

STUDY QUESTIONS, Chapter 5: The Lipids: Fats, Oils, Phospholipids and Sterols

To answer the next questions, read the introductory paragraphs, “**Introducing the Lipids**” and “**A Close Look at Lipids**” in Ch. 5. (about 6 pages)

1. What are the **three** classes (types) of lipids?
2. When people speak of fat, what are they usually talking about, according to this section?
3. What is the **tri** referring to in the term triglyceride?
4. What is the **glyceride** referring to in the term triglyceride?
5. Look at the FIGURE called “Triglyceride Formation”. The fatty acids are shown as chains. What does each solid black circle in the fatty acid chain represent?
6. One way that fatty acids differ from one another is degree of saturation. What is the other way?
7. What is a saturated fatty acid saturated with?
8. Look at the FIGURE called, “Comparison of Dietary Fats” (10th edition) or “Fatty Acid Composition of Common Food Fats” (11th edition). Which fat on that chart has the most omega-3 fatty acids?
9. According to that FIGURE, which fat on that chart has the most monounsaturated fatty acids?

To answer the next questions, read the section with the heading “**Lipids in the Body**”.

10. This says that an enzyme produced by the tongue is of little importance for adults but plays a major role for _____.
11. Read about **bile**, especially the FIGURE called “The Action of Bile in Fat Digestion”. Which of the following are TRUE statements?
 - a. Bile hooks on to fat in the stomach first.
 - b. Bile hooks on to fat in the small intestine.
 - c. Bile functions as an emulsifier to help break fat into tiny drops so they can mix with water.
 - d. Bile is an enzyme that helps break apart triglycerides into fatty acids and glycerol.

12. Read the definition of lipoproteins in a green box at the edge of one of the pages in this section and fill in the blanks. Lipoproteins are “clusters of lipids associated with proteins which serve as _____ vehicles for lipids in blood and lymph”.
13. Read the section in our text with the heading “**Dietary Fat, Cholesterol, and Health**”. Which has more of an effect on raising **blood** cholesterol levels?
 - a. Saturated fat (part of triglycerides) in foods
 - b. Cholesterol in foods
 - c. They have equal effects
14. **Read the section under the “LDL and HDL Difference”**. Why is LDL often referred to as “bad” cholesterol?
 - a. Elevated LDL in the blood is a sign of a high risk of heart attack.
 - b. Elevated LDL in the blood is a sign of a lower risk of heart attack.
15. This section in our text describes an “atherogenic” diet as being one high in saturated fat (including trans fat) and **low** in what FOUR types of foods? (That answer is found in the margin of one of the pages.)

Look at Figure “Top Contributors of Saturated Fats to the U.S. Diet.”

16. What food is the biggest contributor to saturated fat in the U.S. diet?
17. Read the section in our text with the heading “**Essential Polyunsaturated Fatty Acids**”. The beginning says that the human body can make almost all of the fatty acids it needs from carbohydrate and fat. What other substance does it say that the human body uses to make most of the fatty acids it needs?
18. This section also says that the EFAs (essential fatty acids) serve as raw materials from which the body makes hormone-like substances called _____.

Read “Omega-6 and Omega-3 Fatty Acid Families

19. Which of the following is true about the fatty acids DHA and EPA:
 - a. they are essential fatty acids
 - b. they are found in the oils of fish
 - c. the body can synthesize them from the omega 3 fatty acid linolenic
 - d. they may help lower death rate from heart disease
 - e. May increase bleeding time

Read the section on “What about Fish Oil Supplements”

20. According to this information, which of the following can be **drawbacks** to taking fish supplements?
- May help lower heart disease risk
 - May contain toxins like pesticides
 - May impair wound healing
 - May improve immunity
 - May increase bleeding time
21. Read the section in our text with the heading “**The Effects of Processing on Unsaturated Fats**”. This says that *trans* fatty acids are fatty acids with unusual shapes created during _____.
22. According the FIGURE in this section called “Hydrogenation Yields Both Saturated and *tran* Fatty Acids”, the **SHAPE** of a trans fatty acid is similar to the shape of a:
- Unsaturated fatty acid
 - Saturated fatty acid
23. According to that same FIGURE, the **SATURATION** of a trans fatty acid is similar to the saturation of:
- An unsaturated fatty acid
 - A saturated fatty acid
24. According to this section, trans fatty acids may **raise** levels of which lipoprotein?
25. Read the 2-page **CONSUMER CORNER** called “Fat Replacers”. Besides the fat soluble vitamins A, D, E and K, olestra can cause the loss of what other health-promoting component of food?

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Look at the **INGREDIENT** list for **both** the Canoleo-brand Margarine and the Tillamook Butter in the Label document that was posted in Week 4 of moodle.

<p>Which of the ingredients in either the Canoleo-brand Margarine or the Tillamook Butter labels have:</p> <p>26. Triglycerides:</p> <ul style="list-style-type: none"> a. Cream b. Salt c. Olive oil d. Palm oil e. Soybean oil f. Soy lecithin <p>27. mostly SaFAs (saturated fatty acids):</p> <ul style="list-style-type: none"> a. Cream b. Salt c. Olive oil d. Palm oil <p>28. mostly MUFAS (monounsaturated fatty acids):</p> <ul style="list-style-type: none"> a. Cream b. Salt c. Olive oil d. Palm oil 	<p>29. mostly PUFAS (polyunsaturated fatty acids):</p> <ul style="list-style-type: none"> a. Cream b. Salt c. Olive oil d. Palm oil e. Soybean oil <p>30. lots of Phospholipids</p> <ul style="list-style-type: none"> a. Cream b. Salt c. Olive oil d. Palm oil e. Soy lecithin <p>31. Cholesterol:</p> <ul style="list-style-type: none"> a. Cream b. Salt c. Olive oil d. Palm oil e. Soy lecithin
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32. Consider a snack of Ak Mak crackers (You can look at the label in the label document that was posted in Week 4 of moodle). The cracker **ingredients** include 100% stone ground whole wheat flour, water, honey, sesame oil, butter, sesame seeds, yeast and salt. What **carbohydrates AND lipids**, in that snack of Ak Mak crackers, need to be enzymatically digested? Consider the sources of carbohydrate in this snack **as well as** the sources of fat.

<ul style="list-style-type: none"> a. Starch b. Glucose c. Maltose d. Lactose e. Galactose f. Sucrose 	<ul style="list-style-type: none"> g. Fructose h. Fiber i. Triglycerides j. Fatty acids k. Glycerol l. Cholesterol
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33. After eating these Ak Mak crackers, what is absorbed into the cells lining SI (& then lymph or blood)?

a. Starch	g. Fructose
b. Glucose	h. Fiber
c. Maltose	i. Triglycerides
d. Lactose	j. Fatty acids
e. Galactose	k. Glycerol
f. Sucrose	l. Cholesterol

34. **MYSTERY QUESTIONS:** For this one, have in front of your Chapter 5 Lecture Outline (with your notes). You will be asked 1 or more questions about something from one of the blanks or one of the questions that are asked in this LECTURE OUTLINE and were answered in Lecture **5A** or Lecture **5B**.
35. Take a look at the FORUM for Week **4** (last week). Do you find one posting done by you? _____