TRI GLYCERIDE

Second stage
college of Dentistry
2025-2026
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Measurement and evaluation strategies

Formative assessment (during learning): direct questions and discussions, short tests, group work, video

Final assessment (after the learning is completed): written and electronic tests, research reports, presentations.

Self-assessment and feedback, questionnaires, peer reviews, immediate teacher feedback

General Objective

- The overall goal of this lecture is for students to investigate the prevalence of hyper triglyceride

Behavioral objective

At the end of the lecture ,the student will be able to :

1-Define triglycerides •

2-Explain their biochemical role as the primary storage form of energy in the • human body.

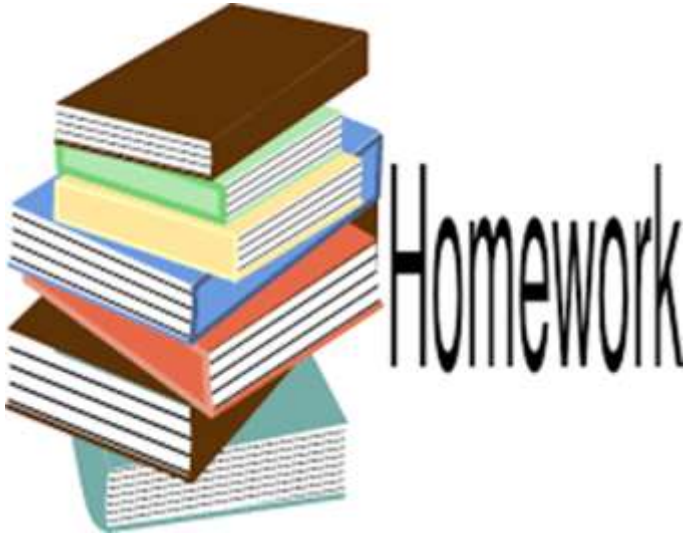
3-Identify the clinical reference ranges(normal –boardline-high and very high) •

4-Explain the correlation between hyper triglyceride and the risk of developing acute panceratitis and atherosclerosis

5-Differentiate between exogenous triglycerides(dietary) and endogenous triglycerides(liver) .

Evaluation Strategy

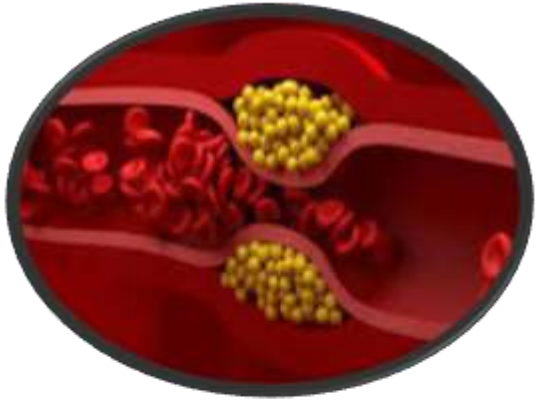
Quiz

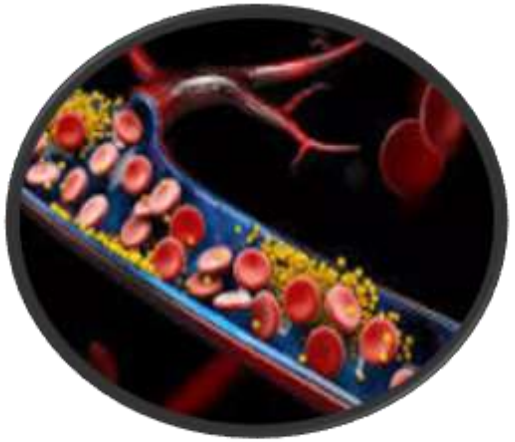


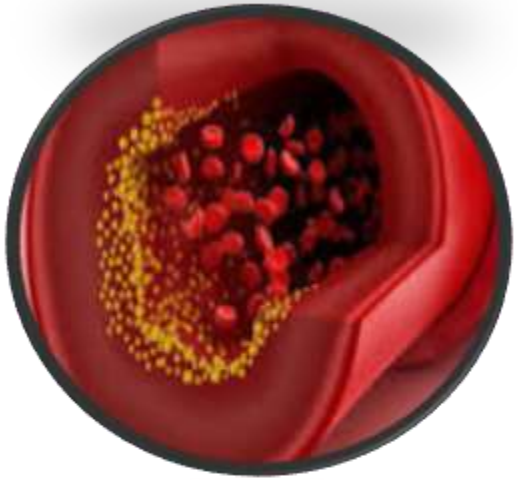
Assignment

Group activity

Is their a differences between these images?





