

# Independent work

**Theme:** *The diseases of the cardiovascular system*

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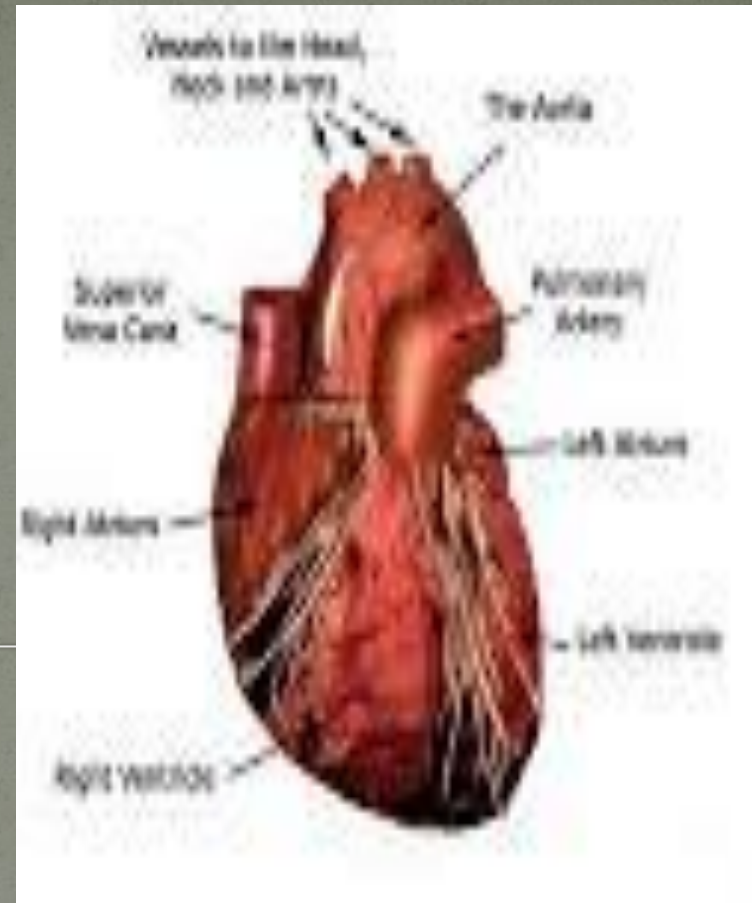
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Cardiovascular disease (also called heart disease) is a class of diseases that involve the heart or blood vessels (arteries, capillaries and veins). Cardiovascular disease refers to any disease that affects the cardiovascular system, principally cardiac disease, vascular diseases of the brain and kidney, and peripheral arterial disease.







