



## ROLE OF PHYSICAL ACTIVITY IN CARDIOVASCULAR SYSTEM

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**Abstract:** In modern era physical fitness is essential for each and everyone. In humans, physical activity training and moderate to high levels of physical activity are protective against cardiovascular disease. In fact they are •40% more protective than predicted based on the changes in traditional risk factors (blood lipids, hypertension, muscle blood flow etc.) I am highlighted the positive effects of physical activity on cardiovascular system. Physical activity promotes weight reduction and can help to reduce blood pressure. Physical activity may reduce bad cholesterol levels in the blood (HDL, LDL). In the muscle blood flow are increases and effect of physical activity is hypertrophy in the muscle. Effect of Physical activity may be hypertrophy in cardiac muscle and Skeletal muscles hypertrophy is also.

**Keyword:** Physical fitness, Hypertrophy, HDL, LDL.

**Introduction:** Physical activity plays an important role in our all system. Regular physical activity has a favorable effect on many of the established risk factors for cardiovascular disease. Physical activity promotes weight reduction and can help to reduce blood pressure. Physical activity can reduce bad cholesterol levels in the blood (the low-density lipoprotein [LDL] level), as well as total cholesterol and can raise the good cholesterol (the high-density lipoprotein level [HDL]). The muscle blood flow increase drastically during physical activity. The heart mass is increases 40 percent or more. Not only cardiac muscle hypertrophy and Skeletal muscles hypertrophy is also. And Stroke volume increases through the physical activity.

Circulatory system consists of heart, blood vessels and blood, and is responsible for transporting life-giving oxygen throughout the body. When physical activity, our body's need for oxygen increases; the harder work out, the more oxygen body demands. To ensure that sufficient oxygen is available for our muscles during activity, our body makes short- and long-term changes. Physical activity training and physical activity are protective against cardiovascular disease<sup>[1]</sup>.

**Effect of Physical Activity on Cardio-vascular System**

**Heart Hypertrophy:** Marathoner can achieve maximal cardiac output about 40 percent greater

than those achieved by untrained persons. The Fact that the heart chambers of marathons enlarge about 40 percent; along with this enlargement of the chambers, the heart mass also increases 40 percent or more. Not only cardiac muscle hypertrophy and Skeletal muscles hypertrophy is also.<sup>[2]</sup>

**Muscle Blood Flow:** Cardiovascular function in physical activity is to deliver the required oxygen and other nutrients to the exercising muscles. The muscle blood flow increase drastically during physical activity. Not only the great increase in blood flow in muscle but also the flow decrease during each muscle contraction.

The actual contractile process itself temporarily decreases muscles blood flow because the vessels; therefore strong tonic muscle contractions can cause rapid muscle fatigue because of lack of delivery of enough oxygen and other nutrients during the continuous contraction. The blood flow to muscle during physical activity increase markedly. The following comparison shows the maximal that can occur in a well-trained athlete.

- Resting Blood flow-3.6 ml/100g muscle/min
- Blood flow during maximal physical activity-90 ml/100g muscle/min<sup>[3]</sup>

**Stroke Volume:** Stroke volume increases from 105 to 162ml, an increases of about 50 percent.<sup>[4]</sup>

**Effect of Physical Activity in Blood Vessels:** Blood vessels carry blood throughout the body.

Arteries take blood away from heart; veins return blood to heart, and capillaries drop off and collect blood at muscles and lungs. As physical activity, the hormone adrenalin causes our blood vessels to expand to allow passage of a greater-than-normal volume of blood. This is called vasodilation, which is a short-term response to physical activity and is one of the reasons our surface blood vessels may become more prominent during physical activity. A long-term response to physical activity is the building of new capillaries so more oxygen can be delivered to, and more carbon dioxide can be removed from, our working muscles.<sup>[5]</sup>

**Pulse Rate:** Pulse rate counts the number of times the heart beats per minute. For example, a pulse of 75 indicates that the heart beats 75 times per minutes. According to the Cleveland Clinic, children should have a resting heart rate of 70 to 100 beats per minute and adults should have a resting heart rate of 60 to 100 beats per minute.

**Immediate Effects of Physical Activity:** While exercising, the body's need for blood and oxygen significantly increases. To meet the growing demands of the body, the heart must pump faster. Since the pulse is a direct measure of heart beats per minute, the pulse rate naturally increases during physical activity. As the heart beats faster, it also pumps blood through the arteries faster. As the rate of blood flow inside the arteries increases, the internal pressure also increases. As a result, the blood pressure also rises during physical activity.

**Long-Term Effects:** Regular physical activity not only makes the heart stronger, but also more efficient. As the heart becomes more efficient, it becomes more able to pump greater amounts of blood with less effort. As a result, the heart does not need to beat as quickly to deliver blood to the body. Since the heart is pumping slower, it is also placing less stress and pressure on the arteries. After several weeks or months of regular physical activity, most people should notice a decrease in resting pulse and blood pressure.<sup>[6]</sup>

**Blood Pooling:** When physical activity, blood is diverted from non-essential organs, such as those involved with digestive and reproductive systems, and into working muscles. This is termed blood pooling and ensures that our working muscles get as much oxygen as they need. Once have finished strenuous physical activity, it is important to encourage the pooled blood to move out of the muscles and back into general circulation. This is commonly achieved by performing a cool-down consisting of light

cardiovascular physical activity and stretching. Blood left pooling in muscles is linked to the onset of post-physical activity muscle soreness.

**Benefits on HDL/LDL:** Aerobic physical activity is associated with reductions in low density lipoprotein (LDL), total cholesterol and triacylglycerol (TAG), and increases in high density lipoprotein (HDL). Exposure to oxygen can oxidatively damage LDL. Oxidized LDL is a risk factor for atherosclerosis. Although aerobic physical activity can cause oxidative damage, there are adaptive changes resulting from chronic physical activity that result in lower rather than higher levels of oxidized LDL.

**Role of Physical Activity to Maintain the Body Weight:** Physical activity helps to reduce body weight that is obese and maintain the body weight. Line & thin person has under the weight that time physical activity gain the weight.

**Conclusion:** Physical activities causes positive effect on our body system. Physical activities are enhances our Cardiovescular capacity. Physical activity is very important in our life. Physical activity is protective against cardiovascular disease. In fact they are ~40% more protective than predicted based on the changes in traditional risk factors (blood lipids, hypertension, Heart hypotrophy, muscular hypotrophy and blood flow etc.). When physical activity, our body's need for oxygen increases; the harder work out, the more oxygen body demands. Stroke volume increases through the physical activity. Physical activities is covered all important system.

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