

# Information Guide to **Cholesterol “Get the Facts”**



**CR**  **Í**

*Fighting Heart Disease & Stroke*



Croi works to improve the quality of life for all through the prevention and control of heart disease, stroke, diabetes and obesity.

We are at the heart of the community working with people to make sustainable and life-changing improvements to their cardiovascular health and wellbeing; supporting patients and their families; teaching life saving skills of CPR and providing health care professionals with the knowledge and skills to translate best practice evidence into daily preventive care.

Publication Kindly Supported by:



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*The most effective way to control your cholesterol is to be informed about it. This booklet aims to help you understand more about cholesterol, which is one of the major risk factors for heart disease.*

## Cholesterol and Heart Disease

### Did you know?

Cardiovascular disease, which includes heart disease, remains one of the main causes of death in Ireland. However, by making lifestyle changes you can prevent heart disease or delay its onset.

These lifestyle changes include taking regular exercise, healthy eating and not smoking.

### Know your risk

A high level of cholesterol increases your risk (or chance) of having a heart attack or stroke. High cholesterol is one of the major risk factors for heart disease.

Unlike other risk factors such as family history, age and gender, cholesterol can be controlled and kept at a healthy level. Knowing what your cholesterol levels (lipid levels) are is an important first step in reducing your risk of heart disease or stroke.

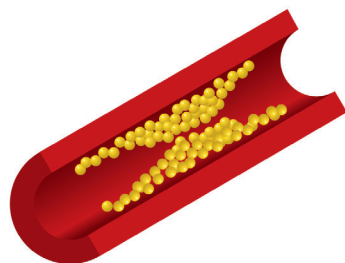
Other major risk factors for heart disease are:

- High blood pressure
- Smoking
- Physical inactivity
- Being overweight
- Excessive alcohol consumption
- Stress

The more risk factors you have, the greater your overall risk of developing heart disease.

### What is Cholesterol?

Cholesterol is a fatty substance, which is essential to the normal functioning of your body. A certain amount of cholesterol is healthy as it forms part of the cell walls and is necessary to make hormones.



**Atheroma in artery**

However, if there is too much cholesterol in the blood, the body is unable to get rid of it and cholesterol is deposited along the walls of arteries, forming atheroma (fatty material). Over time, a

gradual build-up of atheroma can narrow the arteries that supply the heart with blood. This process is called atherosclerosis and may eventually cause symptoms of angina or result in a heart attack or stroke.

## Understanding Cholesterol

### Lipid Profile

You may have heard of the term 'lipid profile'. A lipid profile is a detailed measurement of the fats in your blood. Your lipid profile gives you a breakdown of your total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides.

**Total Cholesterol (TC)** is made up of 'good' and 'bad' cholesterol.

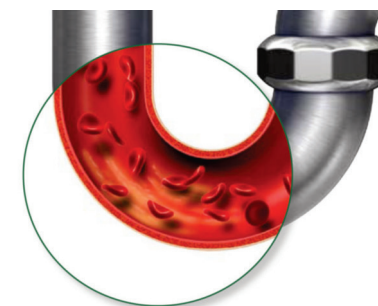
**Triglycerides (TG)** are other fats that circulate in the bloodstream with cholesterol. A high level of triglycerides increases your risk for heart disease.

## Understanding Good (HDL) and Bad (LDL) Cholesterol

Imagine this pipe as your artery. Inside are two types of cholesterol: bad cholesterol (LDL) and good cholesterol (HDL). Too much 'bad' cholesterol and not enough 'good' cholesterol can put you at risk of developing heart disease or stroke.

### REMEMBER

It is not enough to have a low LDL cholesterol, you also need to have a high HDL cholesterol for a healthy heart.



**A healthy artery with red blood cells flowing freely**

## Why is LDL Cholesterol bad?

- Too much 'bad' cholesterol (LDL) in the blood contributes to the build-up of fat deposits in your arteries (atherosclerosis). This build-up of fat can slow down the flow of blood to the heart or brain - like a partial blockage in a pipe.
- Over time, this build-up of fat can harden and narrow your arteries which can put you at risk of having a heart attack or stroke.
- The lower your 'bad' cholesterol, the lower your risk of having a heart attack or stroke.



