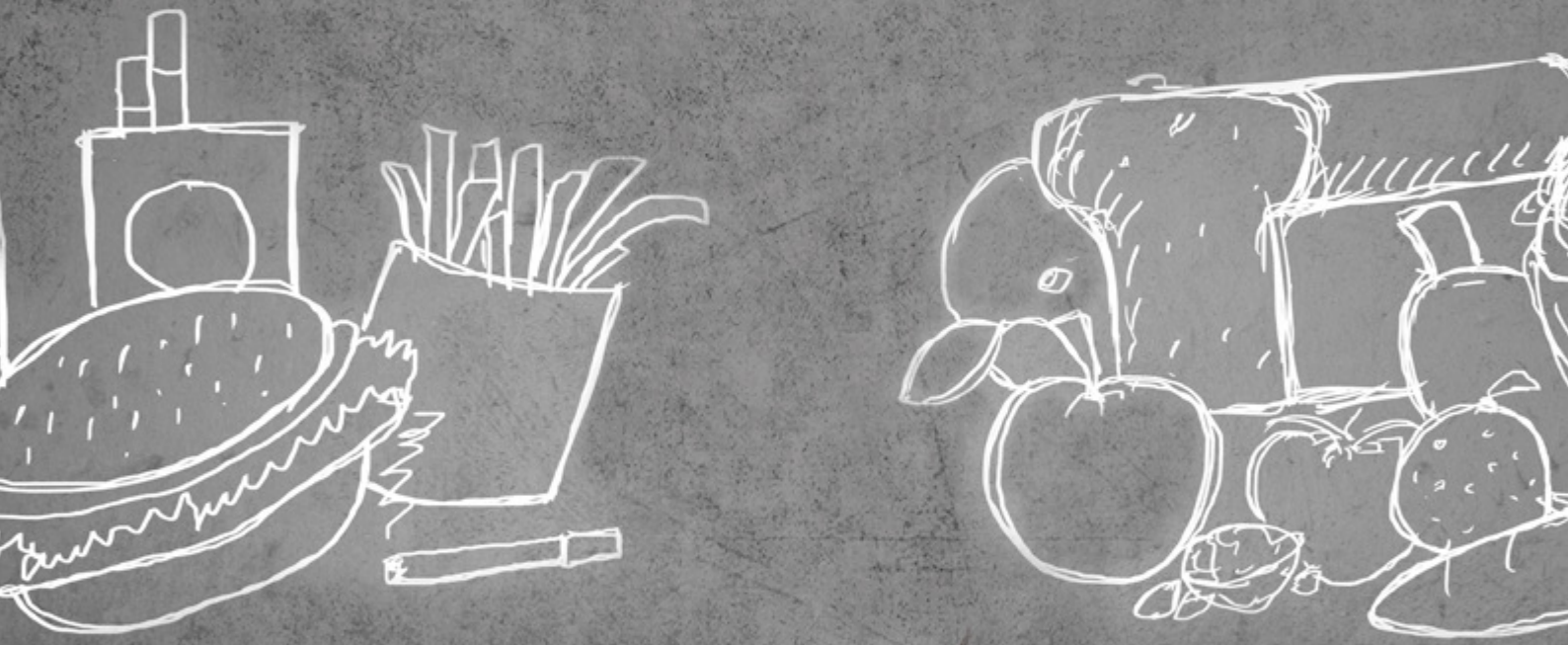
Cholesterol
the good, the bad and ...your nutrition guide

Edited by **Tsakou Eva,** Dietitian-Nutritionist
English edition: **Qira Irini,** Dietitian-Nutritionist, M.Sc.



