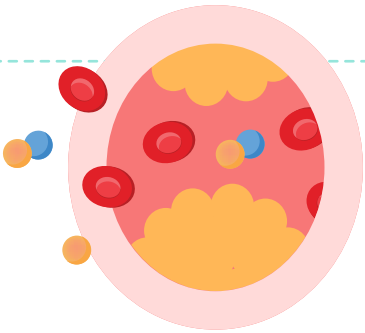
SG Diagnostics
Quality Diagnostics for Everyone

Cholesterol Guide

All you need to know

Cholesterol: What is it and Why It Matters



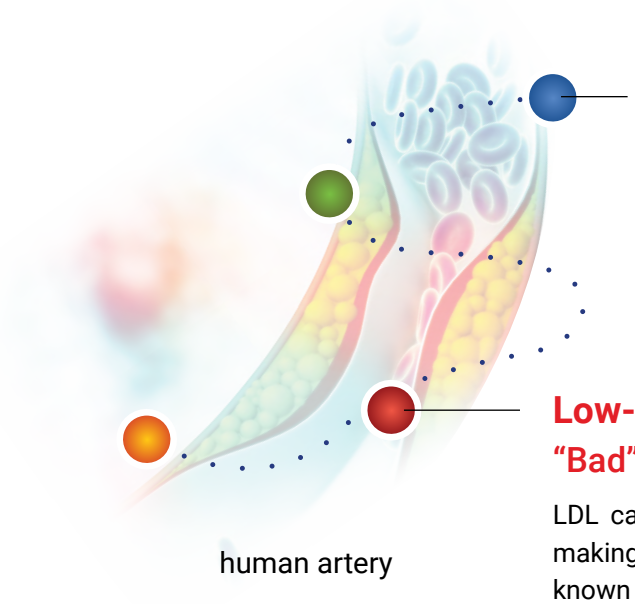
Cholesterol is a type of lipid, a fat-like substance that is found in every cell of the human body

It is essential for basic functions such as **producing hormones, vitamin D and substances that help with the digestion.**

However, too much cholesterol in the blood can cause issues.

Types of Cholesterol

Cholesterol travels through the bloodstream in small packages called **lipoproteins**. There are two main types of lipoproteins:



human artery

High-Density Lipoprotein (HDL) "Good" Cholesterol

HDL helps remove cholesterol from the arteries and transports it back to the liver, where it can be broken down and eliminated from the body.

Low-Density Lipoprotein (LDL) "Bad" Cholesterol

LDL can lead to the buildup of plaque in the arteries, making them narrow and less flexible. This condition, known as atherosclerosis, can result in decreased blood flow and increase the risk of heart attack or stroke[1].

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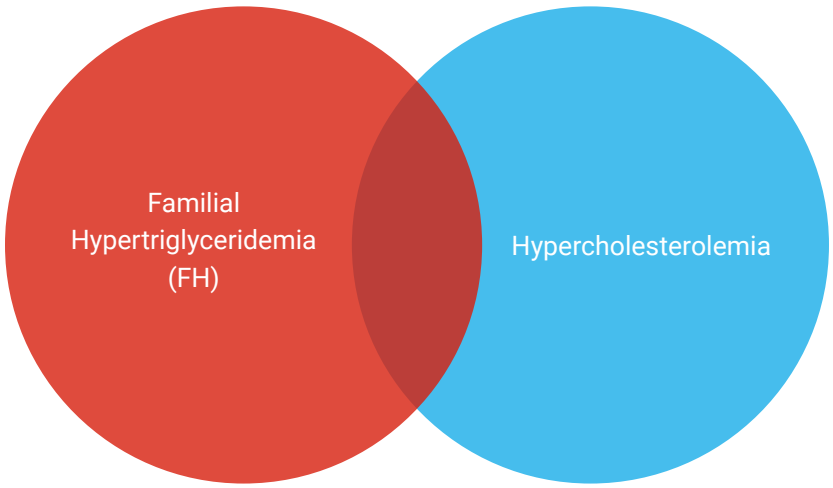
Types of Hyperlipidemias

Depending on which lipid is elevated, there are different types of hyperlipidemias; The two most common types are:



This type is characterised by high levels of cholesterol, particularly LDL cholesterol, in the blood. It is often caused by a mix of factors including:

- Genetics
- Lifestyle
- Health Condition *(obesity & diabetes)*

This occurs when there are elevated levels of triglycerides in the blood. Triglycerides are another type of fat that the body uses for energy. High levels are often associated with:

- Obesity
- Diet
- Sedentary Lifestyle

Some people may develop a combination of both high cholesterol and high triglycerides, a condition known as **mixed hyperlipidemia**.