## Why is HDL Cholesterol good?

- 'Good' cholesterol (HDL) helps remove 'bad' cholesterol from your arteries and carries it to the liver where it is removed from the body.
- The higher your HDL the better, as HDL protects against heart disease.

For further information visit  
**[www.croi.ie](http://www.croi.ie)**

## What are the recommended targets for Cholesterol?

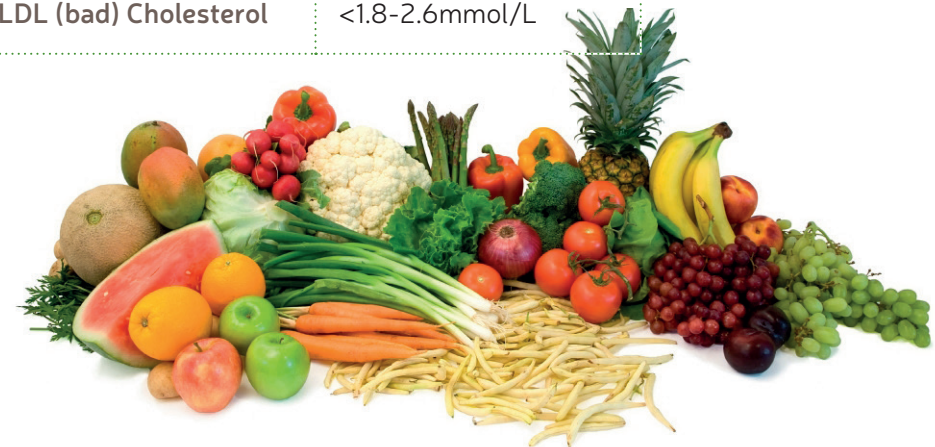
It is very important that you know the recommended target levels for your cholesterol.

<b>Total Cholesterol</b>	< 5mmol/L
<b>LDL (bad) Cholesterol</b>	< 3mmol/L
<b>HDL (good) Cholesterol</b>	> 1mmol/L (males) > 1.2mmol/L (females)
<b>Triglycerides</b>	< 1.7mmol/L

## Specific target levels

If you have a history of any of the following medical conditions: heart disease, stroke, diabetes, chronic kidney disease or peripheral artery disease, your recommended target levels are lower.

<b>Total Cholesterol</b>	< 4mmol/L
<b>LDL (bad) Cholesterol</b>	<1.8-2.6mmol/L





## What causes high Cholesterol?

Having an unhealthy lifestyle is the main cause of high cholesterol for most people. Unhealthy lifestyle behaviours include:

- Unhealthy diet
- Lack of physical activity
- Smoking or exposure to tobacco smoke
- Excess weight

Additionally, raised cholesterol levels can run in families. If inherited cholesterol levels are very high, this is called **Familial Hypercholesterolemia**.

With this condition, healthy eating alone will not be enough to lower your cholesterol. This is because your liver cannot remove excess cholesterol from the blood in the same way as someone without FH. The treatment of this condition will involve a combination of medication to lower your cholesterol as well as guidance with improving lifestyle and diet.

High cholesterol is also connected with diseases such as chronic renal failure, underactive thyroid, alcohol abuse and diabetes.

## Who should have their Cholesterol measured?

Like high blood pressure, a high cholesterol level does not generally cause any symptoms. Many people are unaware that their cholesterol levels may be high. Therefore, if you have never had your cholesterol checked, it would be advisable to attend your doctor for a check-up. At this visit, your doctor can assess all other risk factors for heart disease such as your blood pressure, weight, glucose levels (for diabetes), as well as discussing other lifestyle risk factors.



- People with heart disease or a history of heart attack, angina, bypass surgery, angioplasty or stroke, should have their cholesterol measured every six months.
- If you have a family history of raised cholesterol levels/heart disease or stroke, you should have your cholesterol routinely checked.
- Keep a record of your results. This is an important first step in reducing your high cholesterol.