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Introduction

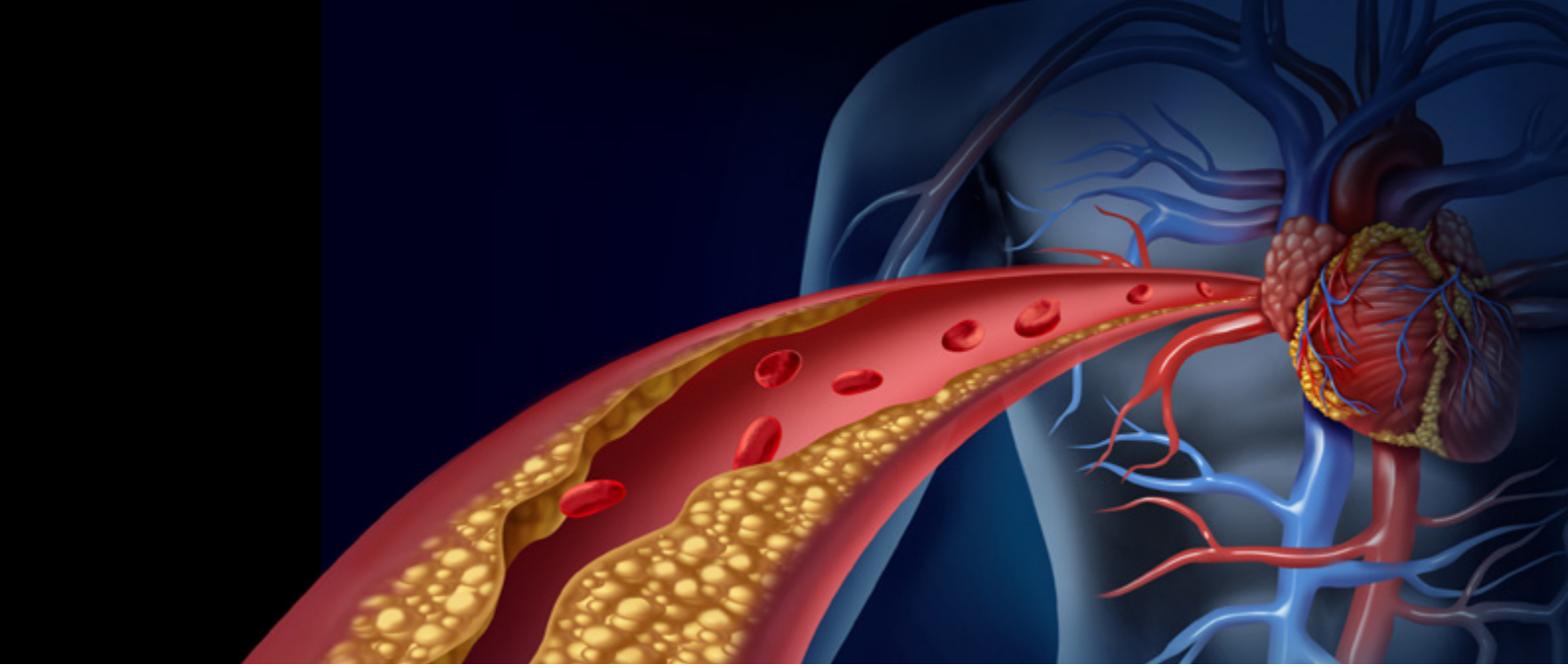
Do you, or somebody you care about, persistently have **high blood cholesterol?** How many things have you heard about it, not being able to distinguish the **myths** from **facts?**
For example, **how many eggs per week can a person with high cholesterol eat?**

The main purpose for this e-book is to become your **compact guide** to maintain normal blood cholesterol levels with practical tips for your everyday life. In the next pages, you will find important information on:

- the **importance** of cholesterol in health
- the **characteristic profile** of those who tend to have high levels
- **food ingredients** which actually raise cholesterol levels
- the **ideal diet plan** for lowering cholesterol
- the **important role** of plant sterols in cholesterol lowering journey
- s**moking, physical activity** and **alcohol** effects on cholesterol levels
- **tips** to be easily applied in your every day life

You can make **simple changes every day** that can lower cholesterol levels and help maintain your heart health. **Start today!**

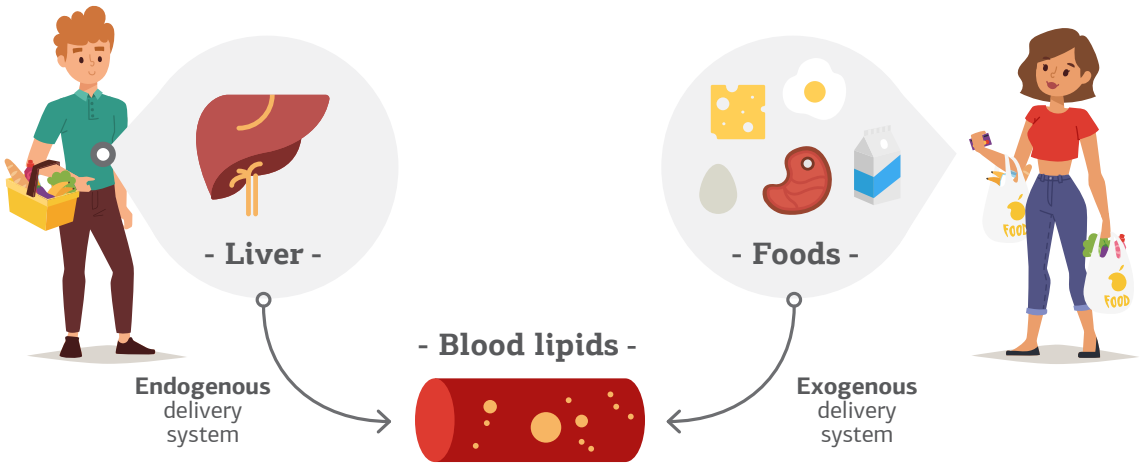
Enjoy your read!



