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Education



ECME
EXERCISE RECOMMENDATIONS IN HEART
DISEASE



Introduction

- Physical activity is defined as any bodily movement produced by skeletal muscles that result in energy expenditure significantly beyond resting level, particularly involving continuous actions of large muscles.
- Exercise is defined as the systematic execution of physical activity for a specific purpose
- One can earn the benefits of being physically active without going to a gym, playing sports, or using fancy equipment

Benefits of exercise in people with heart disease

People of any age with CVD can benefit from regular, moderate physical activity unless otherwise contraindicated. The associated benefits of regular physical activity for those with CVD include the following

- **Augmented physiological function-** Exercise rehabilitation consistently improves objective measures of functional capacity in those with heart disease. Endurance training improves walking mobility among stroke survivors, and increases walking distance in people with PVD and exercise-induced claudication
- **Less symptoms -** Exercise training reduces recurrent anginal symptoms, lessens breathlessness associated with heart failure and stroke, and reduces severity of claudication pain with walking in patients with PVD
- **Better quality of life -** Exercise rehabilitation is associated with small but consistently favourable changes in self-reported quality-of-life domains among survivors of myocardial infarction, people with heart failure and PVD
- **Improved metabolic profile-** Regular moderate physical activity favourably alters raised blood pressure, raised triglyceride concentrations, and low high-density lipoprotein cholesterol concentrations in those with CHD, and insulin resistance and glucose intolerance in those predisposed to diabetes
- **Reduced mortality-** Habitually, physically active survivors of myocardial infarction are up to 25% less likely to die than their sedentary counterparts
- **Improved muscle fitness-** Resistance exercise improves physical strength and self-confidence in those with CVD and enhances the capacity to perform strength-related activities of daily living

Types of exercise

A comprehensive physical activity routine includes three kinds of activities:

- Aerobic exercise
- Strength training
- Flexibility exercises



Aerobic exercise

Aerobic exercise increases the heart rate, works the muscles, and raises respiratory rate. For most people, it's best to aim for a total of about 30 minutes a day, at least 5 days a week. If one hasn't been very active recently, he can start out with 5 or 10 minutes a day and work up to more time each week. Or one can split up his activity for the day -- a brisk 10-minute walk after each meal. If one is trying to lose weight, he may want to exercise more than 30 minutes a day.

Examples of aerobic exercise:

- Taking a brisk walk (outside or inside on a treadmill)
- Taking a low-impact aerobics class
- Swimming
- Stationary bicycle indoors

Strength training

- Strength training, done several times a week, helps build strong bones and muscles:
- Joining a class to do strength training with weights, elastic bands, or plastic tubes
- Lifting light weights at home

Flexibility exercises

Flexibility exercises, also called stretching, help keep the joints flexible and reduce the chances of injury during other activities. Gentle stretching for 5 to 10 minutes helps the body warm up and get ready for aerobic activities such as walking or swimming.

Being active throughout the day

In addition to formal exercise, there are many opportunities to be active throughout the day. Being active helps burn calories. The more one moves around, the more energy he has.

Strategies that can help increase activity level:

- Walking instead of driving whenever possible
- Taking the stairs instead of the elevator
- Working in the garden, or do some housecleaning every day
- Parking at the far end of the shopping center lot and walk to the store

Levels of intensity of physical activity

Low intensity physical activity elicits a slight increase in breathing rate and is relative for a given person (e.g., strolling < 3 km/h on level firm ground, tidying the house, leisurely stationary cycling)

Moderate intensity physical activity elicits a moderate, noticeable increase in depth and rate of breathing, while still allowing comfortable talking and is relative for a given person (e.g., purposeful walking 3–6 km/h on level firm ground, water aerobics, cycling for pleasure < 16 km/h, and cleaning the house)



Recommendations for exercise for patients with heart disease

- People with established clinically stable CVD should aim, over time, to achieve 30 minutes or more of moderate intensity physical activity (such as purposeful walking) on most, if not all, days of the week.
- Moderate intensity is associated with a moderate, notice-able increase in the depth and rate of breathing while still allowing comfortable talking, and is relative for a given person. The amount of activity can be accumulated in shorter bouts, such as three 10-minute sessions. Less intense, even shorter bouts, with more rest periods, may suffice for those with debilitating CVD. In addition, regular low-to-moderate level resistance activity, prefer-ably initiated under the supervision of an exercise professional, is encouraged.
- The potential for functional benefit is greatest in those people who were least active before commencing regular physical activity, and this benefit may be achieved even at relatively low levels of physical activity.