## Do I need to fast?

You do not need to fast for an initial cholesterol test. Total cholesterol and HDL are only slightly affected by what you have eaten, while triglyceride levels are significantly affected. However, you may need to fast for a repeat blood sample if your initial cholesterol test shows elevated lipid levels. Fasting blood samples are also recommended in those with a history of high cholesterol.

## CAUTION

- If you have recently suffered a heart attack, the cholesterol measurement may give a false low reading. It is advisable to have your cholesterol checked three months after having a heart attack.
- Recent surgery or any other major illness may also affect your cholesterol levels.
- Pregnancy and recent childbirth can increase your cholesterol levels. It is advisable to wait three months after childbirth before you have your cholesterol tested.

## Top Tips to Lower Cholesterol

### Diet

The liver makes most of the cholesterol needed by the body but cholesterol is also absorbed from many foods we eat.

Eating foods high in dietary cholesterol such as eggs, shellfish and offal has very little effect on your body's cholesterol. The foods that are of greater concern are those high in saturated fat and trans fat. These fats can raise your levels of LDL (bad) cholesterol and thus increase your risk of heart disease and stroke. Whereas, unsaturated fats can help to improve cholesterol levels and reduce your risk of heart disease and stroke.

### Saturated Fats

Foods high in saturated fat should be consumed in small amounts. Reducing your intake of saturated fat is an effective way of lowering your LDL (bad) cholesterol.

### Trans Fats

Foods high in trans fats raise your bad (LDL) cholesterol and lower your good (HDL) cholesterol. Foods containing trans fats should therefore only be consumed in small amounts. Trans fats are listed as "hydrogenated" or

"partially hydrogenated" oils on food labels.

### Unsaturated Fats

For a healthier heart aim to replace saturated fats and trans fats with unsaturated fats!

Monounsaturated and polyunsaturated fats, when used instead of saturated fat, help to lower LDL (bad) cholesterol levels.

### Omega-3 Fatty Acids

Omega-3 fats are a type of polyunsaturated fat found in fish oil and oily fish. Vegetarian sources of Omega-3 fats include dark green leafy vegetables, rapeseed oil, flaxseed/linseed and walnuts. Omega-3 fats can lower elevated triglyceride levels and help to prevent blood clotting.

### Watch your weight

Being overweight can increase your cholesterol levels and your overall risk of heart disease and stroke.

Making small changes to your diet will help aid a slow gradual weight loss of 1-2lb per week.



### Did you know?

**Losing 10% of your body weight has significant health benefits and allows for a 10% reduction in total cholesterol.**

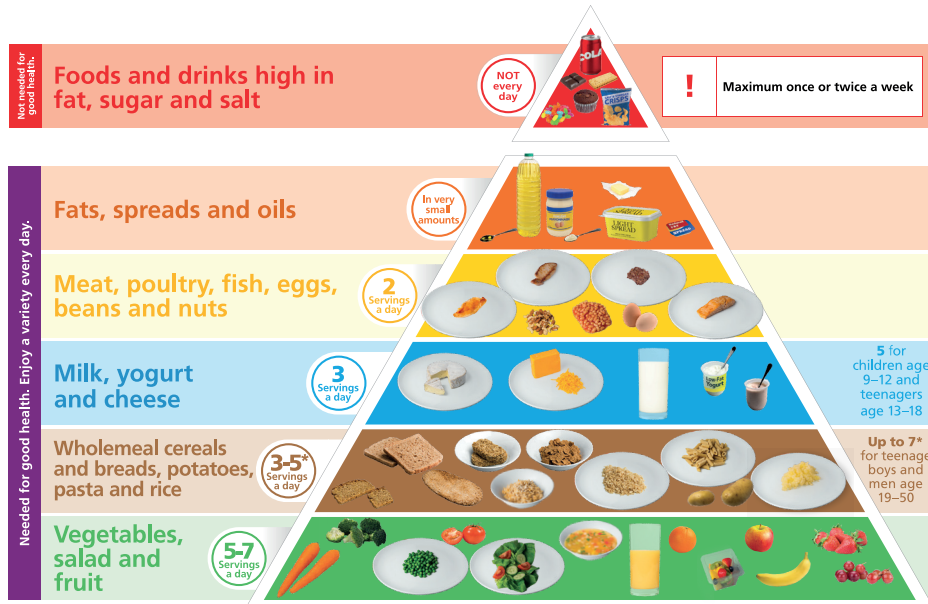
The table below gives a summary of the main sources of all the types of fats. Where possible, replace saturated fats and trans fats with unsaturated fats.