Getting to know cholesterol

Could you imagine that cholesterol is a fat-like substance actually **essential** for your life? Perhaps, as you might already know, high blood cholesterol levels are detrimental for your **cardiovascular health.** However, normally, cholesterol plays a vital role in how every cell works (is a structural component of cells' membrane), enhances your nervous system and takes part in synthesis of **important hormones.**

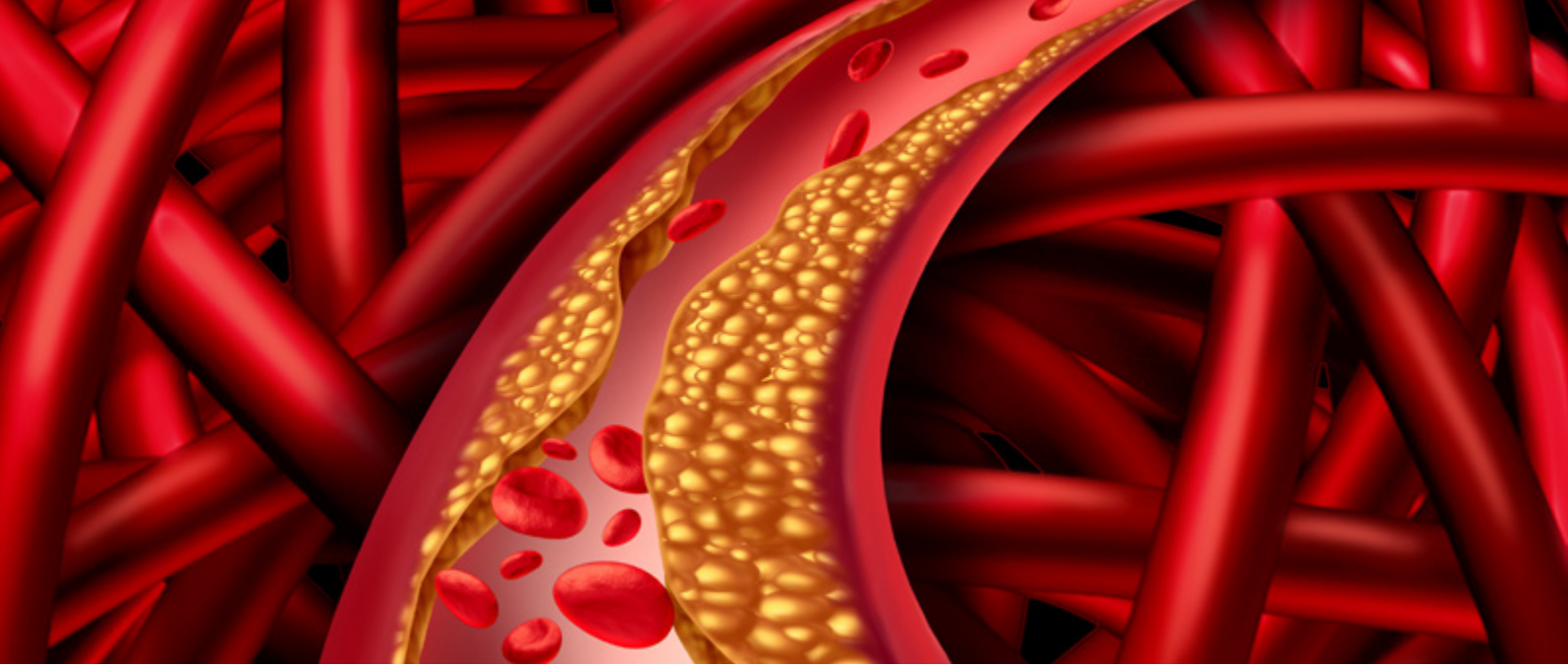
Where does it come from



There are two sources for cholesterol to reach our body: **our diet** (animal food) and **endogenous production in our liver, intestine and other organs.**

