Tishk International University
Faculty of Science
Medical Analysis Department

Lipid Profile
Triglyceride Test

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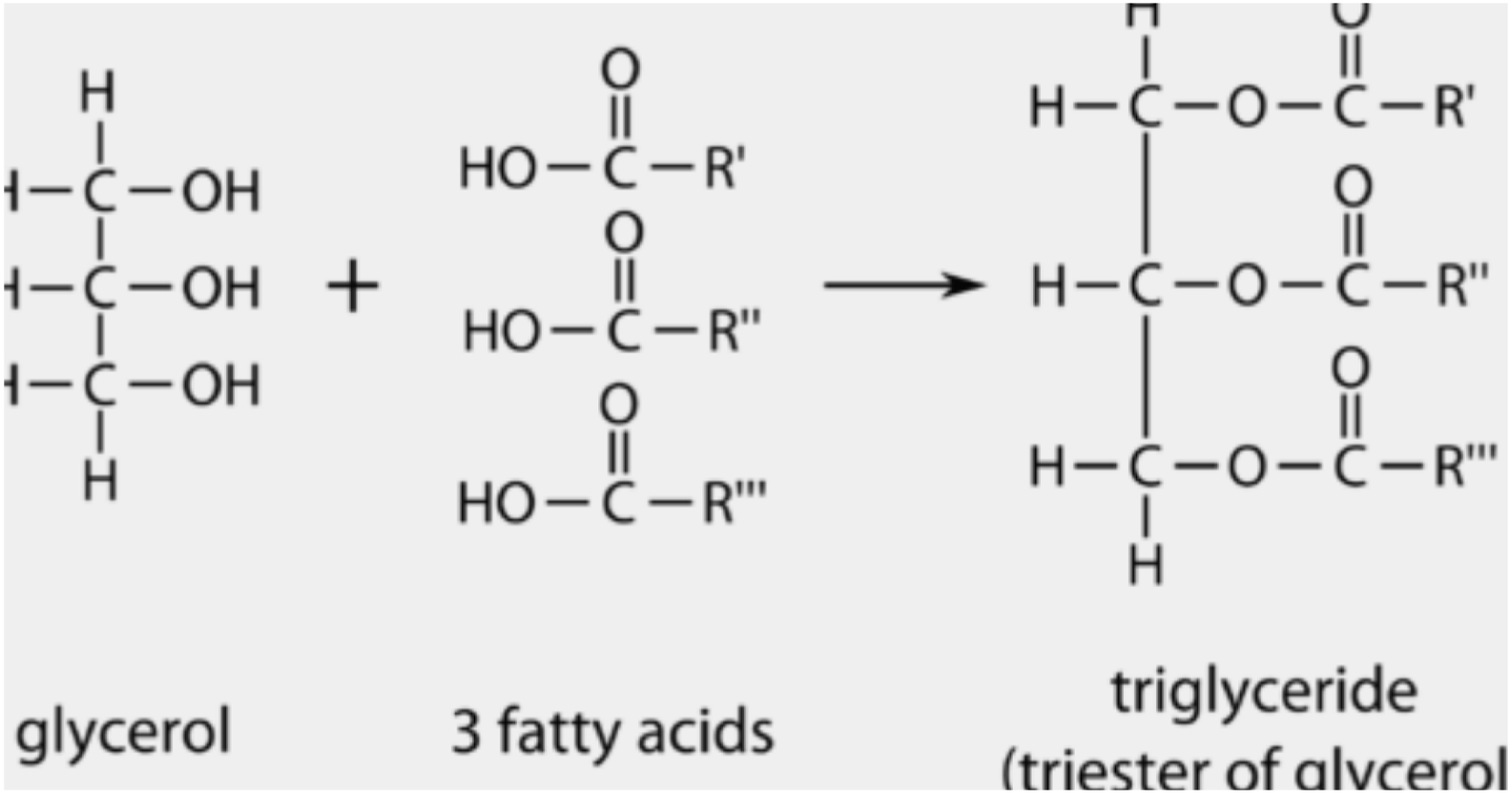
Triglyceride