<i>Saturated and Trans Fats</i>	<i>Polyunsaturated fats</i>	<i>Monounsaturated fats</i>
<b>Saturated fats:</b> <ul style="list-style-type: none"> <li>• Butter, lard, palm and coconut oils</li> <li>• Dairy products such as cream, full-fat milk, yogurt and cheese</li> <li>• Red meat and fatty cuts of meat such as beef, lamb, pork and bacon</li> <li>• Processed meat such as corned beef, sausages, rashers, chorizo</li> <li>• Biscuits, cakes, chocolate, pastry products and pies</li> </ul>	<p>Omega-3 Fats are a type of polyunsaturated fat. They are found in oily fish such as tinned or fresh:</p> <ul style="list-style-type: none"> <li>• Salmon</li> <li>• Mackerel</li> <li>• Trout</li> <li>• Herring</li> <li>• Sardines</li> <li>• Fresh tuna</li> </ul> <p><b>Plant based sources of Omega-3 and 6 include:</b></p> <ul style="list-style-type: none"> <li>• Walnuts, hazelnuts, peanuts and brazil nuts (unsalted)</li> <li>• Flaxseed, linseed, sesame and chia seeds</li> <li>• Vegetable oils e.g. peanut, sunflower, safflower and corn</li> </ul>	<ul style="list-style-type: none"> <li>• Olive and rapeseed oil and spreads made from these oils</li> <li>• Nuts (such as almonds, cashews, hazelnuts, peanuts, and pecans)</li> <li>• Avocados</li> <li>• Olives</li> </ul>
<b>Trans fats:</b> <ul style="list-style-type: none"> <li>• Shortening and some margarines</li> <li>• Bakery goods e.g. pastries, pie crusts, cakes, biscuits, doughnuts, pizza dough, crackers, cookies</li> <li>• Convenience foods e.g. takeaways and ready-made meals</li> </ul>		

Use the food pyramid as a guide to follow a healthy balanced diet.

## The Food Pyramid

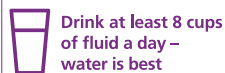
For adults, teenagers and children aged five and over



\*Daily Servings Guide – wholemeal cereals and breads, potatoes, pasta and rice

Active	Child (5-12)	Teenager (13-18)	Adult (19-50)	Adult (51+)	Inactive	Teenager (13-18)	Adult (19-50)	Adult (51+)
	3-4	4	4-5	3-4		3	3-4	3
	3-5	5-7	5-7	4-5		4-5	4-6	4

There is no guideline for inactive children as it is essential that all children are active.



Drink at least 8 cups of fluid a day – water is best



### Get Active!

To maintain a healthy weight adults need at least 30 minutes a day of moderate activity on 5 days a week (or 150 minutes a week); children need to be active at a moderate to vigorous level for at least 60 minutes every day.

Source: Department of Health. December 2016.

- Bake, boil, steam, microwave or grill foods instead of frying.
- Choose wholegrain bread, pasta, cereal and rice – a diet rich in fibre can help lower cholesterol.
- Include a variety of fruit and vegetables in your diet – aim for 5-7 portions a day.
- Include foods that contain healthy fats such as olives, avocados, a handful of unsalted nuts or seeds in your diet.
- Swap full fat dairy foods for low-fat varieties.
- Limit cheese to 2 matchbox size portions a week and choose a reduced fat option.
- Choose lean cuts of meats and trim off any visible fat.
- Eat fish at least two times per week, oily is best.
- Choose low fat unsaturated spreads and use sparingly.
- Choose unsaturated oils – rapeseed oil is best for cooking with and olive oil can be used as a dressing on salads.
- Decrease intake of cakes, biscuits, sweets, crisps and high fat foods.