The "bad" and the "good"

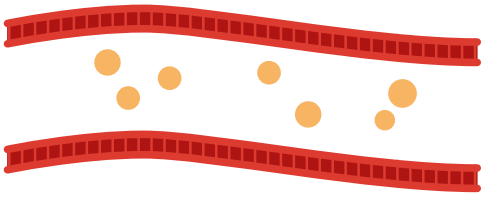
These are two names given to the transporters of cholesterol, **LDL** (low density lipoproteins) and **HDL** (high density lipoproteins). LDL **transfers** cholesterol from the liver to other tissues and cells where it is needed. It is often called **"bad cholesterol",** since it contains a relatively high amount of cholesterol that can build up in the arterial walls. On the contrary, **HDL cleans up** cholesterol from the blood and the arteries to take it back to the liver; that is why it is considered **protective to the heart.**



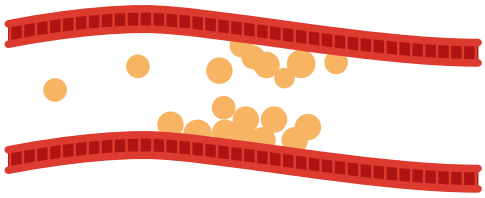
Why cholesterol is important for your health

Elevated LDL-cholesterol is widely known to be **one of the risk factors** in developing coronary heart disease*, causing atherosclerotic plaque which builds up inside the arteries.

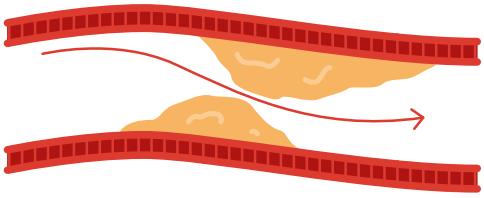
How atherosclerotic plaque builds up into the arteries?



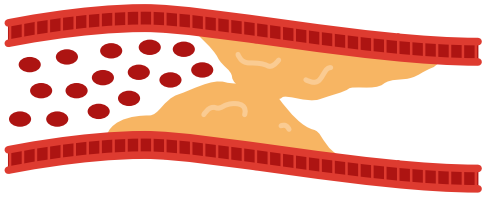
Think about an artery as a **flexible tube** in which several blood components just like **LDL,** travel.



LDL can **stick** to the arteries' wall and it can be **oxidized** there. This makes it look not normal and your immune system detects it as an **"invader".**



Special defense forces run to the point of interest and the casualties start **piling up** to form a plaque which can start **restraining** the bloodstream.



Blood clots, which are formed by the immune cells, may **block the blood stream** to the point of the plaque or even further down where the stream takes them.

*There are many risk factors for coronary heart disease and it is important to take care of all of them independently, to reduce the overall risk of it.

The possibility of having high cholesterol is higher if...

You are a man! Yes, the female sex hormones are protective to the women; of course, only until the menopause comes!

As you grow older! Cholesterol levels tend to increase as your age increases too.

You suffer from diabetes, hepatic dysfunction, hypothyroidism or chronic renal failure.

You still smoke! Smoking lowers HDL (good cholesterol) and increases triglycerides.

You take drugs such as diuretic and/or corticosteroids.

Your diet is high in saturated and trans fatty acids.

You have a first degree relative already with hypercholesterolemia (heredity from parent to child - familial hypercholesterolemia).

Your weight is not normal. Overweight and obesity are linked with high LDL cholesterol, high triglycerides and low HDL cholesterol.

You have a sedentary lifestyle. Not being physically active increases both your body weight and your LDL.

Overweight and central obesity in particular, increases triglycerides, total and LDL cholesterol while lowers HDL cholesterol.

When was the last time you checked your cholesterol levels?

If you are over 20 years old, you should be checking your blood cholesterol levels **every 5 years.** However, in case that you already have hypercholesterolemia or you take medication for that, or even if there are any additional reasons that alter your cholesterol levels, your GP might ask you **repeat your check-up twice a year or on a yearly basis.**

Keep in mind to **avoid drinking alcohol** 24 hours before the blood test to reassure your results are **reliable.**

Desirable levels of **LDL** cholesterol

LDL cholesterol	Category
<70 mg/dL	For people at very high risk
<100 mg/dL	For people at high risk
<115 mg/dL	For people at medium risk

Desirable levels of **HDL** cholesterol

HDL cholesterol	Sex
>40 mg/dL	Men
>45 mg/dL	Women

Please note that optimal cholesterol levels depend on many risk factors, that's why you need to visit your doctor for personalized advice.

