



Cardiovascular Disease and Physical Activity

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Abstract

Cardiovascular diseases are the major cause of death globally, as well as in India. They are caused by disorders of the heart and blood vessels, and include heart attacks, stroke, raised blood pressure, peripheral artery disease, rheumatic heart disease, congenital heart disease and heart failure. Common changeable risk factors namely physical inactivity, unhealthy diet, harmful effects of tobacco, alcohol and other habits identify. An inactive lifestyle is one of the top risk factors for heart disease. Physical activity or exercise is a part of everyone's life. There is a positive correlation between physical activity and good health. Yoga great importance in our life it tells the way to live

Key Words - Cardiovascular Disease, Physical Activity, Blood Vessels.

INTRODUCTION:

Cardiovascular disease refers to any disease that affects the cardiovascular system. In other words we can say that cardiovascular disease is a class of diseases that involve the heart, the blood vessels (arteries, capillaries and veins). Cardiovascular disease is the leading cause of deaths worldwide, though since the 1970s, cardiovascular mortality rates have declined in many developed countries. At the same time, cardiovascular deaths and disease have increased at a fast rate in developing countries. An estimated 17.1 million people die of CVDs each year. The risk increases with age and is greater for women than for men. A sedentary (inactive) lifestyle is one of the top risk factors for heart disease. Physical activity or exercise is a part of everyone's life. Regular exercise, especially aerobic exercise, has many benefits. There is a positive correlation between physical activity and good health. CHD is the leading causes of death in India, accounting for an estimated 2.25 million death in 2010(excluding stroke).The Indian population has a higher CVD related death rate as compared to the western population

In 2004, CHD was the leading cause of death in India leading to:-

- a) 1.46 million death (14% out of total of 10.3 million death)
- b) 130.7 deaths per 100000 population
- c) India is estimated to have lost 8.7 billion dollars in 2005 because of CHD, Stroke and diabetes.

RISK FACTORS OF CARDIOVASCULAR DISEASE:

The most important behavioral risk factors of heart disease and stroke are unhealthy diet, physical inactivity, smoking, obesity and tobacco use and harmful use of alcohol. Behavioral risk factors are responsible for about 80% of coronary heart disease and cerebrovascular disease.

The effects of unhealthy diet and physical inactivity may show up in individuals as raised blood pressure, raised blood glucose, raised blood lipids, and overweight and obesity. These "intermediate risks factors" can be measured in primary care facilities and indicate an increased risk of developing a heart attack, stroke, heart failure and other complications

The aim of the present study was to investigate the nutritional practices of female kho-kho players by reporting diet and activity records over a period of seven days.

INFLUENCE OF CIGARETTE SMOKING ON CVD:

Ever since the United States Surgeon General's report in 1964 warned about the hazards of smoking, there has been some decline in the use of cigarettes. Despite these declines, tobacco smoking is still the leading preventable killer

worldwide. Cigarette smoking can be held culpable for four million deaths annually throughout the world. It is estimated that by 2030, more than 10 million people will die annually of cigarette-related afflictions.

Within populations, smoking is especially prevalent among people with a lower socioeconomic status. These people buy cigarettes to fuel an addiction they cannot afford, thus perpetuating a vicious cycle. Because of these reasons, the smoking rates in developing countries are steeply increasing, and cigarette smoking among Asian males is exorbitant: India (48%), Japan (53%), China (63%), Indonesia (69%) and Vietnam (73%). In addition, tobacco companies have started to target their advertisement campaigns at a highly impressionable and susceptible group of people, namely, teenagers and adolescents.

Smoking during pregnancy causes intrauterine growth retardation, premature delivery and learning disabilities in the children whose mothers smoked during pregnancy. Because nicotine is excreted into breast milk, children of nursing mothers may become addicted to nicotine and may have nicotine withdrawal symptoms once weaned. Whalley et al investigated the effect of smoking on childhood IQ and cognitive changes from 11 to 64 years of age.

INFLUENCE OF OBESITY ON CVD:

Obesity and the ills associated with it, including diabetes mellitus, heart disease and high BP, have joined the WHO's list of the top 10 global health problems. Obesity is a complex pathophysiological condition characterized by an excessive accumulation of body fat. It is a chronic disorder caused by a combination of genetic and environmental factors that determine the balance between caloric intake and expenditure. Excess body fat is associated with a significantly increased risk of morbidity and mortality, a reduced quality of life and increased health care costs.

Environmental factors such as diet and physical activity play an important role in the development of obesity, and this condition not only significantly increases the risk of diabetes, premature death and disability, but also is a fundamental determinant of heart disease and stroke.

Symptoms of heart attacks and strokes:

The most common symptom of a stroke is sudden weakness of the face, arm, or leg, most often on one side of the body. Other symptoms include sudden onset of:

- Numbness of the face, arm, or leg, especially on one side of the body;
- Confusion, difficulty speaking or understanding speech;
- Difficulty seeing with one or both eyes;
- Difficulty walking, dizziness, loss of balance or coordination;
- Severe headache with no known cause; and
- Fainting or unconsciousness.

CVD in Developing Countries:

Over 80% of the world's deaths from CVDs occur in low- and middle-income countries. Economic transition urbanisation, industrialisation and globalisation bring about lifestyle changes that promote heart disease. These risk factors include tobacco use, physical inactivity, and unhealthy diet. People in low- and middle-income countries who suffer from CVDs and other noncommunicable diseases have less access to effective and equitable health care services which respond to their needs. The poorest people in low- and middle-income countries are affected most. Noncommunicable disease including cardiovascular disease and diabetes are estimated to reduce GDP by up to 6.77% in low- and middle-income countries.

