

## Beneficial components of a ‘heart healthy diet’

It is widely accepted that diet can play an important role in the prevention of cardiovascular disease (CVD). How this looks in practical terms may be asked of health professionals, hence a reminder of the specific elements of a ‘heart healthy diet’ in order to support patients.

Dietary habits and their influence on CVD risk have been extensively reviewed and the European guidelines for CVD prevention and for the management of dyslipidaemias state that dietary modifications should form the basis for CVD prevention.<sup>1,2</sup>

### *Elements of a ‘heart healthy diet’*

Dietary choices inspired by the Mediterranean diet should be recommended for both primary and secondary prevention of CVD.<sup>1</sup> All individuals should be advised on lifestyles associated with a lower CVD risk, characterised by the following advice:

- Encourage consumption of fruits (2-3 servings / day), vegetables (2-3 servings / day), legumes, nuts, wholegrain cereal foods and (oily) fish (1-2 servings / week)
- Reduce foods rich in trans or saturated fat (e.g., fatty or processed meat, sweets, cream, butter, solid margarines, regular cheese) and replace them with the foods recommended above and with monounsaturated fat (e.g., olive or rapeseed oil) and polyunsaturated fat (vegetable oils, soft spreads)
- Dietary fibre 25-40 g / day, including at least 7-13 g of soluble fibre – preferably from wholegrain products (e.g., oats and barley)
- Added sugar intake max 10% of energy; limit the intake of soft drinks and foods with added sugar
- Alcohol intake: < 10g (1 unit/day) for both men and women
- Limited salt intake < 5 g / day

### *Improving plasma cholesterol with dietary advice and interventions*

High-risk individuals, i.e., those with dyslipidaemias, should receive specialist dietary advice, e.g. from a dietitian, if feasible. When total (TC) and LDL-cholesterol (LDL-C) is high, there are some more specific dietary recommendations that should be taken into account, as outlined in the table below.<sup>2</sup>

**Impact of specific dietary interventions to reduce TC and LDL-C levels.** Modified from the 2019 ESC/EAS Guidelines for the management of dyslipidaemias.<sup>2</sup>

Dietary interventions to reduce LDL-C levels	Magnitude of the effect*	Level of evidence**	Recommendation
Avoid dietary trans fat	++	A	Avoid any consumption of trans fat
Reduce dietary saturated fat	++	A	<10% of energy (<7% in case of hypercholesterolemia); fat intake predominantly from MUFAs and PUFAs
Increase dietary fibre	++	A	25-40 g/day, including ≥ 7-13 g soluble fibre
Use functional foods with added phytosterols	++	A	At least 2 g/day plant stanols/sterols
Use red yeast rice supplements	++	A	Nutraceuticals containing purified red yeast rice may be considered\ in people with elevated plasma cholesterol concentrations who do not qualify for treatment with statins in view of their global CVD risk
Reduce excessive body weight	++	A	BMI 20-25 kg/m <sup>2</sup> waist circumference <94 cm (men) and <80 cm (women)
Reduce dietary cholesterol	+	B	Cholesterol intake should be reduced (<300 mg/day), particularly in people with high plasma cholesterol levels

Increase habitual physical activity	+	B	3.5-7 h moderately vigorous physical activity per week or 30-60 min most days
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\* The magnitude of the effect (++= 5-10%; += <5%) and the level of evidence refer to the impact of each dietary modification on plasma levels of a specific lipoprotein class. \*\* A=Data derived from multiple randomised clinical trials or meta-analyses, B=Data derived from a single randomised clinical trial or large non-randomised studies

### *Plant sterols and stanols*

Plant sterols/stanols compete with cholesterol for intestinal absorption thereby reducing blood cholesterol levels. They have been added to spreads and margarine, as well as dairy foods like milk and yoghurt. The daily consumption of 2 g can effectively lower LDL-C by 7-10% (with a certain degree of heterogeneity among individuals), while it has little or no effect on HDL-C and triglyceride (TG) levels. Further, plant sterols/stanols additionally reduce LDL-C levels by up to 5–10% in patients taking a stable dose of a statin, and this combination is also well tolerated and safe.<sup>3,4</sup>

### **Other dietary approaches for cholesterol management**

- Increase intake of dietary fibre: Foods enriched with beta-glucan, the soluble fibre in oats and barley, are effective and recommended for LDL-C lowering at a daily dose of at least 3 g / day.<sup>5,6</sup>
- Soy protein has a modest LDL-C lowering effect when replacing animal protein foods. However, this was not confirmed when changes in other dietary components were taken into account.<sup>1</sup>

Taken together, it is possible to achieve a healthy diet in multiple ways and preferably, with a wide combination of foods. It is important to consider that gradual and small changes are the most effective way to contribute to long-term dietary modifications. The European guidelines on CVD prevention in clinical practice and for the management of dyslipidaemia encourage nutritional strategies based on replacing less healthy foods with healthier alternatives and ensuring that individuals are consuming a balanced diet.<sup>1,2</sup>

To learn more about healthy dietary patterns and healthy foods visit the educational tool “Diet at the heart of CVD prevention” hosted under “Apps, tools & resources” at the EAS website.

<https://www.dietattheheart.com/>

### References:

1. Mach F, Baigent C, Catapano AL, *et al.* 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. *Eur Heart J* 2019;doi:10.1093/eurheartj/ehz455.
2. Visseren FLJ, Mach F, Smulders YM, *et al.* 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J* 2021; 42(34): 3227-3337.
3. Gylling H, Plat J, Turley S, *et al.* Plant sterols and plant stanols in the management of dyslipidaemia and prevention of cardiovascular disease. *Atherosclerosis* 2014; 232:346–360.
4. Abumweis SS, Barake R, Jones PJ. Plant sterols/stanols as cholesterol lowering agents: a meta-analysis of randomized controlled trials. *Food Nutr Res* 2008;52. doi: 10.3402/fnr.v52i0.1811.
5. Abumweis SS, Jew S, Ames NP. b-glucan from barley and its lipid-lowering capacity: a meta-analysis of randomized, controlled trials. *Eur J Clin Nutr* 2010; 64:1472–1480.
6. Wolever TM, Tosh SM, Gibbs AL *et al.* Physicochemical properties of oat beta-glucan influence its ability to reduce serum LDL cholesterol in humans: a randomized clinical trial. *Am J Clin Nutr* 2010; 92:723–732.