



Nursing and Exercise Physiologist Guidelines for Cardiovascular Rehabilitation (CR) #2

Title: Exercise Prescription for Peripheral Artery Disease (PAD) patients
in the CR Program

Responsibility: Cardiovascular Rehabilitation Personnel

Purpose of Guidelines: To ensure that all patients in the UTMC Cardiovascular
Rehabilitation Program are exercising in a safe and effective
manner.

Procedure:

- I. The five components of the exercise prescription include: frequency, intensity, duration, type (mode) and progression. In the majority of cases, a patient's exercise prescription is based on the results of a 6 minute walk test and is developed through a combined effort of the medical director and clinical exercise physiologist. Key variables to consider in the development of an exercise prescription for PAD patients include clinical status, exercise capacity, ischemic/angina threshold, changes in medications and musculoskeletal/orthopedic limitations.
- II. Frequency
 - A. Patients are prescribed and encouraged to undergo three (3) Supervised Exercise Therapy (SET) sessions each week.
 - B. A total of 36 sessions are usually prescribed (will vary based on insurance type).
- III. Exercise intensity may be prescribed using one or more of the following methods:
 - A. Claudication pain (scale of 0-4)
 1. No pain = 0
 2. Mild pain = 1
 3. Moderate pain = 2
 4. Intense pain = 3
 5. Unbearable pain = 4
 - B. Speed walked during 6 minute walk test

- C. Exercise intensity of 20 - 40 beats per minute above resting heart rate if no exercise test available
- D. Rating of Perceived Exertion (RPE) of 11-15 on the Borg Scale of 6-20
- E. Exercise intensity should be prescribed at a heart rate of 10 beats per minute below the ischemic threshold.

IV. Duration

- A. Each SET session will be 30-60 minutes.
- B. Sessions are comprised of a warm-up, conditioning, and cool-down phase.
 - 1. Warm-up and cool-down activities include low intensity aerobic activities.
 - 2. The conditioning phase will vary from patient to patient depending on diagnosis, clinical status, functional capacity and ability of the patient to maintain the prescribed training intensity.
- C. Patients may rest at any time during the session and rest time is included in the total session time.

V. Type or mode of the conditioning phase should include rhythmic, large muscle group activities. The different types of exercise equipment may include:

- A. Motorized treadmill
- B. Upright and recumbent cycle ergometers if unable to tolerate treadmill
- C. Indoor track

VI. Progression of exercise will vary from patient to patient.

- A. Patients will begin with walking at a speed that produces initial claudication pain on the treadmill or that limits walking within 8 minutes.
 - 1. The initial speed goal is 2.0 mph but can be determined by a 6 minute walk test.
 - 2. The patient is to walk until claudication pain reaches moderate intensity (2 on Claudication Pain Scale).
 - 3. The patient will stop walking and sit until the pain has completely subsided.
- B. Continue this process for a total time (walking and resting) of 30 to 60 minutes.
- C. When the patient is able to tolerate 2.0 mph of walking up to 8 minutes, incline on the treadmill is increased to a grade of 1%. Pt. will walk at 2.0 mph and 1% grade until they are able to complete 8 minutes of walking.

1. An increase in grade by 1% (up to 10%) when walking > 8 minutes occurs without pain.
 2. An increase in speed by 0.1 mph (up to 3.0 mph) after 10% grade is achieved and walking >8 minutes.
 3. Increase grade by increments of 0.5 to 1.0% until a max grade of 15% is reached.
 4. Increase speed by increment of 0.1 mph thereafter.
- D. If patient is able to tolerate the above protocol, progression in duration and intensity should be individualized to patient tolerance. In the absence of clinical symptoms and problems, factors to consider regarding patient's progression include initial fitness level, motivation and goals, symptoms and musculoskeletal limitations.
- E. SET may include continuous or intermittent exercise.
- F. When progressing a patient's exercise prescription, evaluate the patient to be sure that they are tolerating the increase in work rate. Optimally, the patient will be able to perform these increases without exceeding their target heart rate or a RPE of 15.
- G. Patient will be observed for any signs or symptoms of over-exertion such as excessive dyspnea or fatigue. The exercise physiologist will evaluate the patient to be sure that the patient is clinically able to tolerate increases in workload.
- VII. Documentation of exercise prescription and SET for PAD will be done in the CR telemetry monitoring system.
- A. Each patients' initial exercise prescription and progress will be documented in the UTMC Cardiovascular Rehabilitation Exercise Prescription Individual Treatment Plan.
 - B. Each patient's SET session, including workloads on each exercise modality, heart rates, blood pressures, pain level, claudication pain level, dyspnea level, RPE, resting ECG, exercise ECG, recovery ECG, symptoms, and any other applicable information will be documented in the telemetry monitoring system's Cardiovascular Rehabilitation Session Report for PAD patients.
- VIII. In addition to SET, each patient should be encouraged to gradually return to activities of daily living and other sports/recreational activities as evaluated and appropriately modified by cardiovascular rehabilitation staff.
- IX. References
- Vascular Disease Foundation, AACVPR (2016). *PAD Exercise Training Toolkit: A Guide for Healthcare Professionals*. https://www.aacvpr.org/Portals/0/pad-exercise-training-toolkit_website_2020.pdf

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Initiated: 5/2019

Reviewed: 6/2019, 5/2021

Revised: 6/2021