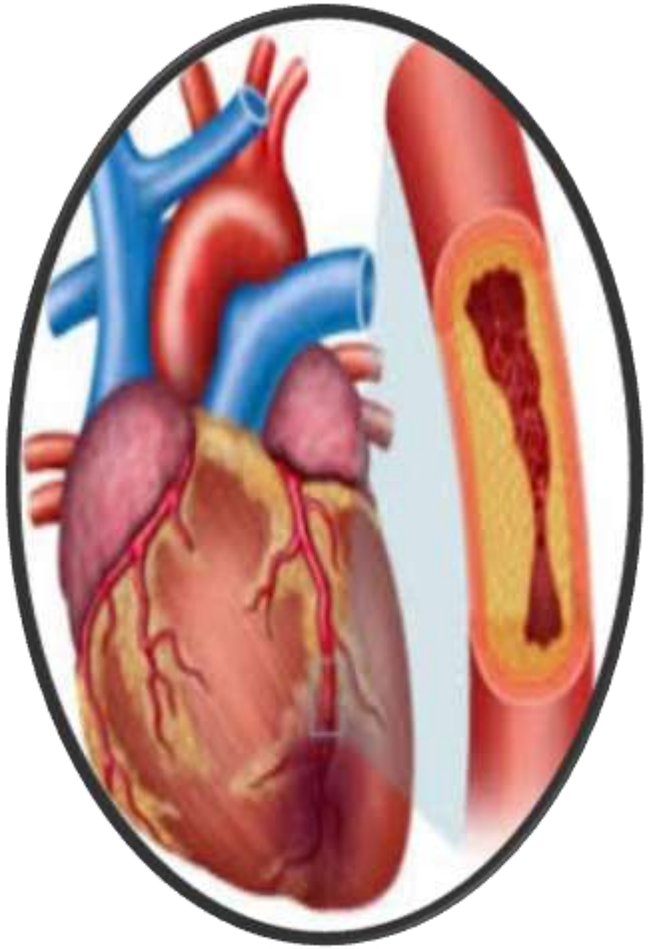


Introduction

- Triglycerides are the most common type of fat (lipid) found in your body . they come from the foods you eat (like butter and oils) and are also produced by your liver.

- **Chemically**, they consist of one glycerol molecule bound to three fatty acids

- Stored in fat cells and released as energy between meals when you consume more calories than you needs for immediate energy , your body converts those extra calories into triglycerides and stores them in your fat cells(adipocytes)



Structure of Triglycerides

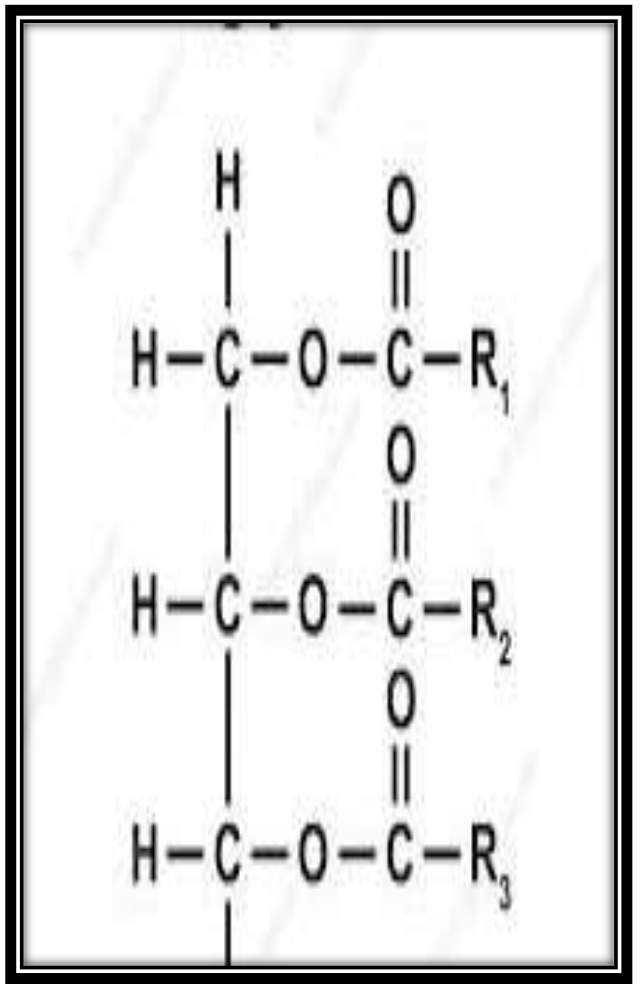
- Triglycerides (TG) backbone with small organic molecules (glycerol) consisting of 3 carbon atomes ,each attached to hydroxyl (-OH) group

-Fatty acids: long chain of hydrocarbon with carboxylic group (-COOH).Can be saturated or unsaturated

- Bonded via esterification -

(condensation reaction between an alcohol and a carboxylic acid) -

Glycerol + 3 Fatty acids → Triglyceride +3H2O -



The Differences between Triglycerides and cholesterol

People often confuse the two , but they serve different purposes

Triglycerides: Store unused calories and provide your body with energy between meals

Cholesterol: Used to build cells , produce certain hormones and synthesize Vitamin D ,Neither can dissolve in blood. So they travel through your body with the help of proteins called lipoproteins.

