



AL-MUSTAQBAL UNIVERSITY COLLEGE

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Clinical Biochemistry

(lipid profile)



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Lipids:

Lipids is the term used to describe the fats in the body. Lipids may come from the diet (i.e. eating fatty foods) but the body is also capable of making its own lipids. Lipids are transported in the blood in lipoproteins.

Blood lipoprotein

They are lipids carrier particles, they are four major types: (**vLDL, LDL, HDL and chylomicron**) **Composed of:** cholesterol, cholesterol ester, TG , phospholipids and protein, they differ in the contents of each composition. With the use of electrophoresis these lipoproteins can be grouped in to:

- 1-Chylomicrons , which are primarily T.G.
- 2-LDL (beta-lipoproteins) , which are primarily cholesterol.
- 3-VLDL (prebeta-lipoproteins), which are mainly T.G.
- 4- HDL (alpha lipoproteins), which are predominally protein with small amount of cholesterol.

*Serum VLDL & LDL can be calculate if the cholesterol value is more than 300 mg\ dl by using this formula:

$$\mathbf{S.VLDL(mg/dl)= TG/5}$$

$$\mathbf{S. LDL (mg/dl) = Total\ cholesterol -HDL - (TG/5)}$$

Total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides. It is usually done in fasting blood specimen.

Fasting refers to 12–14 h overnight complete dietary restriction with the exception of water and medication

lipid profile:

The lipid profile is a group of tests that are often requested together to determine risk of developing cardiovascular disease (heartdisease, stroke and related diseases); and to monitor the treatment of conditions that can cause blockage of blood vessels (athersclerosis, sometimes known as “hardening of the arteries”).

The tests of lipid profile:

The lipid profile typically includes measurement of :

Total cholesterol, HDL-cholesterol (often called good cholesterol), LDL-cholesterol (often called bad cholesterol) and triglycerides.

A complete cholesterol test, referred to as a lipid panel or lipid profile, includes the calculation of four types of fats (lipids) in blood:

1-Total cholesterol. This is a sum of your blood's cholesterol content.

2-High-density lipoprotein (HDL) cholesterol. This is sometimes called the "good" cholesterol because it helps carry away LDL cholesterol, thus keeping arteries open and your blood flowing more freely.

3-Low-density lipoprotein (LDL) cholesterol. This is sometimes called the "bad" cholesterol. Too much of it in your blood causes the buildup of fatty deposits (plaques) in your arteries (atherosclerosis), which reduces blood flow. These plaques sometimes rupture and can lead to a heart attack or stroke.

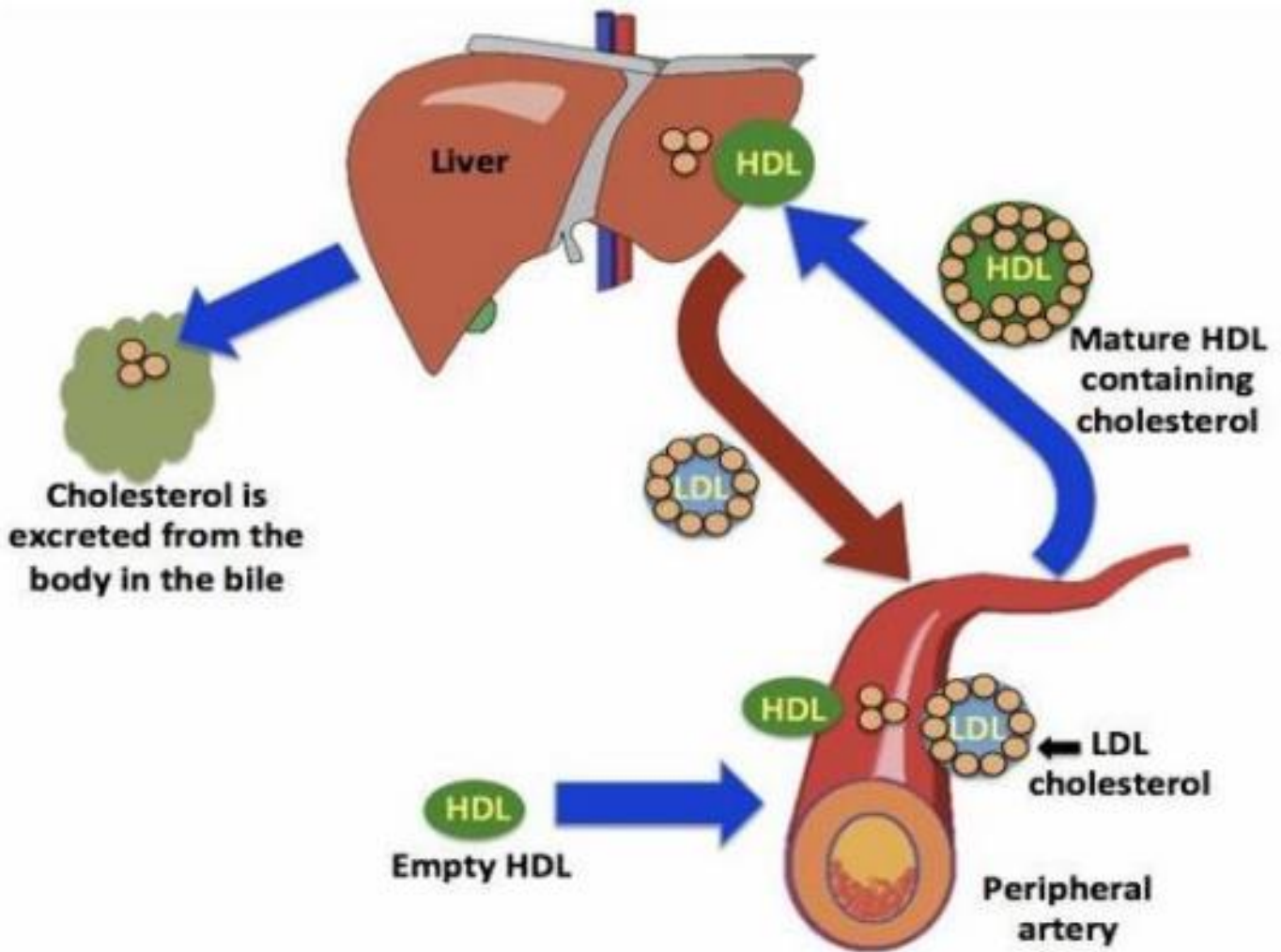
4-Triglycerides. Triglycerides are a type of fat in the blood. When you eat, your body converts any calories it doesn't need into triglycerides, which are stored in fat cells.

Who should get a cholesterol test?

Adults at average risk of developing heart. More frequent testing may be needed if the initial test results were abnormal :

- Low HDL cholesterol (less than 1.0 mmol/L in men and less than 1.2 mmol/L in women)
- High triglycerides (>2.0 mmol/L)
- Age (45 or older for men; 55 or older for women)
- Family history of early heart disease (first degree relative affected before age 60)
- Smoking
- High blood pressure
- Obesity/overweight

- Physical inactivity
- Diabetes
- Chronic renal failure
- Excessive alcohol consumption



LIPID PROFILE

	DESIRABLE	BORDERLINE	HIGH RISK
Cholesterol	<200 mg/dl	200-239 mg/dl	240 mg/dl
Triglycerides	<150 mg/dl	150-199 mg/dl	200-499 mg/dl
HDL cholesterol	60 mg/dl	35-45 mg/dl	<35 mg/dl
LDL cholesterol	60-130 mg/dl	130-159 mg/dl	160-189 mg/dl
Cholesterol/HDL ratio	4.0	5.0	6.0