Module C
Lipids
Nutrition and Disorders of the Heart, Blood Vessels, and Lungs

General Module Learning Objectives:
After completing this Module the student should be able to:

- Describe the chemical structures, classifications, properties, and functions of lipids, and describe how the body digests, transports and metabolizes them

Student Assignments

1. Reading Assignment
   - Chapter 5 – The Lipids: Triglycerides, Phospholipids, and Sterols (138-178)
   - Chapter 27 – Nutrition and Cardiovascular Diseases (841-861)

Students are encouraged to write the answers to each of the study questions listed below in the “Specific Learning Outcomes.” Reading and writing the answers provides directed, in-depth study in order to learn the assignment material.

2. Complete and submit Clinical Application 1 by Wednesday at 5:00 p.m.

3. Take Multiple Choice Quiz on Chapters 5 and 27
   - The quiz on these 2 chapters is available for 8 days – Monday through Monday of this Module week.
   - Each of the questions on the quiz is answered in one or more of your specific learning outcomes. Be sure to go beyond memorizing information and be able to use the information to make decisions.

4. Start working on Project on Diabetes Mellitus – found in Module E.

Specific Learning Outcomes:
After completing this reading and personal study you should be able to:

Chapter 5
1. Describe the structure of a fatty acid and the effects of chain length and saturation on the properties of the fat.
2. Describe the triglyceride.
3. List and describe the three types of fatty acids found in foods.
4. Explain the structure of the omega-3 and omega-6 fatty acids.
5. Explain the roles of phospholipids and sterols in foods and in the body.
6. Trace the digestion of lipids including identification of enzymes needed and the role of bile.
7. Describe the absorption of lipids into the intestine and the formation of the chylomicron.
8. Describe the role of the liver in the production of lipoproteins.
9. Explain the health implications of LDL and HDL and the factors that raise or lower levels of these lipoproteins.
10. Identify the uses of triglycerides in the body.
11. Identify the essential fatty acids and their role in the formation of eicosanoids.
12. Discuss the role of fat in the development of heart disease, cancer, and obesity.
13. Explain the recommended dietary intakes for fat, saturated fat, essential fatty acids and cholesterol.
14. Describe the diet recommendations for selection of a diet lower in total fat, saturated fat, trans fat and cholesterol.

Chapter 27
1. Define cardiovascular disease and briefly discuss its forms and prevalence.
2. Describe the development of atherosclerosis and outline the causes and consequences of this process.
3. Characterize coronary heart disease and evaluate an individual’s risk for this disorder based on modifiable and non-modifiable risk factors.
4. Discuss medical treatments and Therapeutic Lifestyle Changes for the prevention or management of CHD.
5. Characterize hypertriglyceridemia and explain the treatments and lifestyle changes used to manage this condition.
6. Identify the risk factors for the development of hypertension and corresponding risk reduction strategies.
7. How many grams of fat would be contained in a 1500 kcalorie diet which provides 50% of the energy from carbohydrate, 20% from protein, and the remainder from fat?