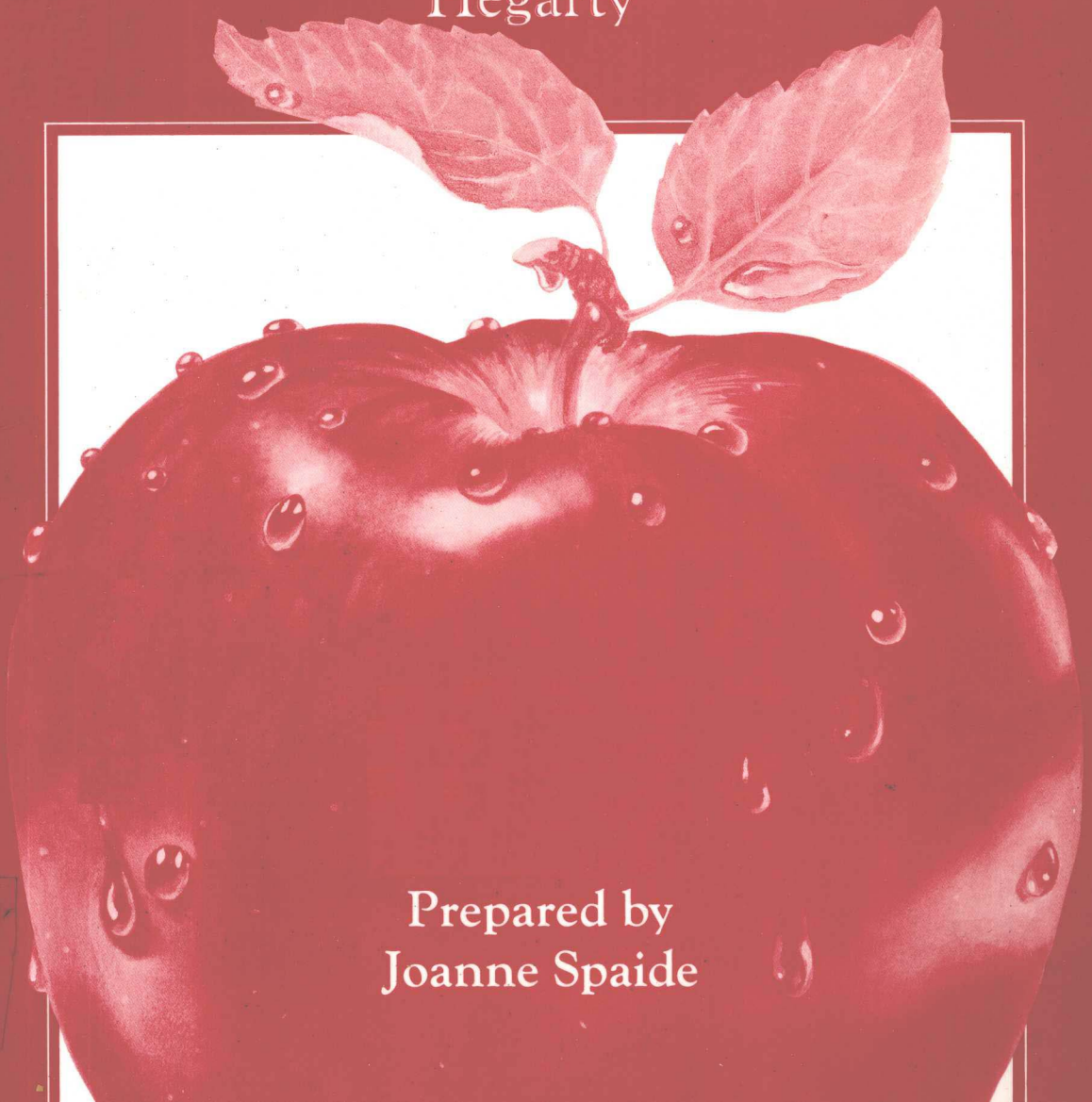


Study Guide
to accompany

DECISIONS IN

Nutrition

Hegarty



Prepared by
Joanne Spaide

Study Guide
To Accompany
DECISIONS IN
Nutrition

Joanne Spaide



Times Mirror/Mosby
College Publishing
1988



Copyright © 1988 by Times Mirror/Mosby College Publishing
A division of the C.V. Mosby Publishing Company
11830 Westline Industrial Drive
St. Louis, Missouri 63146
Printed in the United States of America

