

## Prevention of Physical Inactivity

Lack of sufficient physical activity is the second most important contributor to preventable deaths, trailing only tobacco use. A sedentary lifestyle has been linked to 28% of deaths from chronic diseases. It is recommended that every adult **should** engage in 30 minutes or more of moderate-intensity physical activity on most days of the week. This guideline complements previous advice urging at least 20–30 minutes of more vigorous aerobic exercise three to five times a week.

Patients who engage in regular moderate to vigorous exercise have a lower risk of myocardial infarction, stroke, hypertension, hyperlipidemia, type 2 diabetes mellitus, diverticular disease, and osteoporosis. The benefits of exercise appear to be dose-dependent, with a major difference in benefit between no physical activity and mild to moderate exercise, and a smaller difference in benefit between moderate and vigorous exercise. Current evidence supports the recommended guidelines of 30 minutes of moderate physical activity on most days of the week in both the primary and secondary prevention of coronary heart disease (CHD). **In fact**, there appears to be a linear dose-response relationship between physical activity and CHD, at least up to a certain level of activity. Leisure time physical activity is associated with about a 30–50% reduction in risk of CHD in both men and women, in middle-aged and older persons, and in men with established CHD.

In older nonsmoking men, walking 3 kilometers or more per day is associated with an almost 50% lower age-related mortality. The relative risk of stroke was found to be less than one-sixth in men who exercised vigorously compared with those who were inactive; the risk of type 2 diabetes mellitus was about half among men who exercised five or more times weekly compared with those who exercised once a week. Glucose control is improved in diabetics who exercise regularly, even at a modest level. In sedentary individuals with dyslipidemia, high amounts of high-intensity exercise produce significant beneficial effects on serum lipoprotein profiles. Physical activity is associated with a lower risk of colon cancer (although not rectal cancer) in men and women and of breast and reproductive organ cancer in women. **Finally**, weight-bearing exercise (especially resistance and high-impact activities) increases bone mineral content and retards development of osteoporosis in women and contributes to a reduced risk of falls in older persons.

Exercise **may** also confer benefits on those with chronic illness. Men and women with chronic symptomatic osteoarthritis of one or both knees benefited from a supervised walking program, with improved self-reported functional status and decreased pain and use of pain medication. Exercise produces sustained lowering of both systolic and diastolic blood pressure in patients with mild hypertension. **In addition**, physical activity **can** help patients maintain ideal body weight. Individuals who maintain ideal body weight have a 35–55% lower risk for myocardial infarction than with those who are obese. Physical activity reduces depression and anxiety; improves adaptation to stress; improves sleep quality; and enhances mood, self-esteem, and overall performance.

In longitudinal cohort studies, individuals who report higher levels of leisure time physical activity are less likely to gain weight. **Conversely**, individuals who are overweight are less likely to stay active. **However**, the amount of physical activity necessary to control body weight may be > 30 minutes per day; at least 45–60 minutes of daily moderate-intensity physical activity may be necessary to maximize weight loss and prevent significant weight regain. **Moreover**, adequate levels of physical activity appear to be important for the prevention of weight gain and the development of obesity. Physical activity **also** appears to have an independent effect on health-related outcomes when compared with body weight, suggesting that adequate levels of activity **may** counteract the negative influence of body weight on health outcomes.

Physical activity **can** be incorporated into any person's daily routine. **For example**, the clinician **can** advise a patient to take the stairs instead of the elevator, to walk or bike instead of driving, to do housework or yard work, to get off the bus two or three stops earlier and walk the rest of the way, or to walk during the lunch hour. The basic message **should** be the more the better and anything is better than nothing.