

Highlights: Scientific Review of Findings Regarding Cardiovascular Disease

Cigarette smoking and involuntary exposure to cigarette smoke are major causes of coronary heart disease, stroke, aortic aneurysm, and peripheral arterial disease.

- Coronary heart disease is the narrowing of small blood vessels that supply blood and oxygen to the heart.
- Strokes occur when the blood supply to part of the brain is interrupted, causing brain cells to die. Strokes are caused by blockage of an artery either because of narrowing or hardening of the arteries in or leading to the brain or a blood clot in an artery of the brain. They are also caused by bleeding within the brain from a ruptured or leaking artery, most commonly from uncontrolled high blood pressure.
- Aortic aneurysm is a weakened and bulging area of the aorta, the major blood vessel that feeds blood to the body. A ruptured aortic aneurysm causes life-threatening bleeding.
- Peripheral arterial disease is a circulatory condition in which narrowed arteries reduce blood flow to the limbs, especially the legs.

The risk for cardiovascular disease increases substantially even with exposure to low levels of cigarette smoke, as with exposure to secondhand smoke or smoking just a few cigarettes a day. The cardiovascular risks attributable to cigarette smoking increase with the number of cigarettes smoked per day and with the duration of smoking.

Smoking Damages Blood Flow

Tobacco smoke causes inflammation within the body's circulatory system. Inflammation leads to narrowing of the small vessels that supply blood to all the body's organs, including the heart.

The endothelium, a delicate layer of cells that lines the interior of the body's blood vessels, promotes fluidity of the blood, proper dilation of the blood vessels, and relaxation of the underlying vascular smooth surface. Smoking causes immediate impairment in the function of the endothelium and can result in inadequate coronary blood flow.

Smoking is one of the causes of atherosclerosis, the process by which plaque—deposits of fatty substances, cholesterol, cellular waste products, calcium, and other substances—builds up in the inner lining of an artery. This buildup can lead to a heart attack, stroke, or death. Smoking can also cause platelets in the blood to quickly become sticky, which can lead to clot formation that can block blood flow to the heart, causing a heart attack.

Cigarette smoking affects the level of blood lipids and lipoproteins in the body. Smokers have lower levels of high-density lipoprotein (good) cholesterol and increased levels of total triglycerides than do nonsmokers.

Secondhand Smoke Triggers Heart Attacks

Even brief exposure to secondhand smoke can cause heart attacks, especially in individuals with underlying cardiovascular conditions.

Smoking Causes Other Circulatory Problems

Nicotine increases heart rate, temporarily raising blood pressure and constricting coronary arteries.

Carbon monoxide reduces delivery of oxygen to the heart and to other organs.

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Smoking Cessation Reduces Cardiovascular Risks

Smoking cessation reduces the risk for cardiovascular morbidity and mortality. The risk for heart attack drops sharply just 1 year after smokers quite entirely. Even patients who have already had a heart attack cut their risk of having another one by a third to a half if they quit smoking. After 2 to 5 years the chance of stroke could fall to about the same level as a nonsmoker's. People with known cardiovascular disease face far less risk from the use of nicotine replacement or other medications to help smoking cessation than they face from continued smoking. There is no evidence that smoking fewer cigarettes per day or that smoking lower-tar or lower-nicotine cigarettes reduces the risk for cardiovascular disease.

Disclaimer: Data and findings provided on this page reflect the content of the 2010 Surgeon General's Report (*How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General*). More recent information may exist elsewhere on the Smoking & Tobacco Use Web site (for example, in fact sheets, frequently asked questions, or other materials that are reviewed on a regular basis and updated accordingly).