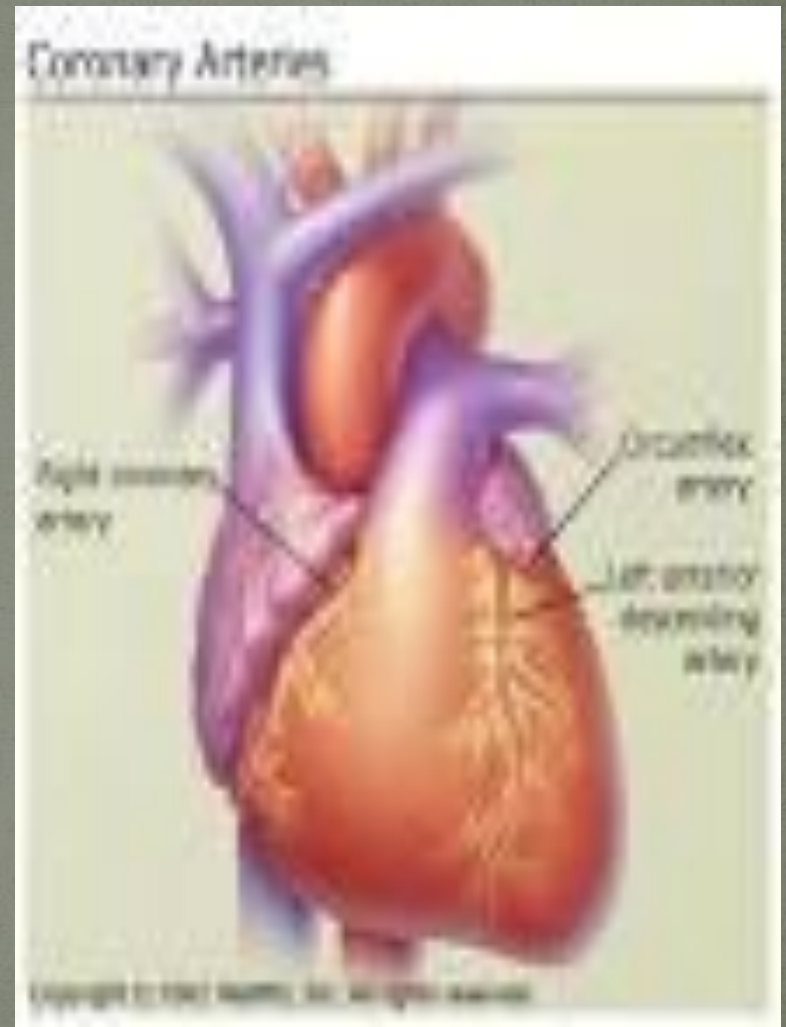
The causes of cardiovascular disease are diverse but atherosclerosis and/or hypertension are the most common. Additionally, with aging come a number of physiological and morphological changes that alter cardiovascular function and lead to subsequently increased risk of cardiovascular disease, even in healthy asymptomatic individuals.

Cardiovascular disease is the leading cause of deaths worldwide, though since the 1970s, cardiovascular mortality rates have declined in many high-income countries. At the same time, cardiovascular deaths and disease have increased at a fast rate in low- and middle-income countries. Although cardiovascular disease usually affects older adults, the antecedents of cardiovascular disease, notably atherosclerosis, begin in early life, making primary prevention efforts necessary from childhood. There is therefore increased emphasis on preventing atherosclerosis by modifying risk factors, such as healthy eating, exercise, and avoidance of smoking.



# Risk factors

Epidemiology suggests a number of risk factors for heart disease: age, gender, high blood pressure, high serum cholesterol levels, tobacco smoking, excessive alcohol consumption, family history, obesity, lack of physical activity, psychosocial factors, diabetes mellitus, air pollution. While the individual contribution of each risk factor varies between different communities or ethnic groups the consistency of the overall contribution of these risk factors to epidemiological studies is remarkably strong. Some of these risk factors, such as age, gender or family history, are immutable; however, many important cardiovascular risk factors are modifiable by lifestyle change, drug treatment or social change.



Population based studies show that atherosclerosis the major precursor of cardiovascular disease begins in childhood. The Pathobiological Determinants of Atherosclerosis in Youth Study demonstrated that intimal lesions appear in all the aortas and more than half of the right coronary arteries of youths aged 7–9 years.





