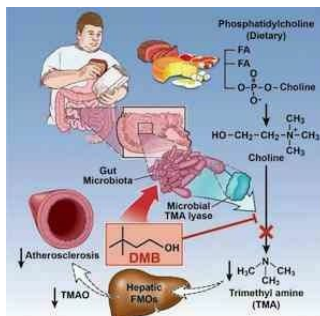


Treating Heart Disease Through the Gut



Researchers at Cleveland Clinic have shown that by targeting microbes in the gut, it may be possible to prevent heart disease caused by nutrients contained in a diet rich in red meat, eggs and high-fat dairy products. The research is published in *Cell*.

This is the first time this approach has been adopted and is based on a previous discovery that TMAO - trimethylamine N-oxide, a byproduct formed in the gut during digestion of animal fats could be linked to atherosclerosis and heart disease. Blood TMAO levels have been associated with an increased risk of heart disease, stroke and death.

The research team identified DMB - 3,3-dimethyl-1-butanol, a naturally occurring inhibitor that is found in some cold-pressed extra virgin olive oils and grape seed oils. They found that DMB could reduce levels of TMAO as well as atherosclerosis in mice.

See also: [Mediterranean Lifestyle Reduces Cardiovascular Disease](#)

Heart disease is the number one killer in the U.S. Nearly 610,000 people die in the U.S. each year due to heart disease. In addition, numerous people suffer from other metabolic diseases that are related to gut microbes. This new discovery could prove to be a new therapeutic approach for the prevention of heart disease.

The same team of researchers discovered the link between TMAO, gut microbes and heart disease four years ago. "Many chronic diseases like atherosclerosis, obesity and diabetes are linked to gut microbes," said Dr. Stanley Hazen, MD, PhD, Chair of the Department of Cellular & Molecular Medicine in the Lerner Research Institute and section head of Preventive Cardiology & Rehabilitation in the Miller Family Heart & Vascular Institute at Cleveland Clinic. "These studies demonstrate the exciting possibility that we can prevent or retard the progression of diet-induced heart diseases starting in the gut. This opens the door in the future for new types of therapies for atherosclerosis, as well as other metabolic diseases."

The findings suggest that by inhibiting first step in TMAO generation, commensal microbial trimethylamine (TMA) production, it may be possible to prevent diet-induced atherosclerosis. When the team did this with mice, they found that the treated mice had less TMAO and developed less atherosclerosis. Therefore, a treatment approach that targeted a specific microbial pathway could help curtail the widespread prevalence of heart disease. Dr. Hazen compared the approach to the use of statins that inhibit cholesterol synthesis.

Source: [Cleveland Clinic](#)

Image Credit: Wang et al./Cell 2015

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