High level of Cholesterol in Blood

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Cardiovascular diseases are considered one of the modern diseases that have become widespread in the Gulf region due to the different lifestyles and dietary habits that have emerged in the wake of the discovery of oil in the regional countries.

Due to the high incidence of arteriosclerosis diseases among the members of this society, much has been said about cholesterol as the main factor that causes an increase in cholesterol levels in the blood fluid and the occurrence of such diseases.

What is Cholesterol?

Cholesterol is a waxy, odorless substance essential for human health and can be produced by every cell in the body. Cholesterol is an essential substance as it performs many vital functions, including:

- It is involved in the formation of some hormones.
- The primary substance for the formation of vitamin D.
- An essential component of the body's cell wall.
- Important for the digestion and absorption of fats.
- Essential for the production of gastric acid.

How does cholesterol enter the blood?

Cholesterol enters the blood in two ways:

- Most of the cholesterol in the body (about 80 %) is produced by the body itself, mainly by hepatocytes.
- The body gets the rest (about 20 %) from food intake, as only meat, fish, poultry, eggs and dairy products are found in foods of animal origin. The body absorbs about half of the cholesterol from food as it is released into the blood, which also contains cholesterol produced by blood cells.

Good cholesterol and bad cholesterol:

In the blood, cholesterol combines with a protein to form what is known as fatty protein or lipoprotein, and high-density lipoprotein [HDL] is known as “good” cholesterol. It takes the cholesterol out of the cells and the walls of the arteries and returns it to the liver, which removes it from the body.

Low-quality lipoprotein [LDL] is known as bad cholesterol because it can increase fatty deposits on the walls of the arteries, narrowing them and reducing the amount of blood flowing in them, which in turn poses health risks to the heart and arteries when several other factors are present.

Therefore, besides the total blood cholesterol, the ratio of high-density lipoprotein (the “good” cholesterol) to low-density lipoprotein [LDL] [the “bad” cholesterol] is an important indicator of heart health.

Who should get a cholesterol test?

The high level of cholesterol in the blood is associated with an increased risk of cardiovascular disease; thus, doctors advise everyone over 35 years old to get screened annually, with the importance of screening increasing for the following groups:

- Both men and women with a family history of cardiovascular disease (pre-occurrence).
- Both men and women who have high cholesterol or a first-degree relative (mother, father, brother, sister, son) with high cholesterol.
- A man over the age of 45 , a woman over 55 , and who does not have any cardiovascular disease but has one or more of the risk factors such as smoking, high blood pressure [hypertension], diabetes, obesity, a family history of early cardiovascular disease, or the sudden death of a first-degree relative or whose family history is unknown.

Regular cholesterol test:

When your cholesterol is checked for the first time, you need to change your lifestyle and diet if the cholesterol test result is abnormal. If you are taking HMG-CoA reductase inhibitors [Statins], the re-examination depends on the extent to which you follow these procedures, but the examination should be repeated three or four months after changing your lifestyle and diet or after six to eight weeks after starting taking Statins. If the cholesterol test result is normal, the following shall be done:

The test will be repeated if you have been recently exposed to risk factors or have heart symptoms. If you have cardiovascular disease, your doctor may advise you to be screened yearly to ensure your normal cholesterol levels.

A table showing the required lipid levels under normal conditions or when **cardiovascular disease occurs:**

If you have	**You do not have a history of heart disease, angina pectoris, heart surgery, or blood vessel problems.**	**Previous heart disease, angina, heart surgery, or blood vessel problems.**
Total cholesterol	0 - 199 mg/dsl	Less than 110 mg /dsl
Low-density lipoprotein	0 – 100 mg/dsl	Less than 55 mg /dsl
High-density lipoprotein	More than 55 mg/dsl	More than 55 mg/dsl
Triglyceride	0 – 150 mg/dsl	Less than 150 mg /dsl

Cholesterol risk factors:

There are eight factors that can lead to cholesterol risk, and although there are specific factors one can control, such as your diet or fitness level, the family factor (genetics), gender and age are uncontrollable factors.

If you believe that two or more of these eight factors apply to you, it is best to consult a doctor to determine if it is necessary to check your blood cholesterol levels and type.

The first factor: Family history (genetic):
This is one of the most critical factors determining the type and cholesterol level in your blood. Knowing the cholesterol level and type of your parents and grandparents is best.

The second factor: Age and gender:
The risk of exposure to this factor increases with age, and men are more likely to suffer from the effects of cholesterol and its high levels in the blood than women of fertile age.

The third factor: Hypertension:
High blood pressure is the second most crucial factor you can control after quitting smoking. The cause of hypertension may be increased salt consumption, obesity, alcohol consumption and several other factors. If you suffer from hypertension, you should consult your doctor to control blood pressure with medications and change your eating habits and behaviour.

