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IMPACT OF PHYSICAL ACTIVITIES AND EXERCISE TRAININGS ON BOTH THE PREVENTION AND TREATMENT OF CARDIOVASCULAR DISEASES

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ABSTRACT

Chronic and degenerative diseases of the cardiovascular system are the major cause of serious illness and death all over the world. Most of the people are unaware that the disease process is smoldering and progressing to the point that it could cause major complications including death. Fortunately, early detection and proper treatment of various chronic diseases can substantially reduce their severally and often avert disability and death. Here many preventive measures can care or delay the onset of such diseases like develop and maintain nutritionally sound dietary habits, abstain from use of tobacco and other drugs, consume alcohol only in moderations if at all in use of medicinal herbs as cardiovascular tonic, improve our ability to cope with stress.
In this regard physical activities and exercise trainings can contribute a lot to combat different cardiovascular diseases like coronary congestive heart failure etc and impact of physical activity on both the prevention and treatment of cardiovascular disease can become an important and interesting topic of research.

Keywords: *Hypertension, Stroke, Congestive Heart failure, Physical activities, Cure, Prevention, Adaptation.*

INTRODUCTION:

The importance of regular physical activity in reducing the risk of coronary artery disease becomes apparent when we consider anatomical and physiological adaptations in response to exercise training.

Exercise training causes the heart to hypertrophy primarily through an increase in the left ventricular chamber, size but also through increase in left ventricular wall thickness. This adaptation may be important for improved contractility and increase cardiac work capacity.

Cardiovascular disease represents the leading health problem of the modern age. They are the first cause of mortality in developed as well as in transition countries.

Physical activity has a beneficial impact the cardiovascular system, both directly by improving endothelial function and in directly by normalizing risk factors of atherosclerosis: high blood pressure, obesity and by positive effects on coagulation mechanism. The impact of physical activity on the cardiovascular system in manifested by immediate changes in hemodynamic, blood pressure and heart rate during physical training.

After some time, consequences of continuous training are manifested as a decrease in the basal heart rate, blood pressure and heart responsiveness to physical activity stress. The capacity of coronary circulation appears to increase with training. Studies have shown that the size of major coronary vessels increases, which implies an increased capacity for blood flow to all regions of the heart.

In fact, several studies has demonstrated that the peak flow rate in the major coronary arteries increases flowing an exercise training program.

The sedentary group that consumed that atherogenic diet developed atherosclerosis.

However, the coronary arteries of the exercising monkeys on the same diet. Some evidence also that, the hearts collateral circulation improves with exercise training. The collateral circulation is a system of small vessels that branch off the major coronary vessels and are important in providing blood to all regions of the heart, particularly when there are blockages in the major coronary arteries.

Physical activity should be permanent to have positive effects on the cardiovascular system, it means 4-5 times weekly depending on duration and intensity of exercises. Increase of exercises 60-75% of the maximum, duration should be 30 to 45% lower mortality rate after myocardial infraction in the patients submitted to rehabilitation program of physical exercises.

Physical activity in patients with coronary diseases must be individualized quantified function the heart muscle.

Physical activity is limited with characteristics symptom dyspnea and Stenocardia. These patients are classified into groups with mild, moderate, and high risk and based on this the allowed intensity of their physical activity is assed, as well as the grade of its control.

Many studies have investigated the role of exercise in the altering risk factors associated with heart disease. Let's consider the major risk factors and how exercise might affect them. Little direct evidence is to indicate the exercise leads to smoking cessation on reduces the number of cigarettes smoked.

Physical exercise must be without range of tolerance and must not exceed this limit of symptoms. The aim of physical activity and training is increasing threshold of tolerance of symptoms. It has been shown that physical training is controlled quantities by 35% and hospitalization by 28% in chronic heart failure. Physical training is beneficial for all forms of heart failure in terms of decreased mortality and improvements of the muscle mass and physical status.

Risk factors for coronary artery disease that we cannot control are (heredity and family history male sex and advanced age). Those that we cannot are elevated blood lipids, hypertension.

However, we can easily control the (CAD) through the proper uses of physical activity including aerobic exercise, running, jumping and proper use of Yoga.

