

Nutrition Interventions for Adults with Dyslipidemia



A CLINICAL PERSPECTIVE FROM THE NATIONAL LIPID ASSOCIATION

Overview: A healthy lifestyle is the foundation of atherosclerotic cardiovascular disease (ASCVD) prevention, and good dietary habits are fundamental to a healthy lifestyle. Dietary interventions can reduce the number of circulating atherogenic lipoprotein particles (i.e., apolipoprotein B-containing particles), which is the primary objective for reducing ASCVD risk. This National Lipid Association Clinical Perspective provides guidance on nutrition interventions for the three most common dyslipidemias in adults: 1) low-density lipoprotein cholesterol (LDL-C) elevation; 2) triglyceride (TG) elevation, including severe hypertriglyceridemia with chylomicronemia; and 3) combined dyslipidemia, with elevations in both LDL-C and TG levels.

Highlights

- » A cardioprotective dietary pattern is key component of a heart-healthy lifestyle.
- » Dietary interventions improve dyslipidemia and other ASCVD risk factors (i.e., hypertension, hyperglycemia, and chronic inflammation).
- » Combining nutrition interventions can have additive effects for reducing LDL-C.
- » Interventions for TG elevation require individualization based on causal factors.
- » Dietitian-administered medical nutrition therapy benefits lipid management.

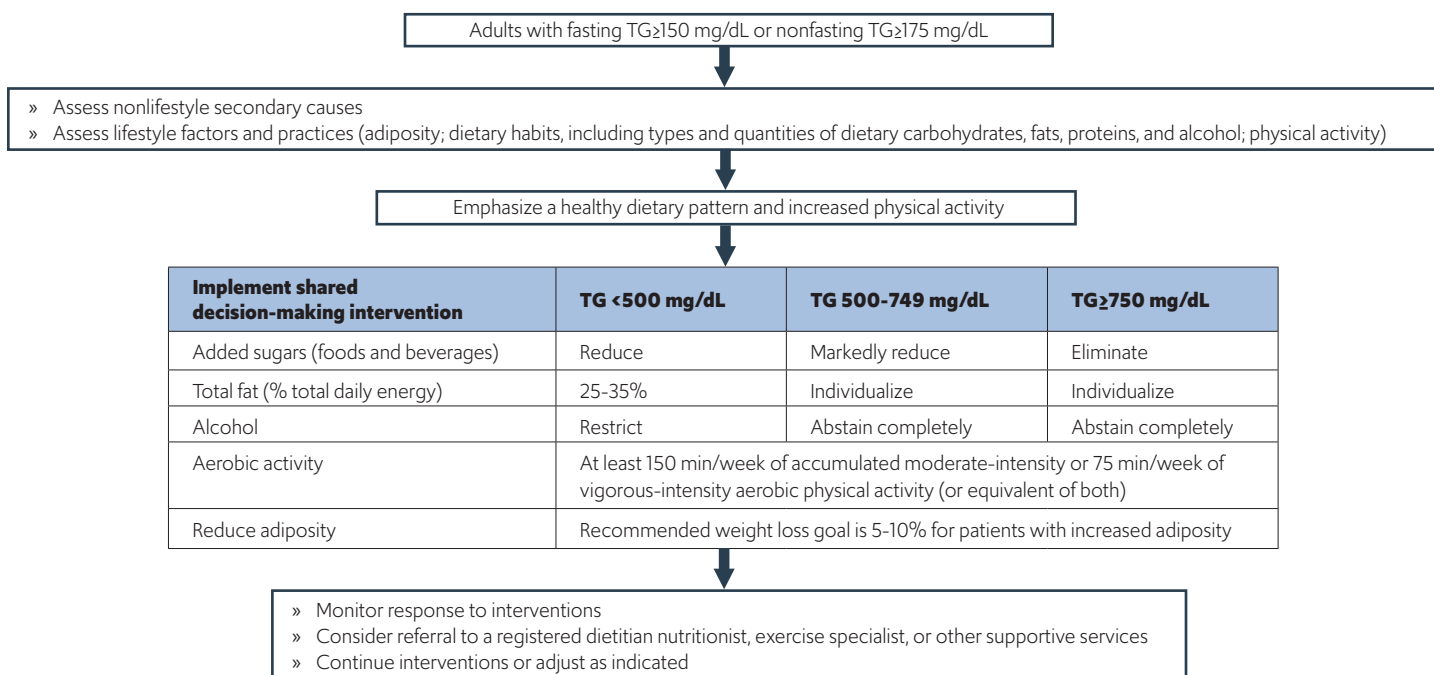
Nutrition Interventions for the Management of Isolated Elevation of LDL-C

- » Reduce intakes of cholesterol-raising dietary components
 - » Some saturated fatty acids (SFAs) (primarily lauric, myristic, and palmitic acids) and dietary cholesterol
- » Increase intakes of cholesterol-lowering dietary components
 - » Unsaturated fatty acids, proteins, particularly plant proteins, viscous dietary fibers, and plant sterols/stanols
- » Combining any two of the interventions in the table to the right may reduce LDL-C by 6-19%

