



# Arteriosclerosis: Risk Factors and Its Impact on Health

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## DESCRIPTION

Arteriosclerosis, frequently referred to as the "strengthening of arteries", is a condition characterized by the narrowing, hardness and loss of elasticity in artery walls. It is a progressive disease that can lead to serious health complications, including cardiovascular disease, heart stroke and Peripheral Artery Disease (PAD).

### Structure of healthy arteries

Arteries are blood vessels that carry oxygen-rich blood from the heart to various tissues in the body. Their walls consist of three primary layers. In healthy arteries, these layers work properly to maintain appropriate blood flow and adapt to the body's needs. However, with arteriosclerosis, the arterial walls become rigid and thicker and preventing their regular functioning.

**Tunica intima:** The inner layer is formed by endothelial cells, providing a smooth surface that allows blood to flow without resistance.

**Tunica media:** The middle layer is made up of smooth muscle and elastic fibres, arteries are able to contract and expand as flow of blood.

**Tunica externa:** The outermost layer is composed of connective tissue that provides structural support and protection.

### Types of arteriosclerosis

Arteriosclerosis is a general term that refers to a variety of artery-related disorders. The three main types include.

**Atherosclerosis:** This is the most common form of arteriosclerosis and involves the buildup of fatty deposits (plaques) in the arterial walls. These plaques consist of cholesterol, fatty substances, cellular waste, calcium and fibrin. Over time, plaques narrow the arteries, reducing blood flow and increasing the risk of blockages.

**Arteriolosclerosis:** This condition affects the smaller arteries and arterioles. It is frequently associated to high blood pressure (hypertension) and diabetes. Arteriolosclerosis accumulates and reduces small blood vessels, affecting blood flow to organs that require oxygen.

**Monckeberg's arteriosclerosis (medial calcific sclerosis):** A less prevalent variation is characterized by calcification of the artery walls, particularly in the tunica media. Similar to atherosclerosis, the condition does not frequently cause severe narrowing of the arteries but it decreases their capacity for blood flow.

### Causes of arteriosclerosis

Arteriosclerosis results from a combination of factors that damage the arterial walls and disrupt their normal function. Important causes include.

**Aging:** As people age, arterial walls naturally lose some of their elasticity and become stiffer. It also increases their susceptibility to injury and narrowing.

**Hypertension:** Chronic high blood pressure exerts excessive force on arterial walls, causing damage and increasing the risk of arteriosclerosis.

**High cholesterol:** Elevated levels of Low-Density Lipoprotein (LDL) cholesterol contribute to plaque formation within arterial walls, a characteristic of atherosclerosis.

**Diabetes:** High blood sugar levels damage the endothelium, the innermost layer of arteries, accelerating the development of arteriosclerosis.

**Smoking:** Tobacco smoke contains chemicals that harm the endothelium and increase inflammation, increasing the risk of arterial damage.

**Inflammation:** Chronic inflammation in the body, caused by conditions such as autoimmune diseases or infections, may reduce artery walls and increase arteriosclerosis.

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**Received:** 25-Sep-2024, Manuscript No. JVMS-24-27619; **Editor assigned:** 27-Sep-2024, PreQC No. JVMS-24-27619 (PQ); **Reviewed:** 11-Oct-2024, QC No. JVMS-24-27619; **Revised:** 18-Oct-2024, Manuscript No. JVMS-24-27619 (R); **Published:** 28-Oct-2024, DOI: 10.35248/2329-6925.24.S24.556

**Citation:** Yusuke K (2024). Arteriosclerosis: Risk Factors and Its Impact on Health. J Vasc Surg. S24:556.

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### Complications of arteriosclerosis

Arteriosclerosis can lead to severe complications, including. Coronary artery blockages can cause a myocardial infarction. Impaired blood flow to the brain can cause ischemic or hemorrhagic strokes. Changing of artery walls can result in dangerous fracture. Controlled blood flow to limbs can result in tissue damage and, in severe cases, amputation.

### Risk factors for arteriosclerosis

While the causes of arteriosclerosis are usually associated an array of risk factors can increase an individual's probability of developing the disease.

**Non-modifiable risk factors:** Risk increases with age, especially after 45 in men and 55 in women. A genetic predisposition to arteriosclerosis or cardiovascular disease can increase risk. Men are more probable to develop arteriosclerosis at an earlier stage than women.

**Modifiable risk factors:** Poor diet (high in saturated fats, trans fats and refined sugars), sedentary lifestyle, obesity, uncontrolled diabetes or hypertension and excessive alcohol consumption.