HOW CAN THE BURDEN OF CARDIOVASCULAR DISEASES BE REDUCED?

Heart disease and stroke can be prevented through healthy diet, regular physical activity and avoiding tobacco smoke. Individuals can reduce their risk of CVDs by engaging in regular physical activity, avoiding tobacco use, choosing a diet rich in fruit and vegetables and avoiding foods that are high in fat, sugar and salt, and maintaining a healthy body weight and avoiding the harmful use of alcohol.

PHYSICAL ACTIVITY AND CVD:

Physical activity or exercise is a part of everyone's life. There is a positive correlation between physical activity and good health.

INFLUENCE OF EXERCISE ON BLOOD COAGULATION AND FIBRINOLYSIS:

Blood coagulation and fibrinolysis are two important physiological functions influencing the formation and breakdown of clots within blood vessels. Fibrinolysis is an enzyme-activated phenomenon. Moreover, these hematological functions are influenced by various blood factors, which either inhibit or promote clot formation or breakdown.

Several studies have attempted to show the influence of exercise on blood coagulation and fibrinolysis and, overall, positive effects of physical activity have been reported.

El-Sayed et al have studied the specific effects of exercise on plasma fibrinogen concentrations. They found a significant reduction in plasma fibrinogen concentration from 266.3 ± 14.5 mg/dL to 222.2 ± 23.9 mg/dL ($P < 0.05$) under optimal exercise conditions (at maximum VO_2 [$\text{VO}_{2\text{max}}$] for 30 min). These results show a positive effect of exercise on plasma fibrinogen concentrations. The lower the concentration of fibrinogen content the lesser the risk of thrombus formation.

These findings suggest that moderate physical activity can be beneficial in reducing risk factors associated CVD. Furthermore, the detraining information supports the use of exercise over a prolonged period of time, indicating that moderate daily exercise (30 min/day) should be made a part of a person's lifestyle.

EFFECTS OF PHYSICAL ACTIVITY ON BLOOD PRESSURE:

When considering the positive impact of exercise on the cardiovascular system, BP and heart rate measurements. BP (systolic/diastolic) is directly proportional to blood volume and vascular resistance. Vascular resistance is largely controlled by the neuroendocrine system, which produces various hormones that cause vasoconstriction or vasodilation of the blood vessels. The more constricted or narrow a blood vessel becomes, the greater the resistance produced on blood flow, consequently resulting in high BP. Blood volume is an important factor affecting BP, ie, the larger the blood volume, the more blood the heart has to pump, and this action increases the workload on the heart. Regular physical activity makes our heart strong. A strong heart can pump more blood with fewer efforts. If your heart can work less to pump, the force on your arteries decreases, lowering your blood pressure.

EFFECT OF EXERCISE ON BLOOD LIPID PROFILES:

Blood electrolytes, lipoproteins, total lipids and cellular constituents play a pivotal role in maintaining cardiovascular health. The lipids that are most easily and routinely measured are high density lipoprotein (HDL), low density lipoprotein (LDL) and total cholesterol. HDL and LDL differ mainly in function and composition. LDL, also known as bad cholesterol, has a much higher triglyceride component than does HDL, also called good cholesterol. HDL, however, acts as a 'scavenger', collecting excess LDL that has been deposited in the vascular tissue, which is then carried back to the liver for metabolic degradation. Maintaining balanced blood lipid profiles is clinically important in minimizing the formation of arterial blood vessel plaques and thrombi. Many studies have attempted to show the effects of exercise on blood lipid profiles. Daily routine physical activity (three to five days per week) markedly lowers the amount of LDL cholesterol (LDL-C) (up to 10 mg/dL) and increases HDL cholesterol (HDL-C) (up to 4.0 mg/dL), and exhibits a predominantly positive effect on blood lipid concentrations.

Eat a healthy diet: A balanced diet is crucial to a healthy heart and circulation system. This should include plenty of fruit and vegetables, whole grains, lean meat, fish and pulses, and restricted salt, sugar and fat intake. Fresh fruits and vegetables are essential components of the diet. They are the most nutrient-rich dietary sources, containing fibre, vitamins, trace elements and antioxidants, which are essential to maintaining physiological homeostasis. Scientific evidence indicates that the consumption of fruits, vegetables and antioxidants provides a protective barrier against various chronic diseases, including CVD

Avoid tobacco use: Tobacco in every form is very harmful to health - cigarettes, cigars, pipes, or chewable tobacco. Exposure to second-hand tobacco smoke is also dangerous. The risk of heart attack and stroke starts to drop immediately after a person stops using tobacco products, and can drop by as much as half after one year.

Vedic wisdom in yoga lays emphasis on four aspects that have a direct bearing on health.

Achaar (character and conduct): It stands for moral virtues - truthfulness, care and kindness.

Vichaar (perception or the way we think): The way we think influences our way of life. Develop a positive outlook in life and remove negative thoughts from the mind.

Vyayahaar (the way we behave): It pays to replace undesirable habits with positive ones. If we fear change and cling to old, negative habits, we cannot succeed in yoga.

Ahaar (diet or the food we eat): Food sustains our body. What we eat affects our mind directly. Intake of proper and healthy food nourishes body and mind. Avoid over- eating and eat in moderation.

Mental relaxation through meditation and yoga contribute immensely in offsetting arteriosclerosis (coronary artery blocked due to the deposition of fats on the inner walls of the heart). Thus, owing to its many positive effects- direct and indirect on the cardiovascular system, yoga assumes a pivotal role in heart care.

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