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Causes and Risk Factors[2]

Hyperlipidemia is often influenced by a combination of **genetic and environmental factors.** The most common causes and risk factors include:

Obesity

Cigarette smoking lowers HDL cholesterol and damages the walls of blood vessels[7]

Genetics

Excessive alcohol intake can cause higher total cholesterol and triglycerides level[4]

Consuming diet high in saturated fats, trans fats

- Foods like red meat, full-fat dairy products, processed and fried foods are major contributors.

Age and Gender

- Cholesterol levels tend to increase with age.
- Women generally have lower LDL levels than men before menopause, but after menopause, LDL levels often rise[5].

Conditions that can contribute to high cholesterol levels:

diabetes hypothyroidism kidney disease

Lack of Physical Activity

- A sedentary lifestyle contributes to weight gain, lower HDL cholesterol, and higher triglycerides.

Symptoms and Diagnosis[2]

Unfortunately, hyperlipidemia often presents no symptoms until damage has already occurred. Most people with high cholesterol are unaware of their condition until they have a blood test or experience severe complications like a heart attack or stroke.

Diagnosis requires a blood test known as a lipid panel or lipid profile[3]. This test measures total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides.

The results are then compared to standard ranges to determine if the levels are within a healthy range or indicative of conditions such as hyperlipidemia, hypercholesterolemia, or hypertriglyceridemia.

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Cholesterol Management and Treatment

Managing hyperlipidemia is crucial to preventing the development of cardiovascular diseases, particularly coronary heart disease (CHD).

The treatment approach usually includes lifestyle changes, medications, and regular monitoring.

Lifestyle Changes

Healthy Diet	This includes eating plenty of fruits, vegetables, whole grains, and lean proteins, as well as reducing the intake of saturated and trans fats and choosing healthy fats like those found in olive oil, nuts, and avocados.
Regular Physical Activity	Regular physical activity helps raise HDL cholesterol and lower LDL cholesterol and triglycerides.
Losing Excess Weight	Losing excess weight can improve cholesterol levels and reduce the risk of other cardiovascular risk factors, such as high blood pressure and diabetes[9].
Limiting Alcohol Consumption	This will result in better cholesterol levels. Excessive consumption of alcohol increases the amount of LDL cholesterol and triglycerides which increases the risk of hypercholesterolemia and hypertriglyceridemia[6].
Quit Smoking	For smokers, quitting is one of the most effective ways to improve HDL cholesterol levels and reduce the risk of coronary heart disease.

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Cholesterol Medications

Medicine	Description
Statin	These are the most commonly prescribed medications for lowering LDL cholesterol. They work by inhibiting an enzyme in the liver that is responsible for producing cholesterol.
Bile Acid Sequestrants	These drugs help lower cholesterol by binding to bile acids in the intestines, which prompts the liver to use excess cholesterol to produce more bile acids, thereby reducing the amount of cholesterol in the bloodstream.
Fibrates	These are used to lower triglyceride levels and can also help increase HDL cholesterol.
PCSK9 Inhibitors	A newer class of drugs that help the liver remove more LDL cholesterol from the blood.
Ezetimibe	This medication works by inhibiting the absorption of cholesterol in the intestines, which reduces the amount of cholesterol delivered to the liver. This results in a decrease in LDL cholesterol levels in the bloodstream[8].
Inclisiran	A more recent addition to cholesterol-lowering treatments, approved in 2021. It's an injectable medication that works by targeting and reducing the production of PCSK9, a protein that contributes to higher LDL cholesterol levels[8].

**The information provided on this page does not replace information from your healthcare professional. Please consult your healthcare professional for advice on medication.*

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Monitoring and Home Testing

Home cholesterol test kits are now available. These devices allow people to check their cholesterol levels at home, providing immediate feedback and helping to track the effectiveness of lifestyle changes or medications[10].

Regular Check-ups: Regular visits to a healthcare provider for blood tests and monitoring are essential. This helps to ensure that the treatment is effective.

Conclusion

Hyperlipidaemia is a significant public health concern due to its strong association with cardiovascular diseases. However, it is a manageable condition.

By understanding the causes, risks, and treatment options, both patients and healthcare providers can take steps to control the cholesterol levels and reduce the risk of serious complications. Through lifestyle changes, appropriate use of medications, and regular monitoring, individuals can significantly lower their risk of coronary heart disease and stroke.

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