Global Cardiovascular Research and Clinical Cardiology

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The combined effect of anti-inflammatory diet and exercise on atherosclerosis

Atherosclerosis is defined as a chronic inflammatory pathological disease that occurs when lipoproteins, which are the transport form of blood lipids, attach to the arterial wall and trigger the inflammatory response.

An increase in plasma low-density lipoprotein (LDL) levels and a decrease in high-density lipoprotein (HDL) levels are positively associated with the incidence of atherosclerosis and inflammation. For this reason, it is important to adopt anti-inflammatory diet principles as well as to regulate the dietary fat pattern. A diet model that is low in saturated fat, enriched with polyunsaturated fatty acids and vitamins A, C and E with antioxidant properties is recommended. The level of homocysteine, an oxidative stress agent, increases in the deficiencies of vitamins B6, B9 and B12. Therefore, these vitamins must be present in adequate amounts in the diet. Since vitamin B2 is a coenzyme in the conversion of vitamin B6 to its active form, it should be present in the diet sufficiently.

It is known that besides nutrition, exercise also increases HDL, reduces LDL, triglyceride and total cholesterol levels thus positively affecting heart health. The mechanism of action of exercise on lipoprotein concentrations is unclear. However, studies have shown that a 1% reduction in LDL reduces the risk of developing atherosclerosis by 2%, and moderate-intensity continuous exercises provide approximately 5-10 mg/dL reduction in LDL and 2 mg/dL increase in HDL. Exercise can also be preventive for atherosclerosis by reducing inflammatory mediators. Skeletal muscle is a source of myokines that are thought to play a dual role as anti-inflammatory and pro-inflammatory. Prolonged high-intensity exercise can significantly affect myokine production, thereby enhancing the anti-inflammatory effect of exercise. Considering these studies, it is seen that regular and continuous exercises are a factor in the prevention of coronary heart and vascular diseases.

Biography

Gul Akduman has completed her bachelor degree in Erciyes University, Department of Nutrition and Dietetics in 2014. She has completed her master degree in Marmara University, Department of Nutrition and Dietetics in 2018. She is currently a doctorate student in Marmara University, Department of Nutrition and Dietetic and also research assistant at the same university. Her main field of study is nutrition in adult diseases and the pathophysiology of nutrition-related diseases.