

# European Guidelines for the Management of Dyslipidaemias & Cardiovascular Disease Prevention highlight diet advice as the cornerstone for reducing cardiovascular disease risk

This guide provides an overview of the latest dietary recommendations for reducing cardiovascular disease (CVD) risk, based on guidelines from the European Atherosclerosis Society and European Society of Cardiology<sup>1,2</sup>

## Cardiovascular disease (CVD) prevention should start early

CVD is the result of a lifelong process and intervention strategies to reduce risk such as adopting a healthy diet and lifestyle should begin as early in life as possible

- in the general population by promoting healthy lifestyle behaviour<sup>3</sup> and
- at the individual level, in those at moderate to very high risk of CVD or patients with established CVD, by tackling an unhealthy lifestyle and by optimising risk factors.

## Dietary approaches are effective for the lifestyle prevention of CVD

Dietary choices inspired by the Mediterranean diet should be recommended for both primary and secondary prevention of CVD. High-risk subjects, in particular those with dyslipidaemia, should receive specialist dietary advice, e.g. from a dietitian, if feasible.

### Healthy diet characteristics<sup>1,2</sup>



Encourage consumption of fruit (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)



Replace foods rich in trans or saturated fat with monounsaturated fat (e.g. olive or rapeseed oil) and polyunsaturated fat (vegetable oils, vegetable spreads).



Added sugar intake max 10% energy; limit the intake of soft drinks and foods with added sugar



Dietary fibre 25-40g/day, including ≥7-13 g of soluble fibre - preferably from wholegrain products (e.g. oats and barley)



Alcohol intake <10 g (1 unit/day) for men and women

Limited salt intake <5g / day



**It is estimated that up to 80% of CVD could be prevented through positive diet and lifestyle changes.**



## Lowering serum LDL-cholesterol is a key therapeutic target for reducing CVD risk.

Elevated Low-Density Lipoprotein-Cholesterol (LDL-C) is recognised as a key risk factor in CVD risk. LDL-C is recommended as the primary target for treatment in the prevention of CVD. Lifestyle intervention should be a key focus when seeking to lower LDL-C levels, and lifestyle advice, including healthy diet recommendations, should be provided as a first step whatever the level of CVD risk.

### Intervention strategies as a function of total cardiovascular risk and untreated low-density lipoprotein cholesterol levels

| Total CV risk (SCORE) %*                         | Untreated LDL-C levels                                       |                                                              |                                                              |                                                              |                                                              |                                                          |
|--------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------|
|                                                  | <1.4 mmol/L (55 mg/dL)                                       | 1.4 to <1.8 mmol/L (55 to <70 mg/dL)                         | 1.8 to <2.6 mmol/L (70 to <100 mg/dL)                        | 2.6 to <3.0 mmol/L (100 to <116 mg/dL)                       | 3.0 to <4.9 mmol/L (116 to <190 mg/dL)                       | ≥4.9 mmol/L (≥190 mg/dL)                                 |
| <1 low risk                                      | Lifestyle advice                                             | Lifestyle advice                                             | Lifestyle advice                                             | Lifestyle advice                                             | Lifestyle modification, consider adding drug if uncontrolled | N/A**                                                    |
| ≥1 to <5 or moderate risk                        | Lifestyle advice                                             | Lifestyle advice                                             | Lifestyle advice                                             | Lifestyle modification, consider adding drug if uncontrolled | Lifestyle modification, consider adding drug if uncontrolled | N/A**                                                    |
| ≥5 to <10 or high-risk                           | Lifestyle advice                                             | Lifestyle advice                                             | Lifestyle modification, consider adding drug if uncontrolled | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention |
| ≥10 or at very-high risk due to a risk condition | Lifestyle modification, consider adding drug if uncontrolled | Lifestyle modification, consider adding drug if uncontrolled | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention |
| Very high-risk                                   | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention     | Lifestyle modification and concomitant drug intervention |

Recreated from the 2025 Focused Update of the 2019 ESC/EAS Guidelines for the management of dyslipidaemias<sup>4</sup>

CV, cardiovascular; LDL-C, low-density lipoprotein cholesterol; N/A, not applicable.