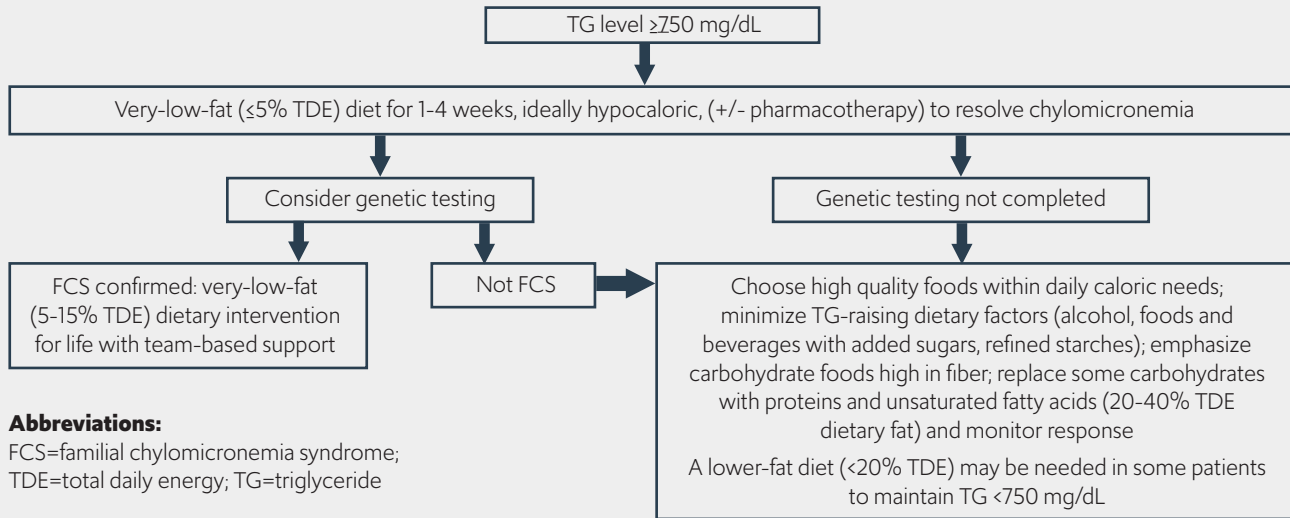
Interventions	Estimated LDL-C ↓
Replacement of 5% total daily energy (TDE) from SFAs with unsaturated fatty acids	5% to 10%
7.5 g/day viscous fiber	6% to 9%
2 g/day plant sterols/stanols	5% to 8%
30 g/day plant protein (replace animal protein or carbohydrate)	3% to 5%
Loss of 5% of body weight, if excess adiposity is present	3% to 5%

Nutrition Interventions for the Management of Isolated Elevation of TGs

Lifestyle intervention is the foundation for management of patients with hypertriglyceridemia. The figure below illustrates the commonalities in lifestyle interventions for *all* patients with any level of elevated TGs.



The algorithm below illustrates nutrition interventions for severely elevated TG levels (≥ 750 mg/dL).



Abbreviations:

FCS=familial chylomicronemia syndrome;
TDE=total daily energy; TG=triglyceride

Individualization is important!

Because many individuals with hypertriglyceridemia have underlying polygenic and acquired determinants, it is critical to **individualize** nutrition interventions. A key consideration is to monitor TG levels, especially early in the intervention, to assure that the recommended nutrition intervention has the desired effects.

Nutrition Interventions for the Management of Elevation in LDL-C and TG Levels (Mixed Dyslipidemia)

The term “mixed dyslipidemia” is used to denote concurrent elevations in LDL-C and TG concentrations. Familial combined hyperlipidemia is the most common type of mixed dyslipidemia. Nutrition interventions for mixed dyslipidemia include the strategies for lowering LDL-C and TG levels highlighted above within the context of a healthy dietary pattern. A summary of these strategies is provided below.

Interventions for Lowering LDL-C	Interventions for Lowering TG
↓ SFAs, TFAs, and dietary cholesterol	↓ Added sugars and refined starches
↑ UFAs intake (5% TDE replacement for SFAs)*	↓ Alcohol
↓ Body weight (5-10%), if overweight/obese	↓ Body weight (5-10%), if overweight/obese
↑ Protein, especially plant protein (3-5% TDE) [†]	↑ Protein, especially plant protein (3-5% TDE) [†]
↑ Viscous fiber intake (5-10 g/day)	↑ EPA+DHA intake (2-4 g/day)
↑ Plant stanols/sterols (2 g/day)	↑ Physical activity (≥ 150 minutes/week)

*5% TDE of SFAs for 2,000 calories = ~11 grams, which could be replaced with UFAs.

[†]3-5% TDE of protein for 2,000 calories = 15-25 grams protein, which could be replaced with plant protein.

Abbreviations: DHA=docosahexaenoic acid; EPA=eicosapentaenoic acid; SFAs=saturated fatty acids; TDE=total daily energy; TFAs=*trans* fatty acids; UFAs=unsaturated fatty acids

The dietary strategies highlighted above should be implemented within the context of an overall healthy lifestyle, which includes

- » A recommended dietary pattern
- » Adequate physical activity
- » Avoidance of tobacco products
- » Adequate sleep quantity and quality
- » Psychosocial stress management

A multidisciplinary approach is recommended to facilitate patient success in making and sustaining dietary changes and the assistance of a registered dietitian nutritionist is **highly recommended**, whenever feasible.

For in-depth details of the nutrition interventions summarized above, please read the National Lipid Association’s Clinical Perspective in the *Journal of Clinical Lipidology*.

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