Kids can't develop hypercholesterolemia, can they?

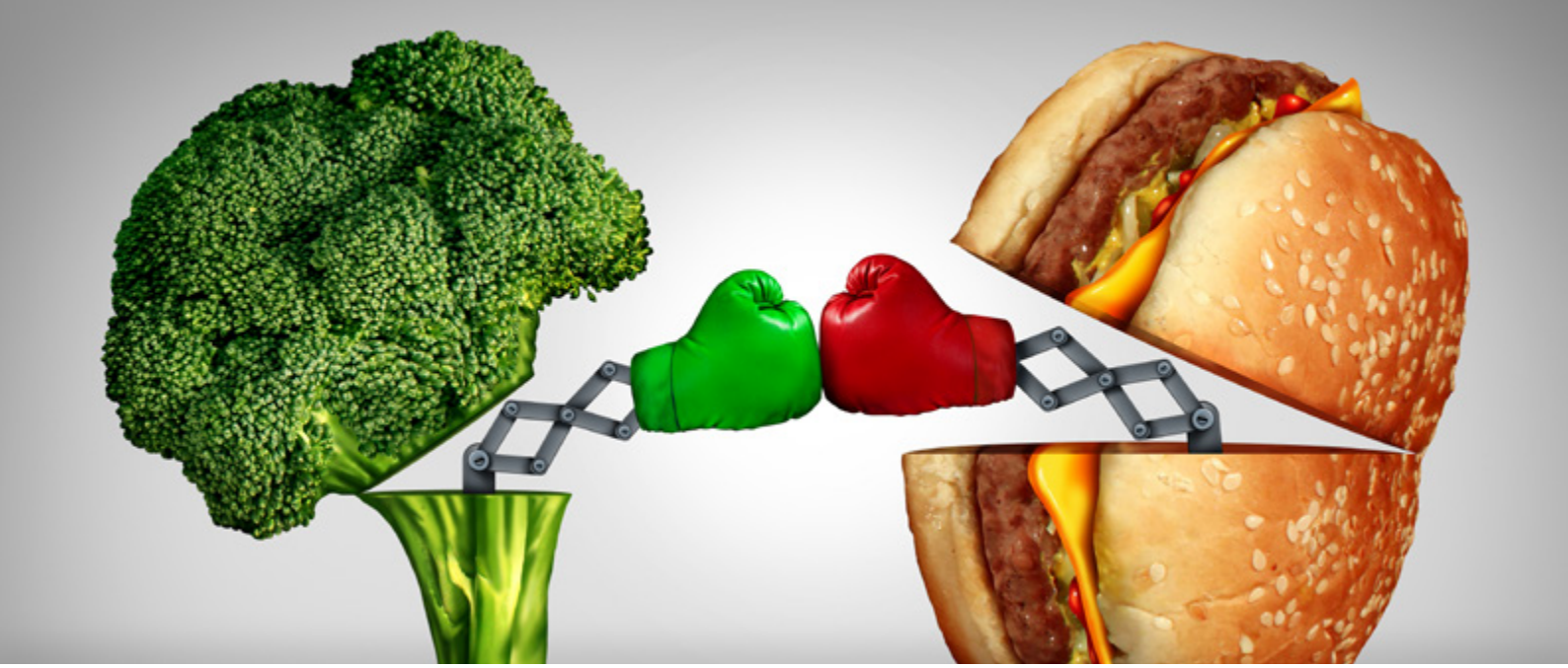
Unfortunately, they can! People are advised to check children's blood cholesterol levels once they are over 2 years old and if:

- their **parents** have blood cholesterol levels over 240mg/dL or
- their **parents or grandparents** suffered from heart disease or had a heart attack before the age of 55.

Due to increased rates of childhood obesity in Greece, cholesterol levels are also increased in children and adolescents over the last years.

Total cholesterol	LDL cholesterol	LDL cholesterol	Category
<170mg/dL	<110mg/dL	>45mg/dL	Desirable levels
170-199mg/dL	100-129mg/dL	40-45mg/dL	Marginally high
	>200mg/dL	>130mg/dL	High

Please note that optimal cholesterol levels depend on many risk factors, that's why you need to seek personalized advices from the pediatrician.