The fourth factor: Smoking:
The nicotine in cigarette smoke increases the heart rate, while the carbon monoxide inhaled with the smoke prevents the heart from receiving oxygen, posing potential risks. Levels of beneficial cholesterol are generally higher in non-smokers than in smokers.

The fifth factor: Lack of exercise
Perhaps the regular practice of outdoor sports may increase the level of good cholesterol in the blood.

The sixth factor: Obesity [Overweight]:
Muscle strain increases with weight gain, and the level of high-density lipoproteins increases with the loss of excess weight.

The seventh factor: A high-fat diet:
Several studies have shown that fats have the greatest impact on increasing cholesterol levels in most people, as their implications amplify the effect of dietary cholesterol. Thus, various health authorities recommend that the percentage of energy obtained by the body from fats should not exceed (30 %). Note that this recommendation does not apply to infants under two years of age.

The eighth factor: A low-fiber diet:
Eating low-fiber foods is a nutritional factor that increases the risk of high cholesterol. Studies have shown that certain types of fiber help reduce plaque buildup on artery walls and lower blood cholesterol levels.

Disadvantages of high cholesterol:

High cholesterol in the blood causes plaque deposition on the walls of the arteries and some blood vessels, and over time, these deposits have sclerosis. Thus, the walls of the arteries lose their rubbery property, making it difficult for the arteries to widen or narrow with or decrease blood flow, which is called atherosclerosis. The greater the narrowing in the artery, the less blood flow in it, and the more cholesterol are deposited until it reaches the complete blockage, and depending on where the blockage occurs, the patient faces a problem.

If the blockage is in the coronary arteries (which supply the heart muscle), this leads to a clot in the heart, and if the embolism occurs in one of the arteries supplying the brain, it leads to a clot in the brain and so on.

How do you lower cholesterol levels in the blood?

First: Proper nutrition (change of diet). Ensure to do the following:

- Eat grilled or boiled meat.
- Eat fish, as it is prominent in protecting against atherosclerosis and cardiovascular diseases (you can eat it three times a week).
- Drink milk and its low-fat products.

- Eat vegetables and salads and make them the main items on your dining table.
- Read each product's nutritional ingredients, as some are listed as low or cholesterol-free but contain a lot of fat.
- Eat vegetables and foods rich in fiber, as they are essential in controlling cholesterol levels and keeping the body healthy.
- Eat more foods containing whole grains, such as whole-wheat bread, brown rice, barley, and oats.

You must avoid the following:
- Excessive red meat.
- Visible fat in the meat.
- Chicken and fowl skin.
- Fast food as it contains high levels of fat.
- Foods rich in invisible fats, such as petit four, cakes, cakes, pastries, and sauces.
- Foods containing cholesterol include the brain, liver, kidneys, heart, and tongue.

Second: Maintain normal weight:
- Try to reach and maintain your ideal weight.
- Weight loss rule: Eat fewer calories than your body needs.
- Avoid unscientific weight loss diets.
- Eat your diet from various sources, and eat grain products, vegetables and fruits at every meal.
- Follow the principles of a healthy diet, reducing the size of the bowl with the different foods while following an exercise regime to increase energy consumption.

Third: Do exercises:
- Exercising is vital in maintaining the blood cholesterol levels, not only the total and low-density lipoprotein cholesterol but also increases high-density lipoprotein.
- Try to exercise for half an hour three times a week, such as walking, cycling, swimming and any activity that increases heart palpitations for 15 minutes.
- Before starting to exercise, you should consult your doctor, especially if you are not used to exercising. It is advisable to gradually increase the periods of exercise.

Fourth: Quit Smoking:
Smoking is a major cause of cholesterol deposits in the arteries; thus, it is advisable to avoid passive smoking and any environment polluted with smoke.

Fifth: Beware of anxiety and tension:
Relaxing and avoiding noise for some time during the day helps reduce low-density lipoprotein.

Sixth: Stay away from alcohol and liquor:
It has a direct effect on atherosclerosis.

Seventh: Taking medications for lowering cholesterol:
If cholesterol and triglycerides remain high, you should take medication to lower them under the doctor's supervision.
Should a healthy person not eat cholesterol-containing foods?
There is no reason to refrain from eating foods containing cholesterol if you have normal blood cholesterol levels, as the effect of cholesterol in foods on blood cholesterol levels in most healthy people is relatively small when they eat foods containing large amounts of cholesterol. The liver easily neutralizes this by reducing cholesterol secretion produced within its cells.

To maintain normal blood cholesterol levels, two things are critical in eating behaviour:
- Eat low-fat meals.
- Eat adequate amounts of dietary fiber.

فقيه.

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