Preparation

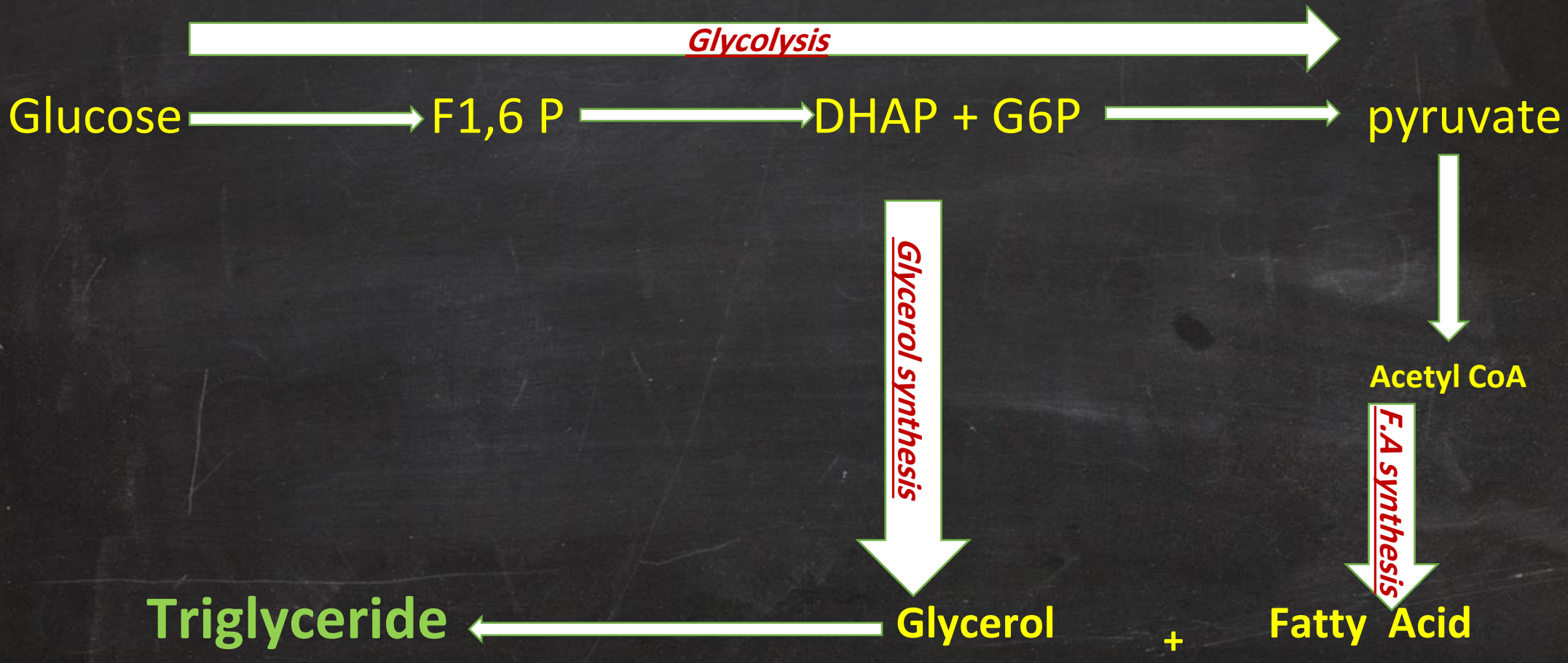
- **Fasting**
  - Blood should be collected after a 12-hour fasting (no **food** or **drink**, except **water**).
  - TG remains high for several hours after meal

Preparation

- **Do not Drink Tea and Coffee**
  - ***The intake of coffee especially unfiltered coffee is contributed significantly to the increase in TC, LDL-C and TG.*** And the changes were related to the level of intake.

Drinking coffee for 45 days was associated with an increase of 8.1 mg/dl for total cholesterol (TC), 5.4 mg/dl for low-density lipoprotein cholesterol (LDL-C) and 12.6 mg/dl for triglyceride (TG) (Cai et al., 2012).