Pre-activity evaluation

Any pre-activity evaluation should involve a medical review, physical examination and a history of physical activity to ensure there is no contraindication to becoming more active. Further, patients should be their medications and reducing their overall coronary risk profile.

Counselling

Brief physical activity counselling by physicians, combined with supporting written material, leads 10%–20% of patients to increase their activity for up to 6 months. Sustained changes can be achieved by episodic follow-up and reinforcing positive behavioural change.

Referral for supervision

Patients who have advanced CVD and those who lack confidence or request group support will benefit most from up to 12 weeks of supervised exercise rehabilitation that incorporates endurance and resistance activity. Supervision may be beneficial to reduce anxiety, monitor symptoms and arrhythmias, and establish appropriate physical activity intensity after an acute cardiovascular event or vessel revascularisation.

Indications to defer activity

- unstable angina
- uncontrolled cardiac failure
- Severe aortic stenosis
- Uncontrolled hypertension. $\geq 180/110$ mm Hg
- symptomatic hypotension $< 90/60$ mmHg



- resting tachycardia or arrhythmias
- diabetes with poor blood glucose control

Indications to terminate activity

- Squeezing, discomfort or typical pain in the centre of the chest or behind the sternum ± spreading to the shoulders, neck, jaw and/or arms; or symptoms reminiscent of previous myocardial ischaemia
- Dizziness, light headedness or feeling faint
- Difficulty in breathing
- Nausea
- Uncharacteristic excessive sweating
- Palpitations associated with feeling unwell
- Undue fatigue
- Leg ache that curtails function
- Physical inability to continue
- For people with diabetes: shakiness, tingling lips, hunger, weakness, palpitations

Progress and maintaining physical activity

- Sedentary people should be encouraged to build up gradually from a low intensity to the recommended dose of physical activity
- Progression will be slower for those with advanced CVD or comorbidities
- Initially, emphasise frequency (through the day and number of days) followed by duration. Having achieved at least 30 minutes on most, and preferably all, days of the week, progression to moderate intensity may be considered
- If, for any reason, a person's habitual physical activity is curtailed for several weeks they should resume at a lower intensity and for a shorter duration
- Longer disruptions associated with disease progression or new comorbidities will require greater modulations in dose, including brief abstinence in some cases

Specific recommendations

- **Supervised exercise rehabilitation** - After discharge from hospital, patients with myocardial infarction, unstable angina pectoris, or coronary artery bypass grafting or percutaneous coronary interventions who have no contraindications to physical activity should be offered, and participate in, up to 12 weeks of supervised exercise rehabilitation.
- **People with implantable cardiac devices, congenital and valvular heart disease** - People with well compensated, clinically stable CVD, including those with implantable cardiac devices, and congenital and valvular heart disease, should progress over time to the recommended physical activity dose.



- **People with debilitating CVD** - People with advanced CVD or severely impaired functional status should progress toward the recommended dose of physical activity after first having achieved lower categories of exercise (less intense, shorter duration, less frequent) interim targets, preferably under supervision...
- **People with peripheral vascular disease and stroke survivors** - Unless contraindicated, all people with PVD and stroke survivors should progress over time to the recommended level of physical activity.
- **Resistance activity** - In addition, people with well compensated, clinically stable CVD are likely to gain additional muscle fitness from light-to-moderate resistance activities. Ideally, these should be implemented under the guidance of an exercise professional and initially supervised

References

1. www.diabetes.org/weightloss...exercise/exercise/overview
2. Tom G Briffa, Andrew Maiorana, Noella J Sheerin, Anthony G Stubbs, Brian F Oldenburg, Neville L Sammel and Roger M Allan Physical activity for people with cardiovascular disease: recommendations of the National HeartFoundation of Australia, MJA 2006; 184 (2): 71-75