

- Patient with post operative angina.
- Uncontrolled hypertension.
- Uncontrolled Arrhythmias
- Recent ECG changes denoting acute ischemia.
- Wound infection.
- Unstable sternum.
- NYHA III and IV.

Cardiac Rehab Terminology

- Phase I: Inpatient Rehab - A program that delivers preventive and rehabilitative services to hospitalized patients following CABG.
- Phase II: Early outpatient CR - a programmed that delivers preventive and rehabilitative services to patients in the outpatient setting early after CABG within the first 2-6 weeks.
- Phase III: Long-term outpatient CR - Longer term delivery or preventive and rehab
Cardiac Rehabilitation Phases

Phase I – Inpatient

- Cardiac rehabilitation begins during in-hospital recovery following surgery or a cardiac event. The first phase is conducted by an exercise physiologist. Before each cardiac patient is discharged, questions regarding personal recovery are answered, and preparation for the second phase of cardiac rehabilitation takes place.

Phase I includes:

- Monitored hall walking program.
- Education about coronary artery disease, the need for aerobic exercise and the fundamentals of exercise. An outline of the symptoms of exercise intolerance, and a home walking program.
- Personal plan of risk-factor management and activity progression
Phase II – Outpatient

- The outpatient phase of cardiac rehabilitation begins two to six weeks after discharge from the hospital. The second phase is conducted by an Registered Nurse and exercise specialist. The patient attends one-hour outpatient sessions, two to three times per week.

Phase II includes:

- Up to 36 sessions of EKG monitored exercise (Two to three sessions per week, one hour per session).
- Blood pressure and heart rates monitored.
- Exercise performed on treadmills, stationary bikes, rowing machines, stairsteppers and light weight-lifting.
- Individual dietary consultation.
Phase III – Outpatient Maintenance

- This optional phase of cardiac rehabilitation promotes independence within a structured exercise program. The third phase is conducted by an exercise physiologist in consultation with the program director. At the outpatient facility, cardiac patients exercise under supervision two times a week during regular facility hours. Pulse rate and blood pressure continue to be monitored.

Phase III includes:

- Two sessions per week, one hour per session.
- Blood pressure and heart rate monitoring.
### Risk Stratification for Exercise

- **Class A**: apparently healthy and no clinical evidence of increased cardiovascular risk of exercise.
- **Class B**: established CHD that is clinically stable. Overall low risk of cardiovascular complications of vigorous exercise.

Guidelines published by the American Heart Association use four categories of risk according to clinical characteristics.
Class C: moderate or high risk of cardiac complications (multiple myocardial infarctions or cardiac arrest, NYHA class III or IV.

Class D: unstable disease for whom exercise is contraindicated.

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Content and duration of exercise session

Each exercise session includes three phases:
- Warm-up for 5 to 10 minutes. Warm-up exercises consist of stretching, flexibility movements.
- Conditioning or training phase, which consists of at least 20 minutes and preferably 30 to 45 minutes of continuous aerobic activity.
- Cool-down for 5 to 10 minutes. permits a gradual recovery from the conditioning phase.
• Omission of cool-down can result in a transient decrease in venous return, reducing coronary blood flow when heart rate and myocardial oxygen consumption remain high.
• Adverse consequences can include hypotension, angina, ischemic ST-T changes, and ventricular arrhythmias.

Cardiac Rehab Safety

➢ Supervision: Important consideration when prescribing an exercise:
• Patients at moderate or high risk (Class C) should participate in a medically supervised program with ECG monitoring and personnel and equipment suitable for advanced cardiac life support.
• This level of supervision should be continued for 8 to 12 weeks until the safety of the prescribed exercise regimen has been established
CARDIAC REHABILITATION HOME EXERCISE PROGRAM

GUIDELINES FOR EXERCISE

- ♥ walking on level surfaces. Walking slowly if you do walk on hilly terrain.
- ♥ Spacing patient’s activities. Waiting at least 1 hour after eating a heavy meal or bathing before exercising.
- ♥ Avoidance of exercising in extremely hot/humid weather: greater than 80°F/75 percent humidity.
- ♥ Avoidance of exercising in extremely cold/damp weather: less than 32°F unless covering patient’s face with a scarf or mask.
- ♥ If patient feels ill, he must not exercise. When he feels better, he can start his program again slowly.

Cardiac risk factors reduction
Blood pressure management
Smoking cessation.
Control diabetes.
Nutritional counseling.
Weight management.
Lipid control.
Psychological counseling.

Rehab & CABG

Cardiac rehabilitation has been shown to reduce mortality.
Cardiac rehabilitation beginning 4 to 8 weeks after coronary bypass and consisting of 3-times-weekly educational and exercise sessions for 3 months is associated with a 35% increase in exercise tolerance, a slight (2%) but significant increase in HDL-C, and a 6% reduction in body fat.
Proved clinical benefits

- Published reports have documented that cardiac rehabilitation after CABG improves patient outcomes in the form of reducing mortality and morbidity rates.

Benefits of cardiac rehabilitation after coronary artery bypass surgery

- Death, myocardial infarction, bypass surgery or angioplasty
  