What's the role of diet?

The cornerstone method to lower your blood cholesterol is **your diet** in combination with **physical activity** and **body weight control.** Whenever it is necessary, your doctor might prescribe you **medication** as well, but that doesn't mean you are to drop your healthy lifestyle!

Do cholesterol-containing foods increase blood cholesterol?

How many times you have heard that eggs are forbidden to those with hypercholesterolemia? The truth is rather pleasant!

Food cholesterol is only responsible for the
10-15%,
of your blood cholesterol.

Which nutrients can increase blood cholesterol?

1. **Saturated fat** that is found in animal food mostly like red or processed meat, butter, fast food and ready-to-eat meals.
2. **Trans fat,** which either occurs naturally in food of animal origin or is formed when oils are heated in high temperatures or partially hydrogenated. It is found mostly in sweets, processed snacks or fried food, and lesser in red meat and milk products.

Find your food allies to reduce blood cholesterol

Some examples of your allies are **vegetables, fruits, legumes, wholegrain cereals** (bread and pasta, oat, rice), **nuts, skimmed or semi-skimmed milk products, vegetable oils like olive oil and vegetable spreads, even egg white.** Less often you could choose to eat **chicken and fish** and much more rarely, **red meat.**





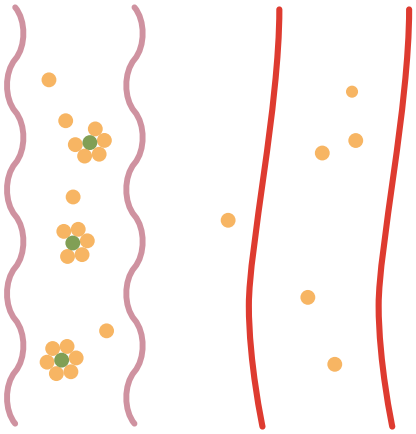



Tip

What 's more important is to have these foods in your diet as a natural habit so that you can stick to it for longer!

Plant sterols: what makes them efficient in reducing blood cholesterol?

Plant sterols occur naturally in plant-based foods, but only in small amounts. They have similar structure with cholesterol.



Mode of action

Plant sterols work by partially blocking the absorption of cholesterol in the gut. This reduces the amount of cholesterol that enters the bloodstream, resulting in lower levels of LDL (bad) cholesterol.

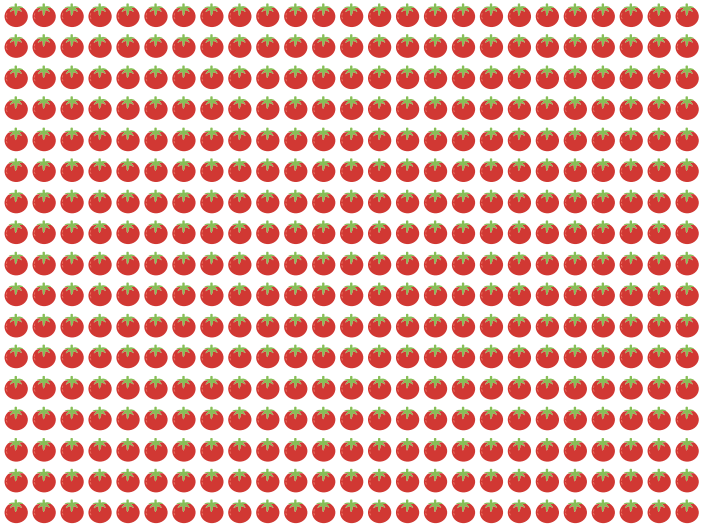
How much of plant sterols is enough?

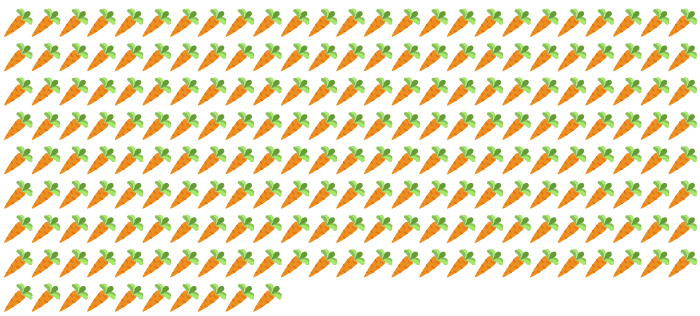
To benefit from plant sterols in foods, you need to eat approximately **2g every day** as part of a balanced diet with sufficient fruit and vegetables, in order to lower your LDL-cholesterol by **10%*.**

*More specifically, consuming 1.5-2.4g of plant sterols per day, can lower cholesterol by 7-10%, whilst higher consumption of 2.5-3g a day, can result in a greater reduction of 12.5%, in a period of 2-3 weeks.