Listen to this video:

Sources of Triglycerides

-Endogenous (synthesized by the liver)

-Exogenous (from dietary fats)

-Excess calories are converted into triglycerides

Function of Triglycerides

- Major energy source •
- Provide insulation and protection •
- Transport fat-soluble vitamins •

Normal Triglyceride Levels (mg/dL)

- Normal: < 150•
- Borderline high: 150–199•
- High: 200–499•
- Very high: ≥ 500•

High Triglycerides – Causes

- Obesity
- Poor diet (sugars, fats, alcohol)
- Diabetes mellitus
- Hypothyroidism
- Genetic disorders

Health Risks of High Triglycerides

- Atherosclerosis •

-Pancreatitis •

-Increased cardiovascular disease risk •

-Metabolic syndrome •

Diagnosis

-Blood test: Lipid profile •

-Requires 9-12 hour fasting •

-Often measured with cholesterol levels •

Management of High Triglycerides

Lifestyle changes: •

- ✓Healthy diet (low sugar, low fat)
- ✓Regular exercise
- ✓Weight loss
- ✓Limited alcohol

Medications:

- ✓Fibrates, omega-3 fatty acids, statins

Summary

- Triglycerides are essential for energy storage but harmful in excess

- High levels are linked to serious health conditions

- Controlled by diet, activity, and sometimes medication

Fill in the Blanks (word bank: Calories,Heart,Exercies,Alcohol) •

1- Eating too many --------- results in high triglycerides. •

2- Regular -------- helps burn stored fats. •

3-High levels can increase the risk of--------- disease. •

4- Limiting------consumption can help lower your levels. •

Write a short report (200-300 words) answering the following prompt: •

-What factors in your lifestyle may increase triglycerides ? •

-How would you educate a patient about reducing their triglyceride level ? •

Assignment

Instructions :Work with your team to answer the following questions:(TRUE/FALSE)

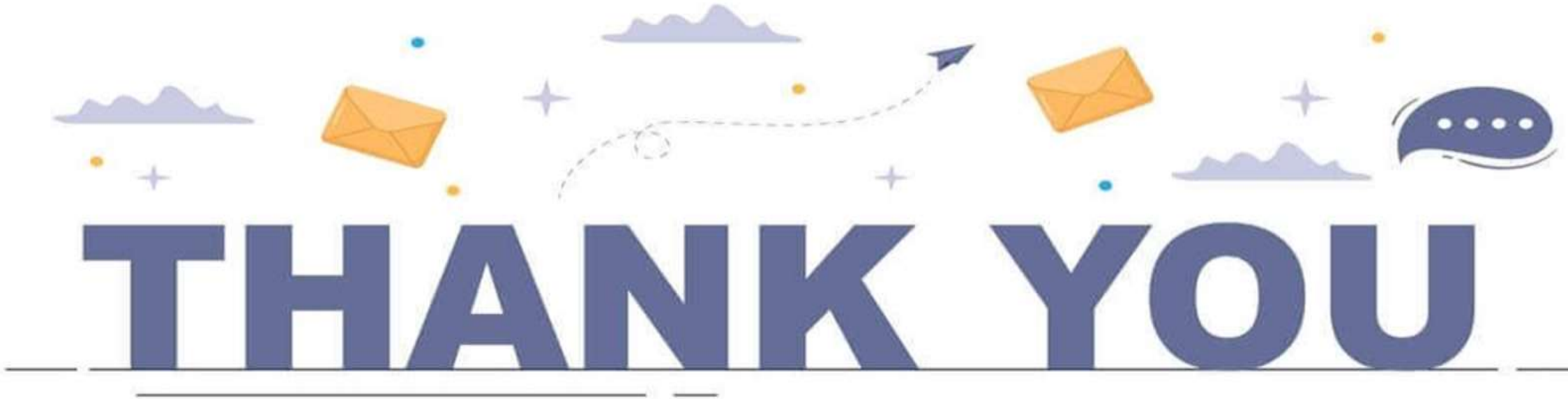
1-Triglycerides are used for immediate energy only.

2-High sugar intake can raise triglyceride levels.

3-Triglycerides and cholesterol are exactly the same thing.

4-450 mg/dl is considered as "normal " level

- Mr.Ahmed (48 years old) and the medical history of him is type 2 Diabetes (poorly controlled) hypertension and BMI of 32 (Obese) . diagnosed with severe Hypertriglyceridemia (500 mg / dl)
- What is treatment plan you suggests ?


THANK YOU