The ratio of total cholesterol to HDL-C might be the best indicator of personal risk for coronary artery disease. Relatively strong data support the effectiveness of exercise in reducing blood pressure in those with mild to moderate hypertension Endurance training by approximately 10 and 8 mHg in individual who have blood pressure of 160 and grater systolic and/or 95 mmHg greater diastolic by 6 and 7 mmHg.

Exercise possibly exerts is most beneficial effect on blood lipids level. Although the decrease in total (and LDL-C with endurance training are relatively smaller than 10%.

In risk factors, exercise plays an important role in weight reduction and control and in the control of all those disease, which are related with heart. Exercise also helps us in the reduction of stress, tension. Some researcher supports that the use of physical activity (exercise) are most beneficial for a hypertension patient. Physical activities role in reducing the risk of hypertension has not been as well established as its role in coronary artery disease. As we saw in the last section, exercise training lower blood pressure in those with moderate hypertension.

Methods/material:

Forms & Cardiovascular Diseases: there are different types of cardiovascular diseases we focus primarily on those that are preventable.

1. Coronary Artery Disease: (CAD) also known as the Ischemic Heart Disease (IHD), refers to a group of disease which include stable Angina, Unstable Angina, Myocardial infection and sudden cardiac death. A common symptom is chest pain or discomfort which may travel into the shoulder, arm, back, neck, and jaw.

Most of time it may feel like heart burn. Usually symptoms occurs with exercises or emotional stress risk factor include high blood pressure, smoking, diabetes, lack of exercise, obesity high blood cholesterol, poor diet, and excessive alcohol.

As most human age, their coronaries arteries, which supply the myocardium (heart muscle) itself, become progressively narrows as a result of the formation of fatty plaque along the inner wall of the artery. This progressive narrowing of the arteries in general is referred to as atherosclerosis and when the coronary arteries involved, it is termed coronary artery disease.

Diagnostic Methods, Electrocardiogram, Cardiac stress test, Coronary computed tomography.

Up to 90% of preventions cardiovascular disease may be preventable if established risk factors are avoided. Prevention involves adequate physical exercise, decreasing obesity, treating, high blood pressure, eating healthy diet. The (WHO) recommended "Low to moderate alcohol intake" to reduce risk of coronary artery disease while high intake of increase the risk.

HYPERTENSION:

Hypertension is a medical term for high blood pressure a condition in which blood pressure is chronically elevated above levels considered desirable or healthy for a person's age and size. Blood pressure depends primarily on the body size, so the children's and young adolescents have much lower blood pressure.

High blood pressure (Hypertension) is a common condition in which the long term forces of the blood against your artery walls is high enough that it may eventually cause health problems such as heart disease blood pressure is determined both by the amount of blood flow in your arteries. The amount of resistance to blood flow in your arteries. The most blood your heart

pumps and the narrows your arteries, the higher blood pressure. A few symptoms people with high blood pressure may have headaches, shortness of breath or nose bleeds etc.

Table: 01

Classification of blood pressure for adult age 18 years older.

Category	Systolic (HmmHg)	Diastolic (mmHg)
Normal	≤120	≤80
Prohypertension	≤120-138	≤80-89-

Table: 02

Hypertension

Stage 1	≤140-159	90-99-
Stage 2	≤160	≤100

STROKE:

Stroke called cardiovascular accident (CVA) is a form of cardiovascular disease that effects the Cerebal arteries, those that supply the brain. As with coronary artery disease, the death rate from the stroke also has decreased in the recent years 12-3% reduction between 1990-2000.

The most common cause of stroke is cerebal infarction cerebal thrombosis, in which a thrombus (blood clot) froms in a cerebal vessel of ten at the site of atherosclerotic damage to the vessels.

A stroke occurs when the blood supply to part of your brain is interrupted or reduced, depriving brain tissue of oxygen and nutrients.

A stroke is a medical emergency prompt treatment is crucial. Early action can minimize brain damage and potential complications.

The good news is that stroke can be treated and prevented.