In order to hit the target of 2g of plant sterols a day...

...you would need to consume 425 tomatoes or 210 carrots!





It is impossible! However, plant sterols are added to frequently consumed foods such as **vegetable spreads** and **milk products** (functional foods) for you to achieve the daily goal of 2g with only **3 portions a day.** They also, come in **mini bottles of yogurt drink** containing the 2g in only a portion.

Search for the health claim and more information on the products' label.

Practical tips – Do's and Don'ts

Do's

Maintain a healthy body weight. Get your dietitian's assistance do that your Body Mass Index [Weight/(Height)2] is within the normal range of 18.5 – 25kg/m2.

Consume 5-6 small portions of fruits and vegetables daily whether they are fresh or frozen but without adding sauces, salt or sugar on it. Prefer eating the whole fruit or their juice without filtering it. One small portion is defined as 100g of vegetable or a medium fruit.

Increase consumption of dietary fibre by eating more legumes, fruits, vegetables, oat and wholegrain cereals.

Choose wholegrain carbs such as bread or pasta.

Always have a salad, fresh or cooked, as a side dish!

Use vegetable oil and spreads instead of butter.

Include the consumption of foods with added plant sterols, in your daily program as it is clinically proven that they can lower LDL-cholesterol effectively by 7-10%. Keep in mind that high cholesterol is a risk factor in the development of cardiovasular disease.

Choose your meat to be fat free and remove any extra fat you notice on it.

Try steam cooking, the oven or the grill.

Practical tips – Do’s and Don’ts

Don’ts

Avoid processed meat products, which are high in saturated fat and salt.

Limit the consumption of red meat and its products at least biweekly.

Cut down on sugary drinks and foods.

Reduce the consumption of refined carbohydrates such as pasta and “white” bread.

Avoid sweets and pastries high in fat and sugar as well as other energy dense foods (too many calories in small portions).

Avoid frying or searing foods for cooking.

Only rarely, if not at all, choose eating from fast food restaurants.

Healthy lifestyle is your choice!

Get active!

Regular aerobic exercise like walking, dancing or biking, that lasts **30 minutes at least,** should be your daily target! It will help you **reduce** your triglycerides, total and LDL cholesterol while **increasing** your HDL cholesterol at the same time.

For those to whom physical exercise seems mountain high, find your first steps by:

- **Making a start at lower intensity,** for a shorter time of 10'-15', for most of the days of the week. Steadily and gradually increase them to the suggested target.
- **Use the stairs** over the elevator for a change.
- **Get off the buss or your car** well before your destination so that you walk to it.

Ask your GP's advice on the optimal levels and form of exercise for you.

Healthy lifestyle is your choice!

Quit smoking

Smoking increases your triglycerides, total and LDL cholesterol levels and reduces your HDL cholesterol.

Quitting: the sooner the better! It saves your life, especially when it happens before your 40s, as data show to drop death rates. It also increases your HDL cholesterol.

How are passive smokers affected?

Being exposed to passive smoking for more than half an hour a day, can double your risk for a heart attack!

Minimize alcohol consumption

Men 2 drinks/ day

Women 1 drink/ day

Tip

The guidelines refer to those with hypercholesterolemia only. If you have high triglycerides as well, you ought to avoid drinking alcohol at all.

1 drink is equal to:

360mL of beer

150mL of wine

45mL of hard drinks such as whiskey, vodka, gin and liqueurs

Myth buster!

My blood cholesterol will increase if I eat high cholesterol foods.

MYTH

Our blood cholesterol stems from what our liver **generates** rather than what we consume. What you should better be careful when eating is s**aturated and trans fat.**

Eggs and seafood increase cholesterol levels.

MYTH

Those are indeed foods **high in cholesterol.** However, you can eat them **normally** since it is not food cholesterol which affects your blood cholesterol the most. Daily cholesterol intake should not exceed **300mg** [an egg contains 212mg].

Since my body weight is normal, I can't have high cholesterol.

MYTH

One can have normal weight and high cholesterol at the same time for reasons such as **heredity** or a **diet high in saturated and trans fat.**

Children can't have high cholesterol levels.

