
Special Articles from the Cardiology Section of the University of Puerto Rico School of Medicine

EDITORIAL: Prescription of Physical Activity for the Promotion of Cardiovascular Health



Evidence-based practice of medicine has provided a responsibility for the practicing physicians to prescribe physical activity to their patients in order to help prevent the development of cardiovascular disease and to reduce the risk of a recurrent heart

attack in individuals who already have coronary artery disease. This is important because for a long time rest and physical inactivity had been recommended for patients with heart disease.

Physical activity is the movement of the human body produced by contraction of skeletal muscle that increases energy expenditure. It includes leisure time, occupational, transportation and house hold-related activities as well as purposeful exercise. Although patients frequently do not appraise its value, it includes activities such as walking, gardening, bicycling, stretching exercises, stair climbing, jogging or running, aerobics, dancing and swimming.

The information correlating the presence of a relationship of physical inactivity to the development of cardiovascular disease has been obtained in multiple cohort, case-control, epidemiological and control trial studies showing that persons with moderate to high level of physical activity have a lower mortality rate than those with sedentary habits. Twenty-three population studies including more than 560,000 people revealed that physical activity is causally related to coronary heart disease in an inverse fashion (1).

In the Puerto Rico Heart Health Program, a prospective study of coronary heart disease in 9,136 rural and urban men free of coronary heart disease aged 35-79 years followed up for 8¼ and 15 years, multivariate analysis revealed an independent inverse relationship of physical activity to the incidence of coronary heart disease and that physical activity is a protective factor against heart attacks. Sedentary subjects had 38% more cardiovascular deaths (2-4).

As systematic review and meta-analysis of 48 clinical trials (5) revealed that compared to usual care, cardiac rehabilitation including physical activity significantly reduced the incidence of premature death from any cause and from cardio vascular disease in particular.

Also, dozens of scientific papers have confirmed that the performance of regular physical activity can bring many benefits to improve health. Those benefits include

reduction in the risk of coronary heart disease, stroke and of having a second heart attack in people who already had one. It lowers the risk of developing hypertension and reduces blood pressure in those who already have hypertension. It promotes psychological well-being and helps to maintain a healthy body weight.

Many leading organizations have made statements concerning physical activity and public health particularly in the promotion of the performance of physical activity. Among these are the Centers for Disease Control and Prevention, the American College of Sports Medicine, the National Institute of Health, the US Surgeon General, the American Heart Association and the World Health Organization (6) (WHO). Also, the Pan American Health Organization and the Physical Activity Network of the Americas (PANA) have joined this effort.

In spite of the benefits of regular physical activity the majority of the American adults (55%) do not engage in enough physical activity to reduce the health risks (7).

Recognizing the global burden of chronic disease of which cardiovascular disease is the main problem, at the Fifty-Third World Health Association Assembly held in 2000, physical inactivity was affirmed as a key risk factor in the prevention and control of chronic diseases (8). The most important risk factors for chronic diseases include high blood pressure, high concentration of cholesterol, inadequate intake of fruits and vegetables, overweight and obesity, physical inactivity and tobacco use. The major risk factors account for about 80% of deaths from heart disease and stroke (8). It was estimated by WHO in 2002 that 1.9 million deaths were attributable to low levels of physical activity (9).

In 2005, the World Health Organization approved the statement "Increasing physical activity is now considered to be as important as tobacco control, promoting a healthy diet and obesity prevention in minimizing the burden of non-communicable diseases on the world".

The performance of physical activity is indicated for healthy persons and for persons with cardiovascular disease. Physical exertion may increase the risk of an acute coronary event among persons with advanced coronary atherosclerosis, particularly those that do not exercise regularly. These, in order to increase their physical activity, should be evaluated by a physician and provided an activity program appropriate for their clinical status.

Sedentary people can increase their physical activity in many ways. It is useful to follow the physical activity recommendations utilizing a lifestyle approach to increase the activity. Simple measures include climbing stairs rather than taking an elevator, doing more house and yard work and parking your car at a more distant parking slot in order to walk more in order to reach the entrance of your office. Physical activity needs not to be strenuous to be beneficial to health.

There is a need for physicians to advocate the performance of regular physical activity. The increasing prevalence of obesity and the sedentary lifestyle that occurs in our society requires that priority should be given to the prescription of the performance of regular physical activity. For this, physician-patient communication is essential. Physicians have a unique opportunity to spread the message about the health benefits of physical activity. They should not only encourage their patients, but also their relatives and friends, school officials, politicians and community leaders to develop programs and facilities that promote the performance of regular physical activities.

The AHA/ACC Guidelines (10), concerning physical activity as a preventive measure for cardiovascular disease, present a goal of conducting physical activity for 30-60 minutes per day seven days a week with a minimum of five days per week. It is encouraged 30-60 minutes of moderate intensity aerobic activity such as brisk, walking preferably all days a week supplemented by an increase in daily lifestyle activities such as walking breaks at work, gardening and household work. It encourages resistance training two days per week. High-risk patients are advised to have a medically supervised program. These recommendations apply to female subjects (11) as well as to elderly patients (12).

The prescription of physical activity should not be limited to participation in structured exercise programs, but should include occupational, leisure and daily life activities. The program should promote all aspects of physical conditioning, and encourage socialization in an effort to improve the quality of life. Particular attention should be paid to the avoidance of high-intensity exercises that can adversely affect the knees and shoulders. The activity recommended should be individualized taking into consideration comorbidities such as arthritis and peripheral vascular disease. Increasing the frequency and duration of exercise sessions should take precedence over increasing the intensity of the activities, with an emphasis on strength training to promote independence in activities of daily living. When dealing with high-risk patients such as a recent acute coronary syndrome or heart failure the increase in physical activity should be medically supervised.

In accordance with the statement of the Subcommittee on Exercise, Rehabilitation and Prevention of the Council on Clinical Cardiology and the Subcommittee on Physical

Activity of the American Heart Association, (13) health care professionals should:

- Engage in an active lifestyle.
- Be educated on the importance of lifelong physical activity in their patients.
- Routinely prescribe physical activity to their patients in accordance with the recommendations provided by the AHA/ACC guidelines (10) quoted above.

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