All rights reserved. Except in classes in which
DECISIONS IN NUTRITION is used, no part of this publication may be
reproduced, stored in a retrieval system, or transmitted in any form or
by any means, electronic, mechanical, photocopying, recording, or otherwise,
without prior written permission from the publisher.

PREFACE

To The Student

Welcome to your study of nutrition! The Study Guide to accompany Hegarty's DECISIONS IN NUTRITION is designed to assist you in your study of nutrition. The aims of this book are: (1) to assist you in identifying important concepts and facts essential for the understanding and application of nutrition; (2) to help you identify and focus attention on important interrelationships between the nutrients and between the nutrients and the environment; and, (3) to allow you to apply the concepts and principles of nutrition through the use of problems and analyses of your own eating habits.

Each chapter consists of six sections: (1) an overview, (2) learning objectives, (3) terms and definitions, (4) learning and application questions, (5) a quick recall, and (6) a mini quiz. The following steps will help you use this study guide effectively.

1. Read the overview and learning objectives. The overview will give you a broad view of the text material while the learning objectives will help you know where to focus attention.
2. Read the entire related chapter in your text.
3. Now go back to the beginning of the chapter and carefully read and study the chapter by sections using chapter headings as guides. As you complete each section of the chapter, close your text and immediately fill in the terms for the definitions covered in that section. Then answer the learning and application questions.
4. After you have completed both of these sections, check your answers and make necessary corrections.
5. Finally, when you have completed the entire chapter, with your text closed, complete the Quick Recall and the Mini Quiz sections. These sections are designed to test your knowledge and understanding. They should be completed only after you have thoroughly studied the chapter.

When completing the above, be sure to write your answers in your own words. If you just copy information from your text, comprehension and retention of the material does not occur.

The Appendix of your study guide contains application and evaluation activities and questions based on your personal eating and activity habits. These activities should be completed at the time the corresponding chapter is being studied. They are designed to be completed using the computer software that is available from your instructor.

To The Instructor

The study guide to accompany Hegarty's DECISIONS IN NUTRITION is unique as compared to other nutrition study guides on the market at the present time. As pointed out above, each chapter consists of six sections to assist the student in identifying, understanding, and applying important nutrition concepts and interrelationships. The learning objectives are based on the cognitive domain of educational objectives. As the text and the study guide are written for the introductory student, you will find many of the learning objectives written for the lower levels of the domain. In addition, each chapter also contains learning objectives written for the higher domains. At the introductory level it is important that the student first obtain a good knowledge and comprehension of the basic nutrition principles. Oftentimes students try to apply information without first having a firm grasp and understanding of the basics. After the student knows and understands the basic concepts, application of these concepts becomes more

meaningful. In addition, the student will be better able to apply knowledge from this course to situations which occur later in their lives. Instructors whose students already have some background and knowledge in nutrition may wish to use the learning objectives at a higher level of the domain than written. Likewise, the learning and application questions and activities are designed for various levels of the cognitive domain.

The terms and definitions listed in the study guide include all the terms and definitions highlighted in the margins of the text. Other key terms and definitions from the text, in addition to those appearing in the text margins, are also used. The instructor may wish to require the knowledge of additional terms and definitions used in lecture presentations.

