



## Determination of Tri-Glycerides

Triglyceride is consisting of single molecule of glycerol combined with three fatty acids on each of the OH groups by Ester bonds (tri = three molecules of fatty acid + glyceride = glycerol). It is the main constituent of vegetable oil and animal fats.

Triglycerides, as major components of very low density lipoprotein (VLDL) and chylomicrons, play an important role in metabolism as energy sources and transporters of dietary fat.

These are excreted from the cells and collected by the lymph system and transported to the large vessels near the heart before being mixed into the blood. Various tissues can capture the chylomicrons, releasing the triglycerides to be used as a source of energy.

Normal value of Triglycerides:

- Normal triglyceride levels in the blood are less than 150 mg/dl after fasting 8 to 12 hrs.
- 150-199 mg/dl: border line to high risk.
- 200-499 mg/dl: (High levels of triglycerides), are associated with an increased risk of atherosclerosis and therefore coronary artery disease and stroke.
- More than 500 mg/dl: (Extremely high triglyceride levels), may cause pancreatitis.

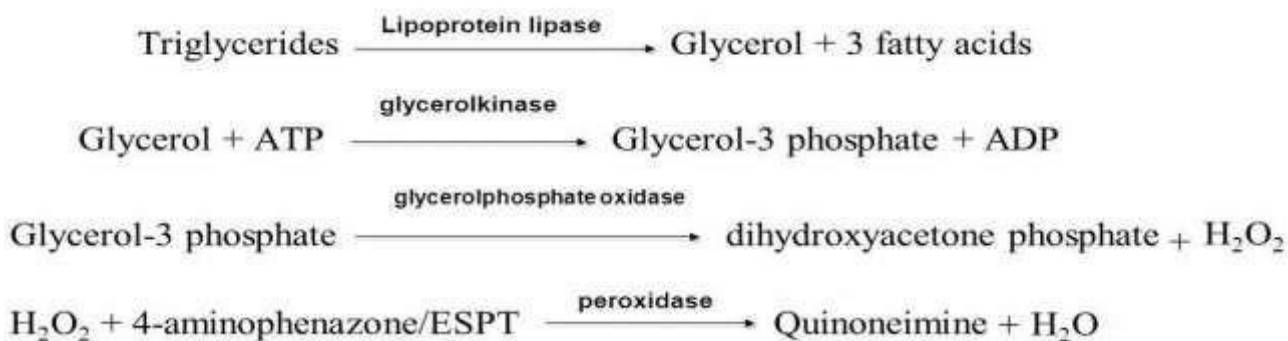


### Clinical significance

In the human body, high levels of triglycerides in the bloodstream have been linked to atherosclerosis, and, by extension, the risk of heart disease and stroke. The risk can be partly accounted by a strong inverse relationship between triglyceride level and HDL-C. Another disease caused by high triglycerides is pancreatitis.

### Principle of Enzymatic Method:

The Tri-glycerides are enzymatically hydrolysed to form a coloured product according to the following reaction:



### Procedure

About 10  $\mu\text{l}$  of serum is pipetted out in a clean and dry test tube. Then, 1ml of reagent {a kit supplied by company} is added to the serum. The solution is mixed well and incubated at 37  $^{\circ}\text{C}$  for 10 minute at room temperature. The solution turned to pinkish red color.



	<u>Standard</u>	<u>Sample</u>	<u>Blank</u>
Working solution	1 ml	1 ml	1 ml
Sample	–	10 $\mu$ l	–
Standard	10 $\mu$ l	–	–

**Calculation:**

$$\text{S. triglycerides concentration} = \frac{\text{O. D sample}}{\text{O. D standard}} \times \text{standard concentration}$$