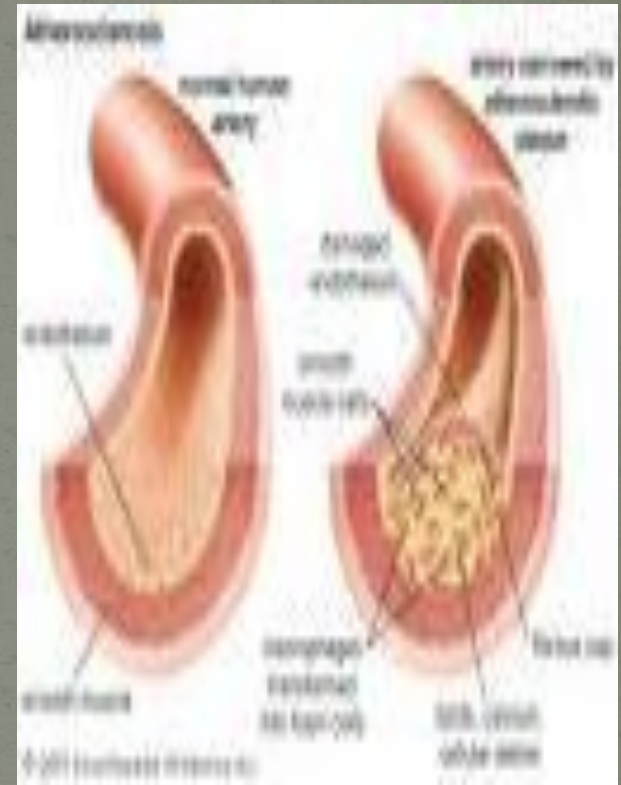


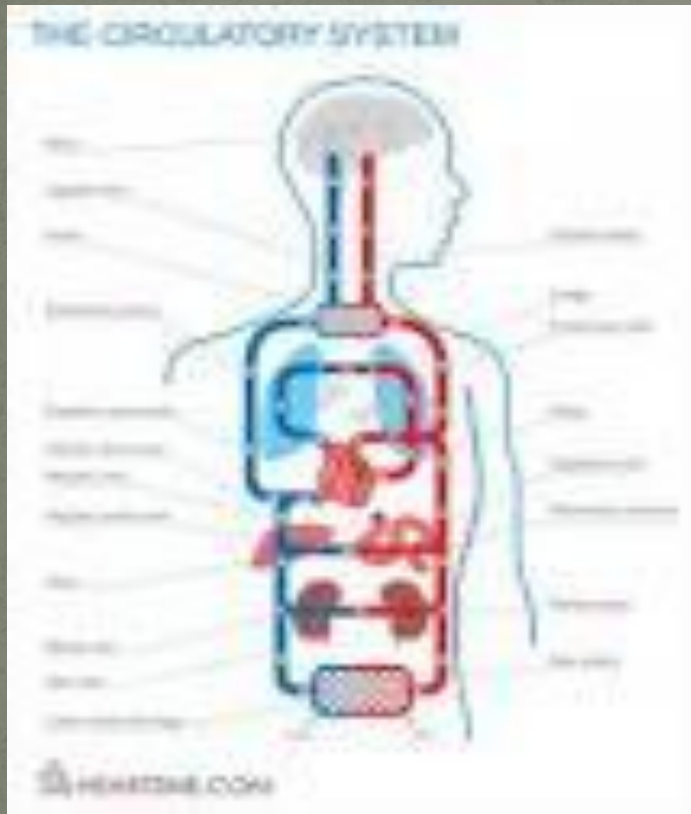
Cardiovascular diseases are the leading cause of death. In 2008, 30% of all global death is attributed to cardiovascular diseases. Death caused by cardiovascular diseases are also higher in low and middle-income countries as over 80% of all global death caused by cardiovascular diseases occurred in those countries. It is also estimated that by 2030, over 23 million people will die from cardiovascular diseases annually.

Aspirin has not been found to be of benefit overall in those at low risk of heart disease as the risk of serious bleeding is equal to the benefit with respect to cardiovascular problems. Statins are effective in preventing further cardiovascular disease in those with a history of cardiovascular disease. A decreased risk of death and strokes however seems to only occur in men. In those without cardiovascular disease but risk factors statins appear to also be beneficial with a decrease in mortality and further heart disease.



The first studies on cardiovascular health were performed in 1949 by Jerry Morris using occupational health data and were published in 1958. The causes, prevention, and/or treatment of all forms of cardiovascular disease remain active fields of biomedical research, with hundreds of scientific studies being published on a weekly basis.





These studies include those conducted by the Ryan Mackey Memorial Research Institute, Harvard University and the Sydney Center for Cardiovascular Health. Many major fast food chains, particularly McDonald's, have protested the methods used in these studies and have responded with healthier menu options.



Some areas currently being researched include possible links between infection with *Chlamydia pneumoniae* (a major cause of pneumonia) and coronary artery disease. The *Chlamydia* link has become less plausible with the absence of improvement after antibiotic use.

