

Cardiac Rehabilitation in the Second Phase Exercise Guidance

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■ Purpose

To provide outpatient cardiovascular disease patients with guidelines for the second phase of cardiac rehabilitation exercise instruction. The primary purpose of the second phase of cardiac rehabilitation is to :

- Increase patients' exercise or activity tolerance.
- Assist patients in returning to their original work.
- Help patients recover or improve quality of life.
- Prepare for the third phase of cardiac rehabilitation.

■ Content

After assessment by cardiothoracic surgeons, clinically-stable post-surgical cardiovascular patients are referred to the rehabilitation outpatient department. Following assessment by rehabilitation physicians and

completion of the 'maximal exercise test,' patients are then referred to physical therapists. The physical therapist initiates assistance with the second phase (outpatient phase) of cardiac rehabilitation exercise training. The following outlines relevant exercise principles and precautions.

**If you have any questions, please don't
hesitate to ask your physical therapist.**

■ **Exercise Prescription :**

- ◆ After the physical therapist obtains the report of the "maximal exercise test" from the patient, a personalized "exercise prescription" will be developed based on the data and the patient's condition.
- ◆ The exercise prescription for each patient will be adjusted according to the patient's training condition on the day of the session.

- ◆ A complete course of cardiac rehabilitation exercise training consists of 36 training sessions, with an average of 3 outpatient rehabilitation exercise training sessions per week at the hospital.
- ◆ Please engage in daily activities and exercise within the activity limits specified by the physical therapist. Regular exercise can promote the recovery of cardiac function, but adjustments should be made based on the daily physical condition, and forceful exercise should be avoided.

■ Exercise Plan :

Each exercise training session includes a warm-up period (before), training period (during), and cool-down period (after). The type of exercise equipment used during the exercise test determines the exercise equipment used in cardiac rehabilitation training.

- ◆ Warm-up period: The purpose is to ① increase blood circulation and oxygen supply to working muscle groups, ② raise body temperature, improve

muscle contraction efficiency, ③ reduce the risk of myocardial infarction due to insufficient oxygen supply, ④ approximately 5-10 minutes.

- ◆ Training period (cardiorespiratory endurance training): Lasts about 15-20 minutes, and the exercise volume can usually be adjusted within two to four weeks.
- ◆ Cool-down period: The purpose is to ① prevent rapid blood pressure drops to avoid arrhythmia, ② reduce blood pooling in the lower limbs due to upright exercise, prevent insufficient venous return, ③ reduce muscle soreness, ④ approximately 5-10 minutes.
- ◆ Upon meeting the following criteria, the third phase of cardiac rehabilitation may be initiated: ① The maximum oxygen consumption in the last maximal test is at least > 5 METs, with a target of > 8 METs. ② Ability to self-monitor exercise plan. ③ Stable heart conditions without contraindications to exercise. ④ Stable psychological and emotional conditions.

When undergoing cardiac rehabilitation training, you will be connected to an electrocardiogram (ECG) and blood pressure monitor for continuous monitoring. If you experience chest pain, difficulty breathing, dizziness, nausea, the urge to vomit, cold sweats, or extreme fatigue during training, please immediately inform the physical therapist for appropriate intervention. In your daily activities or exercise, if you encounter any of the mentioned symptoms or feelings of palpitations, rapid or slow heartbeat, immediately cease the current activity and seek assistance from a companion or nearby medical help.

■ Precautions

- Engage in daily activities and exercises according to the activity restrictions instructed by the physical therapist, avoiding exceeding the prescribed challenges.

- If dizziness, difficulty breathing, confusion, unstable gait, chest pain, or any discomfort occurs during exercise, or if there is a situation where the heart rate does not rise but instead drops, immediately stop the activity or exercise and seek medical attention.
- If you feel unwell on a given day or if vital signs such as body temperature, pulse, and breathing are unstable, do not force yourself to exercise to prevent any unfortunate accidents.

■ Home Activity Plan

- Perform joint exercises for all limbs at least once a day.
- Engage in home exercise training according to the activity restrictions instructed by the physical therapist.
- If you have any questions regarding your home activity plan, please call or consult your physical therapist.

Comparison Table of Daily Activities and their Oxygen Consumption (METs/Hr)

Activity Intensity	METs/Hr	Activity
Very Light	1.3	Standing.
	1.5	Reading or talking on the phone.
	1.8	Sitting in class, studying, or taking notes.
Light	2.0	Slow walking (1.6 - 3.2 km/h), playing a musical instrument, arranging flowers, light office work, using light hand tools, standing light work (bartending, cashier, electronic assembly, filing).
Light to Moderate	2.5	Walking downstairs, cooking, light house cleaning, shopping, pushing a stroller.
	2.5 - 3	Normal walking (3.2 - 4 km/h), slow-paced dancing, golf (riding a cart), bowling, fishing.
	3.0	Standing work involving some effort (assembly or repair of heavy parts, welding, car repair, packing, etc.), caring for patients (nursing work), driving a bus or truck, car washing, window washing, mopping the floor with a mop, playing moderately intense games with children, cleaning the appearance of the house, vacuuming the floor, picking fruits or vegetables, scrubbing the floor.
Mildly Vigorous	3.5	Fast walking (5 km/h), weightlifting, water aerobics (recreational swimming), golf (without carrying clubs), canoeing or rafting (without carrying heavy loads or constant movement at a speed not exceeding 5 km/h).

Moderately Vigorous	4	Brisk walking (6.0 kilometers/hour), continuous stair climbing, moderate-speed dancing, leisurely cycling at a speed less than 16 kilometers/hour, trimming grass, planting low trees, weeding, moderately strenuous planting or gardening work, stone carving, painting, wallpapering, lifting moderately heavy objects, and slightly heavier agricultural work.
	4.5	Slow swimming, playing golf (carrying own clubs).
	5	Very brisk walking (6.4 kilometers/hour), tennis doubles, moderately fast dancing, some weight training, briskly descending stairs, standing lifts of 12 to 25 kilograms, digging with a small shovel, slightly heavier landscaping and gardening work, operating power tools, using a scythe to cut grass, carpentry, cleaning gutters, carpet laying, mechanical logging (no need to carry tools for climbing).
Vigorous	6	Jogging (7 kilometers/hour), ice skating, primary focus on tennis doubles, using manual tools like shovels, mattocks, and hoes, operating heavy machinery, forestry management.
	6 - 7	Hiking.
	6 - 8	Intense rowing or canoeing, fast dancing,

		most weight training.
	6-10	Cycling at a speed of 16 to 25 kilometers/hour, faster swimming, aerobic gymnastics.
	7 - 12	Tennis singles, squash.
	8	Jogging (8 kilometers/hour), skiing, heavy farming.
	10	Running (9.6 kilometers/hour).
	13.5	Running (12.8 kilometers/hour).
	16	Running (16 kilometers/hour).

The information provided is for reference only. Please discuss your clinical status with your physician or physical therapist.

If you have any questions, please contact

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