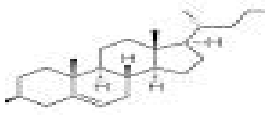
) Thefifth Experiment :

SERUM CHOLESTEROL

Cholesterol testing evaluates :
1)The risk for arthrosclerosis
2) Myocardial occlusion
3) Coronary arterial occlusion.



- Elevated cholesterol levels are a major component in the hereditary hyperlipoproteinemias.

Cholesterol determinations are also frequently a part of :
1) Thyroid function
2) Liver Function
3) Renal Function
4) Diabetes Mellitus studies.
It is also used to monitor effectiveness of diet, medications, lifestyle changes (eg, exercise), and stress management.

- In Blood , Cholesterol is present in two forms:

1. Free Cholesterol
2. Cholesterol Ester.

source :

1. Exogenous diet : egg yolk, brain, liver and kidney.
2. Endogenous : synthesized from acetyl CoA in the liver, skin, and adrenals.

Reference Values:

Adults, fasting:

Desirable level: 140-199 mg/dL or 3.63-5.15 mmol/L

Borderline high: 200-239 mg/dL or 5.18-6.19 mmol/L

High: >240 mg/dL or >6.20 mmol/L

Children and adolescents (12-18 years):

Desirable level: <170 mg/dL or <4.39 mmol/L

Borderline high: 170-199 mg/dL or 4.40-5.16 mmol/L

High: >200 mg/dL or >5.18 mmol/L

- Normal values vary with age, diet, sex, and geographic or cultural region.

Clinical significance:

a) *Increased cholesterol levels (**hypercholesterolemia**) are found in the following conditions:*

1. Obesity
2. Diet high in cholesterol and fats
3. Glycogen storage disease (von Gierke' s disease)
4. Alcoholism
5. Chronic renal failure
6. Cholestasis
7. Alcoholism.

b) *Decreased cholesterol levels (**hypocholesterolemia**) occur in the following conditions:*

1. Severe hepatocellular disease
2. Malabsorption syndrome
3. Severe burns, inflammation
4. Chronic obstructive lung disease
5. Mental retardation .