MYTH

Unfortunately they can, mainly because of **heredity** or an **unhealthy lifestyle.** In such cases, parents are advised to **check** their children's blood cholesterol levels once they are **over two years old** and according to their pediatrician's guidelines.

Cholesterol
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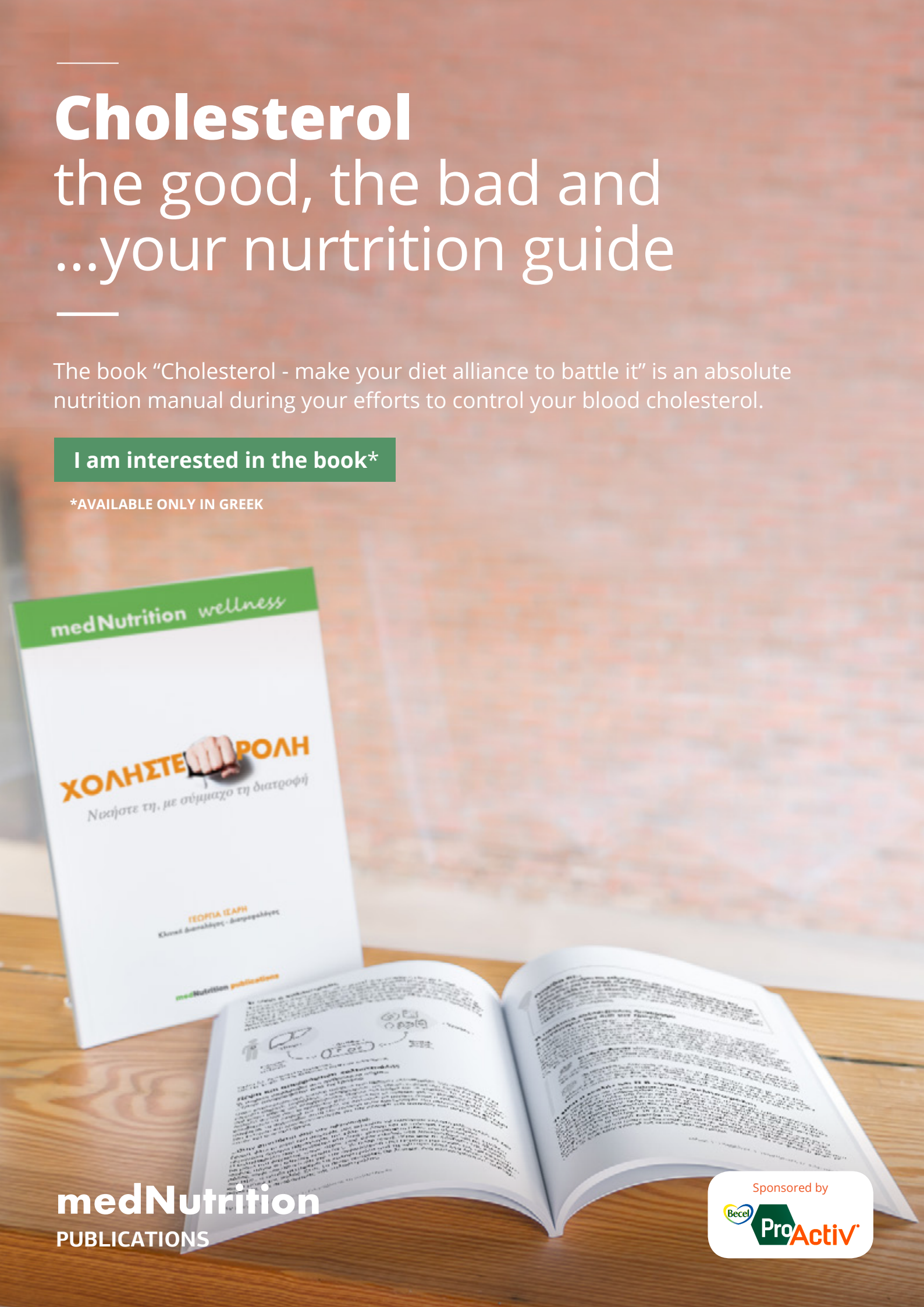
The book “Cholesterol - make your diet alliance to battle it” is an absolute nutrition manual during your efforts to control your blood cholesterol.

I am interested in the book*

***AVAILABLE ONLY IN GREEK**



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