Symptoms: Watch for these signs and symptoms if you think you or someone else may be having a stroke.

Trouble with speaking and understanding you may experience confusion. You may slur your words or have difficulty understanding speech.

Trouble with seeing in one or both eyes: You may suddenly have blurred or blackened vision in one or both eyes, and you may see double.

HEADACHE:

A sudden severe headache, which may be accompanied by vomiting, dizziness or alter consciousness, may indicate you're having a stroke.

Causes: A stroke may be caused by a blocked artery (Ischemic stroke) or the leaking or bursting of a blood vessel.

Ischemic Stroke: About 80 percent of strokes are Ischemic strokes. Ischemic strokes occurs when the arteries to your brain become narrowed or blocked, causing severely reduced blood flow.

The most common Ischemic stroke includes:

Thrombotic Stroke: A thrombotic stroke occur when blood a blood clot (thrombus) forums in one of the arteries that supply blood to your brain.

Embolic stroke: An embolic forms occurs when a blood clot or other debris forms away from your brain commonly in your heart and is swept throw your blood stream to lodge in narrow brain arteries.

Table: 03

Stroke

The effects of Brain Damage resulting from stroke	Left brain damage	Right brain damage
Paralysis	Right side	Left side
Deficits	Speech language	Spartial perceptual
Behavioral style	Slow cautions	Quick impulsive
Memory deficits	Performance	Language

Congestive Heart Failure: Congestive heart failure is a clinical condition in which the heart muscle becomes too weak to maintain an adequate cardiac output to meet the blood oxygen demand.

When cardiac output in inadequate, blood begins to back up in the veins. This causes excess fluids to accumulate in the body, particulation (eokma) disrupting breathing and causing shortness of breath.

Congestive heart failure (CHF): is a condition in which the hearts function as a pump is inadequate to meet the body nods.

May disease process can impair the pumping efficiency of the heart to cause congestive heart failure.

Symptoms:

1. Fatigue
2. Diminished exercise capacity.
3. Shortness of breath.
4. Swelling.

Understanding the pathophysiology of a disease gives us insight into physical activity might affect or alter the disease process.

REDUCING RISK THROUGH PHYSICAL ACTIVITY:

The role that physical activity play in preventing or delaying the onset of coronary artery disease and hypertension has been of major interest to the medical community for many years. In the following sections, we try to unravel this mystery by examining the following areas.

Epidemiological evidence

Physiological adaptations with training that might reduce risk.

Risk factor reduction with exercise training.

Physical activity has been proven effective in reducing the risk coronary artery disease. The importance of regular physical activity in reducing the risk of coronary artery disease become apparent when the we consider anatomical and physiological adaptation in responses to

exercise training. For example, as we learned exercise training caused the heart rate to hypertrophy primarily through an increase in left ventricle chamber, size but also through increases in left ventricular thickness.

Table: 04

Risk factor of coronary artery disease on the basis of specific values.

Risk factor	V low	Low	Moderate	High	Very high
Blood pressure (MMHg)					
Systolic	≤110	120	130-40	156-160	≥170
Diastolic	≤70	76	82-88	94-100	≥106
Cigarettes (Per day)	o- never	5	10-20	30-40	≥50
Cholesterol	≤180	200	225-2040	260-280	≥300
Triglycerides	-50	100	130	200	300
Glucose	80	90	100-110	120-130	-140
Body fats					
Men	12	16	25	30	35
Women	16	20	30	35	40
Body M index	20	20-24	25-29	30-40	40
ECG Monormally	0	0	0.05	0.10	0.20
Family history	0	0	1	2	+3
Age	30	40	50	60	70

CONCLUSION:

We have seen how important physical activity is in reducing the risk for cardiovascular disease, especially coronary artery disease and hypertension. We discussed the prevalence of these disorders the risk factors associated with each, and how physical activity can help reduce our

personal risks. The evidence that physical activity is important in the rehabilitation of cardiac patient is sufficient clear.

"Most patients with coronary artery disease should engage in individually designed exercise programme to achieve optional and physical health".

It is even possible to see light regression in the disease and reduced incidence of rupture of the atherosclerotic plaque.

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