\*Systemic Coronary Risk Evaluation – [www.escardio.org](http://www.escardio.org); \*\*In individuals with untreated LDL-C levels ≥4.9 mmol/L, total CV risk is already at least high

### LDL-C treatment targets and goals for CVD prevention<sup>†</sup>

**Very high-risk:** ≥50% LDL-C reduction from baseline<sup>‡</sup> and an LDL-C goal of <1.4 mmol/L (<55 mg/dL)

**High-risk:** ≥50% LDL-C reduction from baseline<sup>‡</sup> and an LDL-C goal of <1.8 mmol/L (<70 mg/dL)

**Moderate risk:** LDL-C goal of <2.6 mmol/L (<100 mg/dL)

**Low risk:** LDL-C goal of <3.0 mmol/L (<116 mg/dL)

<sup>†</sup> Recreated from the 2019 ESC/EAS guidelines for the management of dyslipidaemias<sup>1</sup>; <sup>‡</sup> The term “baseline” refers to the level in a subject not taking any lipid lowering medication

## Improving plasma cholesterol with diet and lifestyle advice and interventions

When LDL-cholesterol is high, there are some more specific diet and lifestyle recommendations to be taken into account, as shown in the table below.

| Lifestyle 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                                                                         |
| 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                                  |

Modified from the 2019 ESC/EAS Guidelines for the management of dyslipidaemias<sup>1</sup> and updated as per 2025 Focused Update of the 2019 ESC/EAS Guidelines for the management of dyslipidaemias<sup>4</sup>

\*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

### In a nutshell: Smart choices for a healthy diet to lower LDL-cholesterol



- ✓ Replace saturated fats with mono- and polyunsaturated fats
- ✓ Avoid intake of trans fatty acids
- ✓ Reduce intake of dietary cholesterol
- ✓ Increase the intake of (soluble) dietary fibre
- ✓ Consider foods with added plant sterols/stanols as a dietary adjunct to further lower elevated LDL-cholesterol

## Functional foods for dyslipidaemias

In addition to a cholesterol lowering diet, functional foods with added plant stanols/ sterols can be used either as alternatives or in addition to lipid-lowering drugs.<sup>5</sup>

### Plant sterols and stanols

Plant sterols and stanols (phytosterols) occur naturally in vegetable oils and in smaller amounts in vegetables, fresh fruits, nuts and seeds, grains and legumes.

Phytosterols compete with cholesterol for intestinal absorption thereby reducing blood cholesterol levels.

Plant sterols and stanols have been added to spreads and margarine, as well as dairy foods like milk and yoghurt. The daily consumption of 2 g of phytosterols can effectively lower LDL-C by 7-10% in humans (with a certain degree of heterogeneity among individuals), while it has little or no effect on HDL-C and TG levels.

Research indicates that plant sterols and 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>6,7</sup>

**Based on LDL-C lowering and the absence of adverse signals, functional foods with added plant sterols/stanols (at least 2 g/day with a meal) may be considered<sup>1,2,6</sup>**

- in individuals with high cholesterol levels at intermediate or low global CV risk who do not qualify for pharmacotherapy;
- as an adjunct to pharmacotherapy in high- and very high-risk patients who fail to achieve LDL-C goals on statins or are statin intolerant; and
- in adults and children (>6 years) with familial hypercholesterolaemia (FH), in line with current guidelines.

## Other dietary approaches for cholesterol management

- Dietary fibre: Foods enriched with beta-glucan, the soluble fibre in oats and barley, are well tolerated, effective and recommended for LDL-C lowering at a daily dose of at least 3 g/day.<sup>8,9</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>1,10</sup>

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