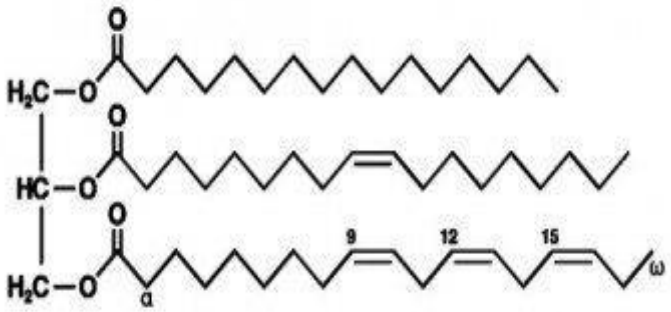
Lect.3.

Triglycerides : (GPO-PAP)

What are triglycerides

Triglycerides are a type of fat, They are the most common type of fat in your body. They come from foods, especially butter, oils, and other fats you eat.

Triglycerides also come from extra calories. These are the calories that you eat, but your body does not need right away. Your body changes these extra calories into triglycerides and stores them in fat cells. When your body needs energy, it releases the triglycerides. Your VLDL cholesterol particles carry the triglycerides to your tissues.



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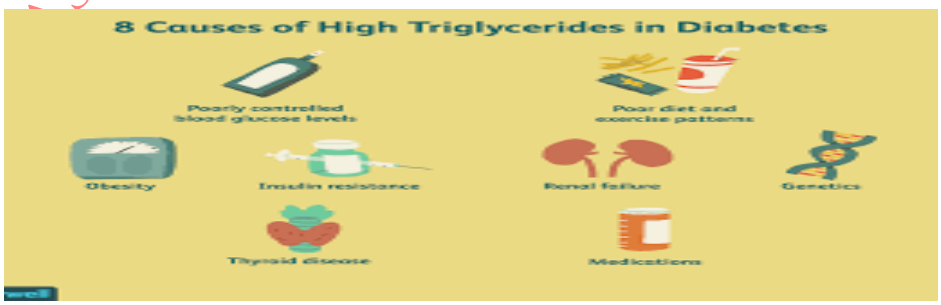
What causes high triglycerides?

Factors that can raise your triglyceride level include

- **Regularly eating more calories than you burn off, especially if you eat a lot of sugar**
- **Being overweight or having obesity**
- **Cigarette smoking**
- **Excessive alcohol use**
- **Certain medicines**
- **Some genetic disorders**
- **Thyroid diseases**
- **Poorly controlled type 2 diabetes**
- **Liver or kidney diseases**

How are high triglycerides diagnosed?

There is a blood test that measures your triglycerides, along with your cholesterol. Triglyceride levels are measured in milligrams per deciliter (mg/dL). The guidelines for triglyceride levels are Levels above 150mg/dl may raise your risk for heart disease. A triglyceride level of 150 mg/dL or higher is also a risk factor for metabolic syndrome.



