



**Subject Name: Biochemistry**

**Study stage: First Stage**

**Lecture title :**

**Lipid profile**

**lecture number: 4 ,5,6**

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## **A lipid profile –**

Usually includes the levels of total cholesterol, high-density lipoprotein (HDL) cholesterol, triglycerides, and the calculated low-density lipoprotein (LDL) 'cholesterol.

### **- What are the five tests in a lipid panel?**

A lipid panel measures five different types of lipids from a blood sample, including:

- **Total cholesterol:** This is your overall cholesterol level — the combination of LDL-C, VLDL-C and HDL-C.
- **Low-density lipoprotein (LDL) cholesterol:** This is the type of cholesterol that's known as “bad cholesterol.” It can collect in your blood vessels and increase your risk of cardiovascular disease.
- **Very low-density lipoprotein (VLDL) cholesterol:** This is a type of cholesterol that's usually present in very low amounts when the blood sample is a fasting samples since it's mostly comes from food you've recently eaten. An increase in this type of cholesterol in a fasting sample may be a sign of abnormal lipid metabolism.
- **High-density lipoprotein (HDL) cholesterol:** This is the type of cholesterol that's known as “good cholesterol.” It helps decrease the buildup of LDL in your blood vessels.

- **Triglycerides:** This is a type of fat from the food we eat. Excess amounts of triglycerides in your blood are associated with cardiovascular disease and pancreatic inflammation.

- **What are normal lipid panel results?**

The optimal level (measured in milligrams per deciliter of blood — mg/dL) for each of the four standard tests in a lipid panel are as follows:

- **Total cholesterol:** Below 200 mg/dL.
- **High-density lipoprotein (HDL) cholesterol:** Above 60 mg/dL.
- **Low-density lipoprotein (LDL) cholesterol:** Below 100 mg/dL (For people who have diabetes: Below 70 mg/dL).
- **Triglycerides:** Below 150 mg/dL.

If your results are higher or lower than the target range, they may be classified as borderline-, intermediate-, or high-risk for cardiovascular issues. In general, higher-than-normal levels of total cholesterol, LDL and triglycerides and lower-than-normal levels of HDL can increase your risk of cardiovascular disease.

### **Total-Cholesterol-(TC)**

Extensive studies have shown a definite link between blood cholesterol levels and coronary heart disease (CHD). A diet rich in cholesterol e.g. animal fats and egg yolk may result in increased level of cholesterol in the blood. The fat gets deposited on the walls of blood vessels causing them to be narrowed and eventually blocked, cutting off blood supply to vital organs. This may result in a stroke or heart attack.

Cholesterol takes several forms in the body.

The two most significant forms are high density lipoprotein (HDL) and low density lipoprotein (LDL).

### **HDL — Cholesterol**

This is referred to as the “Good Cholesterol”. It carries cholesterol back to the liver where excess cholesterol is broken down and excreted from the body. Hence, it serves as a protective function against the development of CHD. In this context, a high level of HDL-cholesterol is desirable.<sup>8</sup>

### **LDL — Cholesterol**

This is referred to as the “Bad Cholesterol”. It transports cholesterol from the liver depositing the cholesterol on the walls of the blood vessels along the way. Hence, an increase in LDL-cholesterol is associated with an increased risk of CHD.

### **Triglycerides**

Triglycerides are reserve fuels in the body and are stored in fatty tissues. A diet rich in starchy foods, sugar and oily food can lead to high levels of triglycerides in the blood. Elevated levels of triglycerides are associated with obesity and risk of CHD.