## What about Plant Sterols & Stanols?

Plant sterols and stanols work by reducing cholesterol absorption from the gut and have been shown to reduce total and LDL cholesterol levels. Yoghurt drinks, yoghurts, milk and spreads are sometimes fortified with plant sterols and stanol esters. To achieve the beneficial effect and lower cholesterol levels it is necessary to consume the correct amount of these fortified foods **daily**. When you stop taking the fortified product you will no longer receive the benefit.

### Sources of food fortified with plant sterols & stanol esters:

The recommended amount of plant sterols can be achieved daily through having:

- **One** fortified yoghurt drink OR
- **2 - 3** servings of fortified spreads, milk or yoghurt
  - ✓ 250ml of fortified milk
  - ✓ One 125g fortified yoghurt
  - ✓ 2 level teaspoons of fortified spread

These products are expensive and it is worthwhile consulting with your dietitian or doctor to determine if these products will benefit you.

## How can I achieve a healthy weight?

**Eat 3 regular meals.** Start the day with a healthy breakfast. Having a regular meal pattern gives your body the energy it needs and prevents hunger and over-eating.

**Control your portion size.** Watch your dinner plate size. Use a standard 9 inch plate.

**Be a mindful eater.** Avoid eating to relax, or because you are bored or your mood is low. Take a walk or do something you enjoy instead.

**Keep a food diary.** Write down what you eat or drink, this will identify any trends and help to motivate you.

**Drink plenty of water.** People who drink plenty of water are more likely to lose weight. Aim for a minimum of 6-8 glasses of water each day.

**Exercise.** Regular exercise is essential for weight loss and weight maintenance.

## Drink alcohol in moderation

Excessive alcohol consumption can increase your triglyceride levels and lead to weight gain.

### Safe limits



#### Men

17 standard drinks spread out over a week



#### Women

11 standard drinks spread out over a week

### 1 standard drink is...



½ pint of beer



a small glass of wine (100ml)



1 pub measure of spirits

## Exercise regularly

Aim for a minimum of 150 minutes of moderate intensity aerobic activity per week. One way of achieving this is a 30 minute brisk walk 5 days per week or you can break up your 30 minutes throughout the day. Physical activity increases your good cholesterol (HDL) and can reduce your triglycerides.

## If you smoke, stop!

Smoking lowers your levels of good cholesterol (HDL). To receive further information on quitting smoking visit [www.QUIT.ie](http://www.QUIT.ie)

## Try and manage your stress

It is not easy, but put some time aside each day to relax. Studies have shown that in the long term, stress can raise blood cholesterol levels.





## What about medications?

Many people can reach the target cholesterol levels by adopting the lifestyle changes outlined in this booklet. Some, however, will also need to take medication.

In addition, people who have had a heart attack, stroke, bypass surgery or angioplasty will also need to take medication to keep their cholesterol at a healthy level.

For cholesterol lowering medications to be most effective, you must continue to make dietary and lifestyle modifications.

## REMEMBER

Do not stop taking any medications without seeking the advice of your doctor.



For more information on healthy eating please see our booklet ***"The Balanced Guide to Healthy Eating"***.

## My Lifestyle Goals

[illegible]



## Do you want to live a longer and healthier life and reduce your risk of heart disease, stroke and diabetes?

A range of specialised health & lifestyle courses are now available at the Croí Heart and Stroke Centre, Galway and in some other locations throughout the West of Ireland.

- Cardiac Fitness Assessments & Exercise Programmes
- Active Hour – lower intensity exercise class
- Risk Factor Screening
- Specialised Cardiac Dietetic 1:1 Consultations
- Weight Management Programmes
- Yoga
- Heart Smart Shopping Tours



For further information contact 091544310  
or email [reception@croi.ie](mailto:reception@croi.ie)

All Croí Cardiac Health & Lifestyle programmes are operated on a not for profit basis and are subsidised through the charity's fundraising campaigns. Accordingly, each programme has a recommended contribution towards costs – all funds are re-invested in the development of future programmes.

**This booklet has been designed to help you understand cholesterol and is not intended to replace the medical advice of your doctor.**



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