Studies show phytonutrients support cardiovascular *health*

Whitepaper

Diet plays an essential role in cardiovascular *health*

Cardiovascular diseases (CVDs) are the leading cause of death worldwide. The World Health Organization (WHO) estimates that 17.9 million people die each year from CVDs.[1] And the vast majority – about 85% – are due to fatal heart attacks and strokes.[1]

The probability of developing cardiovascular disease is commonly associated with the following behavioral risk factors:[1]

- Unhealthy diet, such as low intake of fruit and vegetables and high salt and fat intake
- Physical inactivity
- Excessive alcohol consumption
- Tobacco use

Over time, the effects of these behaviors lead to the following intermediate risk factors:[2]

- High blood pressure
- High blood glucose
- High blood lipids
- High body weight index

CVD is also closely linked with multiple comorbidities, such as diabetes, dyslipidemia, hypertension and obesity.[2] However, all of these risk factors – and many cardiovascular diseases – are impacted by lifestyle and dietary habits.

The link between nutrition and cardiovascular health

Many studies indicate that the successful management of behavioral risk factors, such as diet, may help delay or inhibit the progression of cardiovascular disease.

It is widely acknowledged that a diet rich in fruit and vegetables, such as the Mediterranean diet may have a supportive effect on cardiovascular health. High in plant-based foods and low in saturated fat, meats and processed foods, the Mediterranean diet is believed to have a beneficial effect on blood pressure, lipid profile, glucose metabolism and arrhythmic risk.[2,3] Studies also suggest it may have an anti-inflammatory effect on the vascular wall.[2,3]

As the connection between a nutrient-rich diet and cardiovascular health is well established and scientifically documented, dietary supplements are rapidly becoming a suitable method for enhancing nutritional intake and thereby supporting cardiovascular health.

The role of plant-based *active* compounds in cardiovascular health

There is substantial scientific evidence that documents the cardioprotective properties of specific plant-based active compounds. Many studies refer to the cardioprotective effects of phytonutrients, including polyphenol compounds such as anthocyanins, procyanidins, flavanols and carotenoids.

Polyphenols – effective antioxidant and anti-inflammatory

A component in many fruits and vegetables, polyphenol compounds are also found in tea, coffee, wine and chocolate. There are two distinct groups – flavonoids and non-flavonoids.

Grapes contain a wide variety of polyphenol compounds, including flavonoids, phenolic acids, and resveratrol. A range of studies demonstrate the beneficial effects of grape polyphenols on traditional cardiovascular risk factors.[4]

Polyphenols

Non-Flavonoids
Phenolic acids
Stilbenes *(trans-resveratol)*

Flavonoids
Anthocyanins *(malvidin)*
Flavonols *(quercetin)*
Flavones *(apigenin)*
Flavan-3-ols *(catechin and proanthocyanidins)*

Risk factors that *contribute* to cardiovascular disease initiation and progression[3]

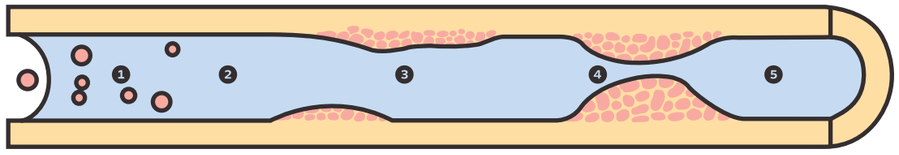
An important characteristic of grape-derived polyphenols is their ability to inhibit low-density lipoprotein (LDL) oxidation.

Scientific studies indicate this helps prevent atherosclerosis and decrease plasma triglycerides and cholesterol accumulation in the aorta.[5,6] Grape polyphenols also have a beneficial effect on serum antioxidant capacity, thereby protecting proteins against oxidative damage.[4,7,8,9]

Studies also show a significant link between increased total polyphenol and flavanol consumption with a lower risk of CVD. The different compounds are associated with:[7,10]

- Flavanols – positive effect on oxidative stress
- Flavonoids – lower risk of fatal CVD and positive effect on oxidative stress
- Flavonols – lower risk of stroke
- Anthocyanins – lower risk of coronary heart disease, CVD, lower arterial stiffness and blood pressure

Risk factors that contribute to cardiovascular disease initiation and progression[3]



1 Elevated LDL cholesterol 2 Elevated blood pressure 3 Platelet activation 4 Thrombosis formation 5 Cardiovascular event

Carotenoids – *powerful* antioxidants

There are over 600 naturally occurring types of carotenoids. Considered the most efficient botanical antioxidants, carotenoids in the human diet are primarily derived from plants such as roots, leaves, shoots, seeds, fruit, and flowers.

Carotenoids are also found in measurable concentrations in human blood and tissues – the most common are lycopene, lutein, α-carotene, β-carotene, β-cryptoxanthin, and zeaxanthin.[11,12] Many epidemiological studies indicate an association between carotenoids and the risk of heart disease or atherosclerosis.[13]

Carotenoids form the basis of the body's non-enzymatic defense mechanism against reactive oxygen species (ROS). As oxidative stress causes many CVDs, carotenoids may help inhibit their development. Studies show that carotenoids may:[14]

- Prevent oxidative changes in the plasma lipoprotein structure
- Prevent oxidized low-density lipoprotein formation
- Intensify platelet aggregation
- Support the reconstruction of blood vessel walls
- Reduce nitrogen oxide bioavailability

The global cardiovascular health supplement market is expected to USD 29 million by 2026[15]

Scientific evidence is behind the growth of the cardiovascular health supplement market

Though scientific evidence indicates the beneficial effect of certain phytonutrients on CVDs, study results differ. This is due to differences in intake quantity, type of product (red or white wine, grape juice, grape seed extract, or individual component), treatment period, and the number of study subjects and their health. Nevertheless, larger and better designed studies are required before any recommendations of intake quantity, period, and type of grape product can be made.[16]

Therefore, current preventive efforts should focus on improving overall eating habits with supplementation as a strategy for subgroups of individuals. The latest epidemiological and interventional trials recognize the Mediterranean diet, which is rich in bioactive compounds, as the dietary paradigm for the delay of CVD initiation and progression.

Rich in polyphenols, our NutriPhy® grape phytonutrients have documented cardiovascular health benefits.

References:

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