The instructor should stress the proper use of the study guide to the student. It will also be helpful to make the Diabetic Food Exchange Lists available to the student. These lists will assist the student to complete some of the questions and activities in the study guide. The activities and questions in the study guide Appendix should be completed in conjunction with the chapters indicated. These are application type activities and questions based primarily on the personal eating and activity habits of the student. You may wish to stress to the students that you are not grading on the basis of what they eat and do, but rather on the basis of the completeness of their records, and on their evaluations and critiques of the records.

ACKNOWLEDGMENTS

This book is possible due to the encouragement, guidance, and support of a number of people. I would like to express my appreciation to the reviewers, Melinda Manore, Ph.D., R.D., Department of Family Resources and Human Development, Arizona State University and Margarette Harden, Ph.D., R.D./L.D., Department of Foods and Nutrition, Texas Tech University, for their very thorough reviews and valuable suggestions. The Times Mirror Mosby College Publishing staff has provided invaluable assistance and advice. I am grateful to Ann Trump, Editor for initiating and supporting the project and to Jean Babrick, Developmental Editor, for invaluable advice, patience, and support throughout the duration of the project. Finally, I would like to thank my students, colleagues, family, and friends for their support and encouragement. A special thank you to my department head, Dr. Ronald A. Chung, for patience, encouragement, understanding, and support during this project.

Joanne Spaide, Ph.D., R.D.

CONTENTS

Preface
Acknowledgments

Part One
Backdrop Food, Nutrients, and You

- | | | |
|---|--|----|
| 1 | How Food Becomes You..... | 1 |
| 2 | Eating right: A matter of balance..... | 21 |

Part Two
Nutrients: Their Sources and Functions

- | | | |
|----|---|-----|
| 3 | Carbohydrates: Starch, sugars, and fiber..... | 44 |
| 4 | Lipids: Fats and oils..... | 61 |
| 5 | Proteins and amino acids..... | 81 |
| 6 | Vitamins..... | 102 |
| 7 | Minerals..... | 122 |
| 8 | Oxygen, water, and other fluids..... | 149 |
| 9 | Energy requirements and energy balance..... | 164 |
| 10 | Obesity, eating disorders and starvation..... | 183 |
| 11 | Food processing and safety: From the farm to you..... | 205 |

Part Three
Nutrition Throughout Life

- | | | |
|----|--|-----|
| 12 | Pregnancy and lactation: Nutrition for mother and child..... | 227 |
| 13 | Nutrition from infancy to adolescence: Years of
physical and mental growth..... | 254 |
| 14 | Nutrition for adults: Young, middle-aged, and elderly..... | 271 |

Part Four
Applications and Implications

15	Nutrition and current lifestyles.....	293
16	Nutrition and the future.....	308

Appendix

Activity One (chapter 1).....	322
Activity Two (chapter 2).....	324
Activity Three (chapter 3).....	326
Activity Four (chapter 4).....	328
Activity Five (chapter 5).....	330
Activity Six (chapter 6).....	332
Activity Seven (chapter 7).....	338
Activity Eight (chapter 8).....	342
Activity Nine (chapters 9, 10).....	344
Activity Ten (chapter 11).....	345
Activity Eleven (chapter 12).....	347
Activity Twelve (chapter 13).....	350
Activity Thirteen (chapter 14).....	352
Activity Fourteen (chapter 15).....	355
Sample forms.....	357
Blank forms.....	359

1

How Food Becomes You

OVERVIEW

Why is nutrition such a puzzle? The author poses this question at the beginning of the chapter. He answers the question by explaining that as yet we have no black and white answers for some nutrition related problems. Another reason why nutrition is such a puzzle is that nutrition is a science that has evolved from and is based on many other sciences—including both the social and the biological sciences.

In recent years nutrition has become a popular topic. Due to its popularity the media is constantly bombarding the public with nutrition information. Because of this and because of the public interest in this topic, everyone has become a nutrition expert. We find people teaching and giving nutritional advice who themselves have never had any formal training in the subject. This has all led to the problem of misinterpretation of nutrition research and much misinformation being conveyed to the public. As you progress through your nutrition course, you will first learn many of the basic concepts and facts necessary for evaluating many of the claims made in advertising as well as for evaluating much of what the popular media presents.