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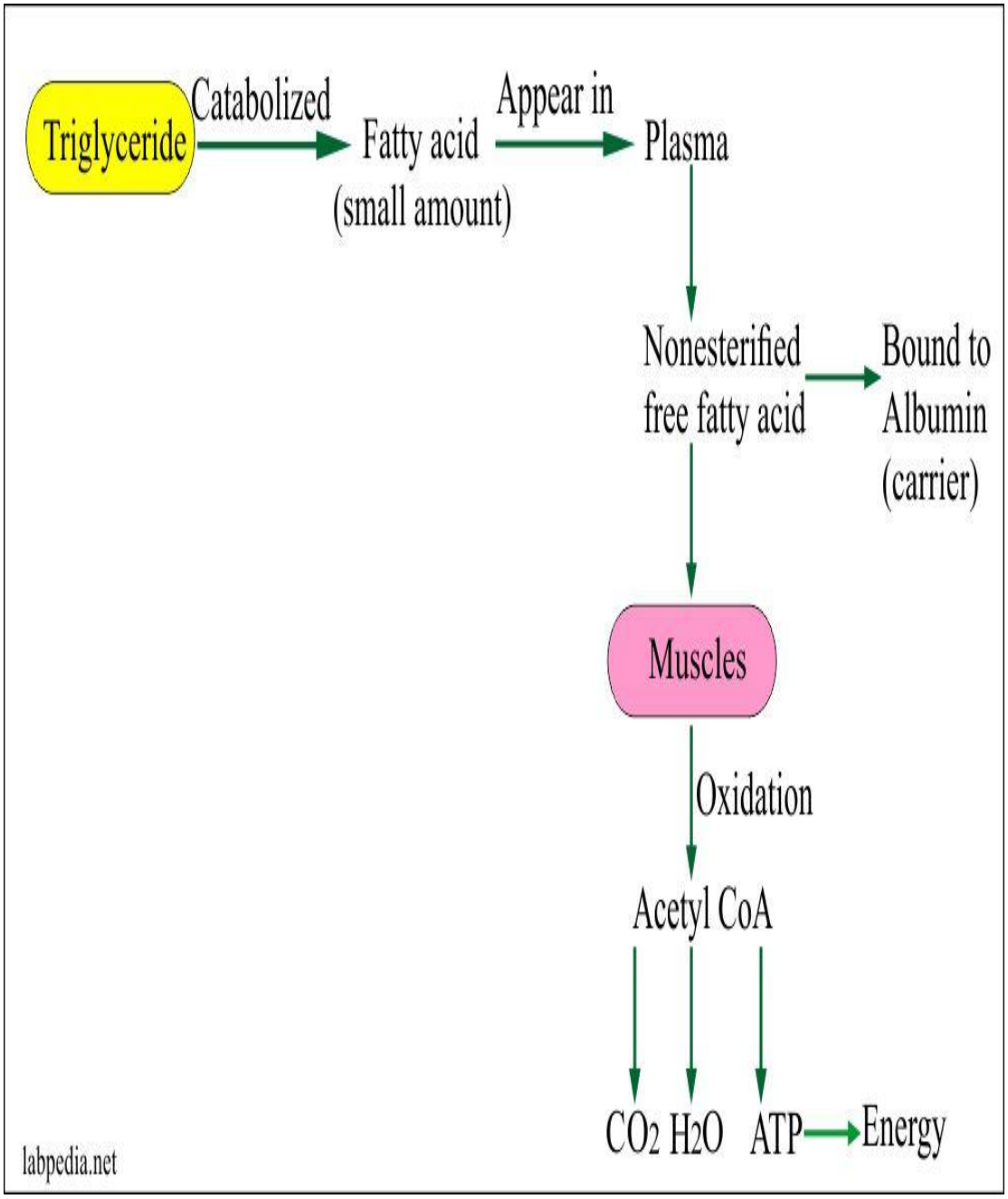
Triglyceride
Catabolized
Fatty acid
(small amount)
Appear in
Plasma
Nonesterified
free fatty acid
Bound to
Albumin
(carrier)
Muscles
Oxidation
Acetyl CoA
CO2 H2O ATP
Energy
labpedia.net

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PRINCIPLE:

The triglycerides are enzymatically hydrolyzed to glycerol according to the following reactions .

Lipoprotein Lipase(catalyst)
Triglycerides → Glycerol + Fatty acids

Glycerol kinase Mg^{++}(catalyst)
Glycerol+ ATP→ Glycerol-3-phophate +ADP

3-Glycerol phosphate oxidase (catalyst)
Glycerol-3-P+ O_2→Dihydroxyacetone-P+ H_2O_2

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peroxydase(catalyst)

H_2O_2 + 4-A aminophenazone + P-chloro phenol → H2O2+ Quinonimi

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Lect.3.

ASSAY PROCEDURE

Wavelength……505nm (490-550)
Cuvette……1cm.light path .
Temperature……37C .

	Blank	Standard	Sample
Standard	-	**10ml**	-
Sample	-	-	**10ml**
Work reagent	**1ml**	**1ml**	**1ml**

CALCULATIONS

conc. = O.D Sample \ O.D Standard x n
Mg\dl :n=200
g\l: n= 2
mmol\l : n=2.28

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	410	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	39	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	1103	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	170	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	209	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	345	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	75	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	123	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol	100	100 – 230 mg/dl
S. Triglycerides		45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lect.3

Lipid Profile

Test	Result	Reference Range
S. Cholesterol		100 – 230 mg/dl
S. Triglycerides	197	45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol		100 – 230 mg/dl
S. Triglycerides	60	45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Lipid Profile

Test	Result	Reference Range
S. Cholesterol		100 – 230 mg/dl
S. Triglycerides	139	45 – 180 mg/dl
S. HDL		20 – 60 mg/dl
S.LDL		40 – 130 mg/dl
S. VLDL		10 – 30 mg/dl

Questions for Lec3

Q1 \ How are high triglycerides diagnosed?
Q2 \ complete the sentences.
1-Triglycerides ( ) >mg\dL Desirable range
2-Triglycerides v. High > ( ) mg\dl
Q3\ Defined
Triglycerides

Q4\ What causes high triglycerides
Q5\ Explain the principle of triglycerides?

Q6\ ASSAY PROCEDURE
Wavelength…… (
Cuvette…… .
Temperature……C .
CALCULATIONS……