

How are plant-based diet patterns beneficial in lowering atherogenic blood lipids?

Unhealthy diet and lifestyle are modifiable behavioural risk factors in the development of cardiovascular disease (CVD). Adopting a healthy diet and lifestyle should always form the cornerstone when seeking to lower total and esp. LDL-cholesterol concentrations and CVD risk (1).

Based on growing evidence, dietary patterns that are beneficial for cardiovascular (CV) health include a wide variety of predominantly plant-based foods or food groups such as a high consumption of whole grains, fruits, vegetables, legumes (pulses), nuts and seeds, a moderate consumption of fish, poultry and eggs, and limited consumption of (red and processed) meat, sweets, and sugar-sweetened beverages. The protective effect of predominantly plant-based dietary patterns, such as the Mediterranean, the Nordic or the DASH and Portfolio diets on CVD risk and related risk factors, like LDL-cholesterol has been recognized by numerous dietary and clinical practice guidelines including the American Heart Association (AHA) and EAS/ESC guidelines (1-3).

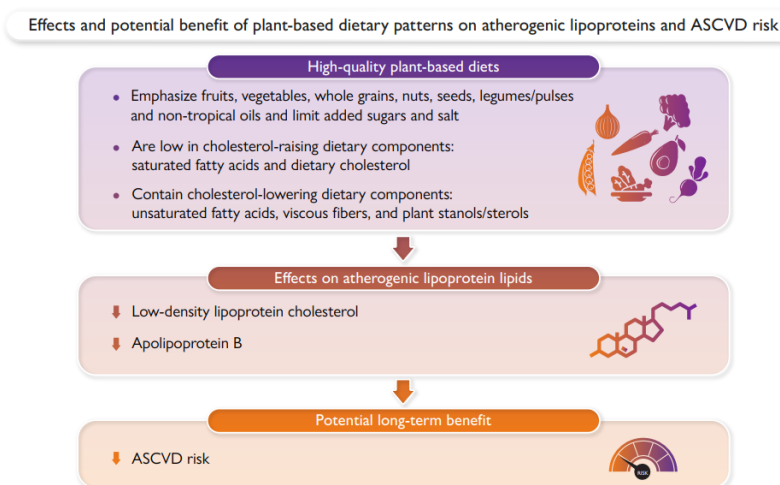
New evidence demonstrates plant-based diets significantly lower total and LDL-cholesterol and apolipoprotein B.

A recent meta-analysis from Koch et al (4) studied the effect of vegetarian and vegan diets on blood concentrations of total cholesterol, LDL-cholesterol, triglycerides (TG), and apolipoprotein (apo) B. Compared with conventional (omnivorous) diets, vegetarian/vegan diets lowered total cholesterol by -0.34 mmol/L (7%), LDL-cholesterol by -0.30 mmol/L (10%) and apo B by -12.92 mg/dL (14%).

These findings contribute further to the body of evidence showing beneficial effects of healthy vegetarian diet patterns on lowering atherogenic blood lipids such as LDL-cholesterol. Moreover, observational study evidence support that vegetarian diets are associated with a lower coronary heart disease (CHD) mortality while no clear association was found for CVD or stroke mortality (5). Considering the potential for CVD risk reduction, a predicted 20% lower risk could be expected based on the observed LDL-cholesterol lowering if this could be maintained for an extended period (6).

Vegetarian/vegan diets are typically low in total fat, especially in saturated fatty acids and low in dietary cholesterol, but high in dietary fibres, plant proteins and unsaturated fatty acids which contribute to explaining the cholesterol-lowering effect. The higher intake of phytonutrients such as phenolics compounds, carotenoids, and plant sterols/stanols with vegetarian/vegan diet patterns may further contribute to this effect. For instance, a typical omnivorous diet pattern contains about 300 mg/day plant sterols/stanols, while the plant sterol/stanol content of a vegetarian/vegan diet is about 600 mg/day (6).

Evidently, plant-based diets such as vegetarian/vegan diets have the potential to reduce CVD risk by contributing to the lowering of atherogenic blood lipids as illustrated in the graphic below [taken from Maki & Kirkpatrick (5)].



Another relevant aspect for the emphasis of consuming a predominantly plant-based diet as a heart-healthy eating pattern to reduce CVD risk is the positive environmental impact.

To learn more about healthy dietary patterns, explore the online educational tool “Diet at the heart of CVD prevention” <https://www.dietattheheart.com>, hosted at the EAS website.

References:

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