Throughout the course you will also become more aware of your own nutritional habits. You will want to evaluate these habits and consider what changes you might make to have a healthier diet. To start on your self-evaluation think about what you had to eat yesterday or for that matter what you have eaten today. Why did you choose those particular food items? Have you ever really thought about why you make certain food choices? You may say that you choose the things you like, but why have you developed a liking for some foods and not for others? In this chapter you will explore the various cultural, societal, and psychological patterns that have influenced the development of your eating patterns. This will help you not only understand your own eating behavior but also realize that everybody doesn't eat the same foods because each person has his or her own unique eating behavior.

OBJECTIVES

On successfully completing this chapter, you should be able to do the following:

1. Discuss at least four reasons why the science of nutrition is not well understood.
2. List and discuss methods used to obtain nutritional information.
3. Discuss the factors that influence an individual's eating behavior.
4. Define nutrition.
5. Differentiate between essential and nonessential nutrients.
6. Identify chemicals other than nutrients that are in our food and discuss their presence in the food supply.
7. List the general functions of nutrients in the body.
8. Describe the processes of ingestion, digestion, absorption, transportation, utilization, and excretion.
9. Discuss the importance of contributions from other social, medical, and biological sciences to the science of nutrition.

10. Compare sources of nutrition information in terms of their reliability.

TERMS AND DEFINITIONS

Listed below are definitions of important terms you should know. Write the correct term for each definition in the space provided.

anemia	ingestion
anorexia	natural food
antibodies	nonessential nutrients
antioxidants	nutrients
bulimia	nutrition
digestion	organic foods
epidemiology	osteoporosis
essential nutrients	phenylketonuria (PKU)
health food	toxicants
hypertension	

1. _____ The process of eating and swallowing.
2. _____ Nutrients that cannot be synthesized by the body and, therefore, must be provided by the diet.
3. _____ The study of the correlations between diets of population groups and the incidence of a disease.
4. _____ Food produced without artificial fertilizers, pesticides, or additives.
5. _____ Loss of bone in adults, especially women.
6. _____ Chemicals in food needed to maintain life.
7. _____ Genetic defect in which infants are unable to metabolize the amino acid, phenylalanine.
8. _____ The process by which the body breaks down and extracts the nutrients from the food you eat.
9. _____ Chemicals found in food that are not necessary for the normal functioning of the body.
10. _____ Self-denial of food.
11. _____ Unprocessed food.
12. _____ The science of food, the nutrients and other substances therein, their action, interaction, and balance in relation to health and disease, and the processes by which the body ingests, digests, absorbs, transports, utilizes, and excretes food substances.
13. _____ Chemicals that harm the human body.
14. _____ Substances that protect other chemicals from the damaging effects of oxygen.
15. _____ Low blood hemoglobin or low concentration of red blood cells.

16. _____ High blood pressure
17. _____ Binge eating followed by purging.
18. _____ These foods have no special health-giving properties.
19. _____ Blood proteins protecting the body from foreign proteins.

CONNECTIONS

1. Your food choices are influenced by many different factors. List at least five of these factors.
 - a.
 - b.
 - c.
 - d.
 - e.
2. Food availability depends on numerous factors. List seven of these factors.
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.

WHY IS NUTRITION SUCH A PUZZLE?

1. In the past, you undoubtedly have seen, read, or heard advertisements, magazine articles, or other forms of information relating to nutrition. Below list as many nutrition topics as you can for which you have heard or seen conflicting information.
 - a.
 - b.
 - c.

WHERE DOES NUTRITION INFORMATION COME FROM?

1. List the types of nutrition research for which the researcher has no control over the subjects and the information provides useful data for further investigation.
 - a.
 - b.
 - c.
 - d.
2. List the types of nutrition research in which the researcher has much control over the subjects.
 - a.
 - b.
 - c.
3. List the type of nutrition research that provides data pertaining to nutritional aspects of illness but results cannot be applied to the normal, healthy individual.