Relation between Hyperglycemia and Hyperlipidemia



Reagents

R1: BUFFER

Magnesium Chloride

Preservative

R2: ENZYMES

Lipase

Peroxidase (POD)

Glycerol 3 phosphate oxidase (GPO)

Glycerol Kinase (GK)

R3: STANDARD

Glycerol (200 mg/dL)

Reference Range

Triglycerides	Mg/dl	mmol/L
Reference Range	35-160	0.40 – 1.82

Procedure

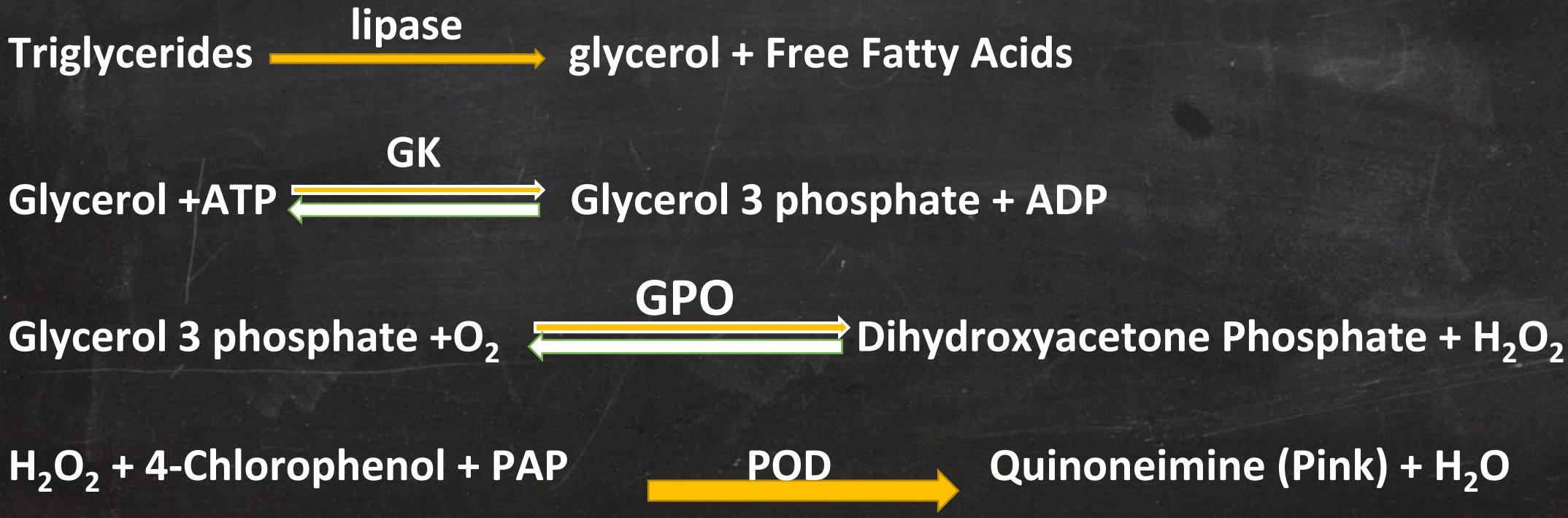
	Blank	Standard	Assay
Reagent	1 mL	1mL	1mL
Demineralized Water	10µL		
Standard		10µL	
Specimen			10µL

Mix. Le stand for 5 minutes at 37C or 10 minutes at room temperature.
Record absorbance at 500 nm(480-520) against reagent blank.

*Reaction stable for 1 hour

Fossati Principle method.

Reaction scheme is as follows:



Calculation

$$\text{Result} = \frac{\text{Abs (assay)}}{\text{Abs (standard)}} * \text{standard concentration}$$

Indications

TG identify the risk of developing coronary heart disease (CHD). This test is part of a lipid profile that includes the measurement of cholesterol and lipoproteins. This test is also performed on patients with suspected fat metabolism disorders.

Interfering Factors

Ingestion of fatty meals may cause elevated TG levels.

Ingestion of alcohol may cause elevated levels of TG by increasing the production of VLDL.

Pregnancy may cause increased levels.

Drugs that may cause increased TG levels include cholestyramine, estrogens, and oral contraceptives.

Drugs that may cause decreased levels include ascorbic acid, asparaginase, clofibrate, colestipol, fibrates, and statins.

Increased Levels

Hypothyroidism: Catabolism of TG is diminished.

High-carbohydrate diet: Excess carbohydrates are converted into TG

Poorly controlled diabetes: Diabetics have an increased synthesis of TG-carrying VLDL and a decreased catabolism of the same.

Chronic renal failure: patients have a deficiency in lipoprotein lipase that clears the blood of TG.

Decreased Levels

Malabsorption syndrome

Malnutrition: These patients have diminished fat in the diet. As TG is the major component of dietary fat, TG levels can be expected to fall.

Hyperthyroidism: The catabolism of VLDL, the main TG-carrying lipoprotein, is increased. Therefore, TG blood levels diminish