

Name of the student: *Date:* 03/11/2020

Cholesterol:

Cholesterol is an organic compound, fat-like insoluble waxy substance which is found in all the cells of our body and is circulated through the blood as Lipoprotein.

- The formula of cholesterol is $C_{27}H_{46}O$.
- In the human body, cholesterol is synthesized in the liver.
- Butter, prawn, oyster, liver of cattle, egg especially egg yolk etc. contains huge amount of cholesterol.

There are three types of cholesterol, which are classified based on the different types of lipoproteins.

1. LDL

- LDL stands for low-density lipoprotein.
- Low-density lipoprotein (LDL) transports cholesterol from the liver to the tissues of the body.
- LDL cholesterol is considered as bad cholesterol.
- A high LDL level leads to a buildup of cholesterol in the arteries.

2. HDL

- HDL stands for high-density lipoproteins.
- HDL absorbs cholesterol and carries it back to the liver.
- The liver then flushes it from the body.
- High levels of HDL cholesterol can lower the risk for heart disease and stroke.
- High HDL levels might protect against heart attacks and strokes.

3. Triglycerides

- Triglyceride is a type of cholesterol found in plasma as fat.
- It is created from animal fat and carbohydrate.

Q. Write four differences between LDL & HDL.

LDL	HDL

Usefulness of Cholesterol:

- Cholesterol is involved in constructing cell membrane and its protection.
- It helps in producing and reproducing hormones such as, androgen and estrogen.
- Cholesterol is utilized in producing hormone of adrenal gland and in production of bile.
- Cholesterol in skin prepares vitamin 'D' in the presence of sunlight.
- Cholesterol is essential for the metabolism of fat soluble vitamins, such as- vitamin A, D, E and K.
- For the activities neurons cholesterol is essential.
- Cholesterol is closely related to the prevention of diseases.

Q. Why is cholesterol an important component in the cells of human?

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Demerits of Cholesterol:

- Deposition of cholesterol in the lining (inside layer) of the coronary arteries forms obstruction in blood flowing and it hampers in mechanism of circulation through heart. So cardiac muscles cannot get sufficient oxygen that causes damage to the muscles of heart.
- Increased amount of cholesterol deposits in the gall bladder as sediments. The sediment of cholesterol forms stones which is familiar as gall bladder stone or gall stone.
- If the amount of lipid increases up to the 20-30 percent for certain reasons, there is more risk of having diseases like malaria, diabetes, syphilis etc.

Q. Why is high rate of cholesterol harmful for health?

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Interesting Facts about Cholesterol:

Fact No-01

Cholesterol is not an essential nutrient but it is an important and essential part of our cell membranes, which are present in all our living cells, as they are naturally produced by our body.

Fact No-02

Liver and intestines are the two main organs, which play a significant role in controlling the LDL levels in our blood cells.

Fact No-03

Genetic factors are the most common causes of high levels of LDL. Around 70 to 80 percent of the cholesterol in our body cells is due to the genes and the rest is due to our diet.

Fact No-04

The best ways to reduce the LDL cholesterol levels is by having a balanced diet, regular exercise, maintaining a healthy BMI and avoiding the use of tobacco and alcohol.

Fact No-05

One of the best ways to lower the LDL cholesterol is by including fibre-rich food products including avocados, eggplant, green tea, apples, beans, oats, olive oil, garlic and a lot more.

Fact No-06

Cholesterol is insoluble in blood as blood is a water-based fluid and cholesterol is an oil-based fluid.

Fact No-07

All types of cells, tissues and other body fluids contain some amount of cholesterol and plasma membrane consists of more than 80 to 90 per cent of cellular cholesterol stored in it.

Fact No-08

About eighty per cent of the total body cholesterol is oxidized by the liver and another twenty per cent of cholesterol is secreted from the digestive tract.

Fact No-09

The total cholesterol level in the blood is measured in milligrams (mg) of cholesterol per deciliter (DL) of blood.

Fact No-10

An average level of cholesterol ranges from 200-300 mg/DL. The level of HDL or good cholesterol ranges between 30 to 40 or more and the level of LDL or bad cholesterol should be 80 mg/dL.

Which foods should be taken
less in amount to maintain
optimum cholesterol level?

