Cardiovascular Disease (CVD) is the leading cause of death globally (1).

The sad truth is that over 32% of all deaths are attributable to CVD, of which heart disease is a major player (2). In the USA alone, one person dies of heart disease every 33 seconds (3). In Europe, 45% of all deaths are from heart disease (4).

People with other diseases such as high blood pressure, obesity, and type 2 diabetes are more likely to develop heart disease.

No matter what country you reside in, all national guidelines recommend dietary modifications to reduce the risk of heart disease and other CVDs.

An optimal heart disease-prevention diet is rich in whole plant foods such as whole grains, fruit, vegetables, legumes, and nuts, and low in sodium, processed foods, meat and animal products.

What's happening inside my body?

**Cholesterol**

- High blood levels of low-density lipoprotein (LDL) cholesterol are the key driver for atherosclerosis (blockage of blood vessels) and heart disease.
- Intake of dietary cholesterol, saturated fats, and trans fats causes dyslipidemia (high blood cholesterol) which can progress to atherosclerosis.
- Whilst European Society of Cardiology guidelines recommend LDL cholesterol of < 2.6 mmol/L (100 mg/dL) for healthy people (5), there is evidence that keeping LDL below 1.8 mmol (70 mg/dL) prevents the formation of atherosclerotic plaques (6).

**Fatty acids**

- Omega-3 fatty acids improve blood vessel function, prevent inflammation, and lower cardiovascular risk (8).
- Conversely, omega-6, saturated and trans fatty acids can damage blood vessels (9).

**Antioxidants**

- Help to reduce oxidative stress and protect LDL molecules against oxidation. In addition, they help relax blood vessels and limit atherosclerosis (10).
- Antioxidants are abundant in fresh fruits and vegetables.
- Complex carbohydrates such as soluble fibre from fruits and vegetables are associated with reduced atherosclerotic progression and lower CVD risk.
- Simple carbohydrates, such as sugars, are associated with a higher risk for CVD (11).
The Science

Epidemiological evidence

- Eating a Mediterranean diet (Med) reduces the risk of coronary heart disease (CHD) by 28% (12). A Med diet is high in plant foods and low in animal products. In addition, the same review reported a 38% risk reduction for heart attack in studies comparing the highest diet adherence to a Med diet with the lowest adherence (12).

- A study compared a diet rich in healthy plant food (HPD) with a diet rich in unhealthy plant food (UPD). Eating an HPD was associated with a 25% risk reduction for CHD incidence. However, a UPD showed a 32% greater risk of CHD (13).

According to the study, a healthy plant food diet is rich in whole grains, fruits/vegetables, nuts/legumes, oils, tea/coffee and low in juices/sweetened beverages, refined grains, potatoes/fries, sweets and animal products.

- The EPIC-Oxford study found vegetarians have a 32% lower risk of CHD development compared to non-vegetarians (14).

- A group of 198 heart disease patients with co-morbidities such as previous heart attacks, obesity, diabetes and high cholesterol, were placed on a whole food plant-based diet. Over the next 3.7 years, almost all (99.4%) of those adherent to the diet avoided any major cardiac event. Of the 21 not adherent participants, thirteen (62%) experienced a cardiac event (15).

Evidence from RCTs and meta-analyses

- 28-31% risk reduction for major cardiovascular events when following a Med diet supplemented with nuts or extra virgin olive oil compared to a control diet suggesting reduced fat (16).

- 72% risk reduction for cardiac death and heart attack when following a Med diet compared to a Western diet (17).

- A meta-analysis of 40 studies consisting of over 192,000 participants concluded vegans average 0.49 mmol/L (18.92 mg/dL) less LDL cholesterol compared to omnivores (18).

- A review compared death rates from 5 studies. Death from heart disease was found to be 24% lower in vegetarians than non-vegetarians, and 26% lower in vegans (19).

- A 2023 review of 844,000 participants over 13 studies reported that vegetarians have a 21% reduced risk of heart disease compared to non-vegetarians (20).

Whilst a healthful plant-based diet is protective against heart disease, an unhealthful plant-based diet can impart a greater risk of heart disease.
# What to Eat

Maximise the intake of high-quality whole plant foods such as vegetables, whole grains, legumes, fruits, nuts, seeds, herbs, and spices; your health will benefit from every step towards more whole plant foods.

Choose healthy, whole-food fat sources such as nuts, seeds, or avocados. When oil is needed, opt for omega-3-rich oils (such as flaxseed, hemp, canola, and nut oils) over omega-6-rich oils (such as sunflower, safflower, and corn oil).

Always go for whole-grain foods to increase your fibre intake. The fibre in whole grain bread and pasta, quinoa, oats, and brown and wild rice lowers your cholesterol and blood pressure.

Fight chronic inflammation with powerful antioxidants in berries, cruciferous vegetables (like broccoli), dark green leafy vegetables, and beans.

Regularly include some of the following foods: beetroots (beetroot juice), leafy green vegetables (broccoli, kale, brussels sprouts, bok choy, etc.), garlic, oats, green tea, hibiscus tea, and dark chocolate.

Make sure to cover potentially critical nutrients with a wide variety of plant foods or enriched foods and drinks. Supplements, especially vitamin B12, omega-3 and vitamin D, may be helpful. Please consult with your primary care physician before taking any supplements.

# What to Avoid

Avoid refined carbohydrates such as bakery items and snack foods that can be high in saturated fat.

Eliminate or limit all processed foods, and sugar-sweetened foods and beverages.

Eliminate red and processed meat products such as burgers, sausages, bacon, ham, salami, dried meat, canned meat, and pastrami (21).

Eliminate or limit other animal products such as poultry, fish, eggs, cheese, and dairy.

Avoid saturated fats, from both animal and plant sources as much as possible.

High blood pressure is a risk factor for heart disease. Limit sodium intake to <2g per day (5g of table salt). Avoid processed foods (which are often high in salt), and experiment with different spices and herbs to give flavour to your food while reducing the amount of salt.
PATIENT FACTSHEET: Heart Disease & Diet
How to prevent and treat heart disease with nutrition

References