



SAY GOODBYE TO SEDENTARY LIFESTYLE !

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Sedentary life style is an independent risk factor for coronary artery disease (CAD). Regular physical activity is an important factor not only in the primary but also in the secondary prevention of CAD¹. It improves functional capacity, quality of life and helps in treating the co morbidities like diabetes, obesity and hypertension. Psychological disorders which are now considered as strong risk factors for CAD, adversely affect recovery after major CAD events². Exercise training may reduce up to 70% prevalence of depression and anxiety in such patients. Depressed patients with CAD have 3 fold higher mortality than non-depressed patients³. Small up ticks in exercise capacity may produce profound improvements in depression and depression related mortality³.

Any body movement that increases energy expenditure is termed as **physical activity**. When this activity becomes planned, purposeful and repeated on regular basis is called as **exercise**. Exercise can be categorized into 4 major types

- 1) **Aerobic exercises:** walking ,jogging and running to improve cardiovascular and respiratory fitness
- 2) **Strength (resistance) exercises:** weight lifting, pull-ups, push-ups and squats to increase muscular strength.
- 3) **Balance exercises :** walking backwards, standing on one leg and heel toe walking designed to improve postural control to prevent falls.
- 4) **Flexibility exercises:** stretching or yoga intended to improve the range and ease of movements around a joint.

The beneficial effects of exercise have no lowest threshold⁴. However, at least 70% of its benefits on all cause mortality are achieved by 150 minutes per week of moderate to vigorous physical activity⁴. Intensity of exercise is further classified as Absolute and Relative intensity.

Absolute intensity is defined on the basis of rate of energy expenditure most commonly in terms of METs. One MET is the rate of energy expenditure while sitting at rest, which, for most people approximates an oxygen uptake of 3.5 milliliters per kilogram per minute. The energy expenditure of other activities is expressed in multiples of METs. Absolute rates of energy expenditure are commonly divided into four categories:

Sedentary activity requires 1.0 to 1.5 METs such as sitting and reading or watching television or standing quietly.

Light intensity requires 1.6 to less than 3.0 METs such as walking at a slow pace (2 mph or less).

Moderate intensity requires 3.0 to less than 6.0 METs such as walking briskly (3 to 4 mph).

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Vigorous intensity requires 6.0 or greater METs such as walking very fast (4.5 to 5 mph) and running.

Older patients having low functional capacity usually have a mismatch between the absolute rate of energy expenditure and the perceived level of effort⁴. For these individuals **Relative intensity** is used, which refers to the ease or difficulty with which any physical activity is performed. It can be described as percent of maximal heart rate or rate of perceived exertion (RPE). The most commonly used scale is Borge Scale and the simplest form is **Sing-talk test**. During light-intensity activities most people are able to sing, during moderate-intensity they can talk but not sing, and during vigorous activities even talking is difficult.

Exercise training (ET) is an integral component of cardiac rehabilitation/secondary prevention programs (CRSP)⁵. It may reduce mortality up to 15%⁵. Before starting ET, a symptom limited exercise test should be done⁵. This will not only elicit important findings which may require further intervention before exercise training. But also tells the baseline functional capacity and heart rate limit⁵ (target HR is 65 to 85 %of maximal HR or at least 10 beats/min below the level of any exercise induced symptomatic or silent ischemia)⁶. Contraindications of ET are same as that of exercise tolerance test. Prescription of aerobic exercise consists of 4 factors; modes of activity, frequency, duration and intensity. The most common modes are walking, jogging, swimming and cycling. Exercise should be performed for at least 30 minutes preferably 45-60 minutes on at least 5 days (preferably 6 or 7 days) per week. A typical exercise session should consist of 5 minutes of warm up with stretching, then 20 minutes of aerobic exercise and 5 to 10 minutes of gradual return to resting state⁵. Resistance training; 2 to 3 times weekly on non consecutive days consisting of 8 to 15 slow repetitions of 8 to 10 different exercises of both upper and lower body till moderate fatigue, has shown to be safe and to improve quality of life⁷. When exercise test is not done before ET, one can exercise at heart rate (HR) 20 beats faster than ones resting value. For unsupervised ET, patient can judge the exercise intensity by using **sing-talk test**. However if a person can't do a single continuous 30 minutes exercise, 10 minute bouts of exercise performed throughout the day may provide similar health benefits⁴.

In general physically active individuals should sleep better, feel better, and function better. A single bout of moderate-to-vigorous physical activity can improve blood pressure control, insulin sensitivity, sleep, anxiety symptoms and cognition on day when it is performed. Most of these improvements become even larger with the regular performance of moderate-to-vigorous physical activity. Although the need of hour is to make suitable environments for promoting physical activity but at individual level the value of self motivation and action can't be overemphasized. For physically inactive individuals the main message is to build up gradually a level of physical activity that is appropriate and can be maintained in the long run.

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