

Study Guide Chapter 26  
Nutrition and Metabolism

1. What determines if we loose or gain weight?
2. What are gut-brain peptides?
3. When talking about appetite, what are the short-term regulators and what do they do?
4. When talking about appetite, what are long-term regulators of appetite and what do they do?
5. What is the importance of the arcuate nucleus?
6. Study Figure 26.1 to understand how gut-brain peptides regulate appetite:
7. What is a calorie?
8. Where do dietary calories come from?
9. What is a nutrient?
10. What are the six major classes of nutrients? Explain the significance of each nutrient:
11. Define the following terms and explain their significance: water-soluble fibers vs water-insoluble fibers:
12. Why do fats have a glucose-sparing and protein-sparing effect?
13. What are the four major categories of lipoproteins and what are their functions?
14. What physiologic conditions are associated with positive and negative nitrogen balance?
15. How do minerals and vitamins compare to other nutrients?
16. How are vitamins classified?
17. What are the three major pathways of glucose catabolism? What is the net products of each pathway?
18. Where does aerobic respiration and anaerobic fermentation take place?
19. Define the following terms: glycogenesis, glycogenolysis, gluconeogenesis, lipogenesis, lipolysis:

20. What are the three main ketone bodies and what is the name of the process that generates these compounds? Where does this occur?
21. How many different amino acids are in the amino acid pool? What is the difference between essential amino acids and inessential amino acids?
22. What is the absorptive and post-absorptive state? How are carbohydrates, fats and amino acids regulated in these two states?
23. What is the difference between basal metabolic rate and total metabolic rate? How does a fever affect the TMR?
24. What is the difference between core and shell temperature?
25. Where does most of the heat of the body come from?
26. How does the body lose heat?
27. What is convection
28. Where is the thermoregulator of the body located? How does it work?
29. What is the difference between heat cramps, heat exhaustion, and heatstroke? How can fever cause a “positive-feedback” loop?
30. What is hypothermia?
31. What lipoprotein transports newly absorbed dietary fats in the lymph?
32. What metabolic process splits glucose into two molecules of pyruvic acid?
33. What is the physiologic function of VLDL, LDL, and HDL?
34. What is the relative energy content of fat vs starch?
35. How and is glucose stored in the body and where is it store?
36. If fats are incompletely oxidized, what do they form?
37. What are the sources of cholesterol?
38. What is a triglyceride? How are the processed in the body?
39. Can you use proteins to make glucose?

40. How much of the energy in a glucose molecule winds up in an ATP molecule at the end of aerobic respiration?
41. Which of the following nutrients is most likely to circulate through skeletal muscle before it ever circulates through the liver?
42. How can you enhance the loss of body heat through conduction?
43. If your body temperature is close to room temperature, how can you lose body heat?