WHY DOESN'T EVERYBODY EAT THE SAME FOODS?

1. Stop and think of everything you ate yesterday, both beverages and foods. In the space provided below, write each item you consumed and list the reason you chose each particular item. The easiest way to remember everything you ate is to think of the day in periods of time starting with when you got up in the morning.
2. Numerous factors influence our food intake and, therefore, our nutrient intake. These factors can be classified according to whether they are related to the individual, the environment, or the food. Complete the following chart by checking the appropriate class for each of the factors listed.

FACTOR	INDIVIDUAL	ENVIRONMENT	FOOD
How the food is prepared			
The climate			
Taste of the food			
Family traditions			
Texture of food			
Stress			
Peer group pressure			
Age			
Where food is served			
Religious food laws			
Appearance of food			
Emotions			
Industrial pollution			
Food and drug interactions			
Economic status			

3. List in descending order of importance those factors that influence your food choices.

INDIVIDUAL

ENVIRONMENTAL

SOCIAL

4. Climate and pollution can affect food production and food safety. Indicate which of the following will affect food safety and which may influence food production.

_____ a. Drought	1. Affects food production
_____ b. Industrial waste	2. Affects food safety
_____ c. Floods	
_____ d. Hail	
_____ e. Untreated sewage	
_____ f. Household waste	
_____ g. High winds	

5. Improved methods of preserving and storage make a wide variety of foods available throughout the year. However, some of these processes are cause for concern. List four of these concerns.

a.
b.
c.
d.

6. The nutritive value of a food may be changed by food preparation methods. For each of the following pairs, mark the food most likely to have the highest nutritive value.

- a. _____ French fries
_____ Baked potato
- b. _____ French fries
_____ Potato chips
- c. _____ Raw carrots
_____ Cooked carrots
- d. _____ White bread
_____ Enriched and fortified white bread

7. One's ability to taste and smell food changes with age. List the tastes that are more sensitive in younger people and those that are more sensitive in older people.

YOUNG PEOPLE

- a.
- b.

OLDER PEOPLE

- a.
- b.

3. Indicate which of the following nutrition-related problems are associated with gender (G), which are associated with genetic inheritance (I), and which are associated with emotions (E).

- a. _____ obesity
- b. _____ bulimia
- c. _____ coronary heart disease
- d. _____ phenylketonuria (PKU)
- e. _____ anorexia
- f. _____ iron deficiency anemia
- g. _____ osteoporosis

9. "Medical factors affect why different people eat different foods." List five medical problems that require people to alter their diets.
- a.
 - b.
 - c.
 - d.
 - e.
10. Drug and food interactions can alter the effectiveness of drugs and, on the other hand, alter nutrient utilization. List three examples of such interactions.
- a.
 - b.
 - c.

WHAT IS NUTRITION?

1. Define nutrition.
2. The chemical constituents of foods may be grouped into three different categories. List these three categories.
 - a.
 - b.
 - c.
3. There are six major classes of nutrients, In the table below list the essential nutrients for each of the classes.

CARBOHYDRATE	PROTEIN	LIPID	VITAMINS	MINERALS	WATER

4. Chemicals other than the essential nutrients are found in foods. List four categories of these other chemicals.
- a.
 - b.
 - c.
 - d.
5. Additives are used for a variety of functions in foods. List at least five of these functions.
- a.
 - b.
 - c.
 - d.
 - e.
6. Environmental contaminants may make foods unsafe to eat. List four environmental contaminants.
- a.
 - b.
 - c.
 - d.
7. Indicate which of the classes of nutrients can provide energy for the body and which classes of nutrients are involved in the release of energy.
- | | | |
|-------|------------------|--|
| _____ | a. Carbohydrates | 1. Provide energy |
| _____ | b. Vitamins | 2. Necessary for the release of energy |
| _____ | c. Water | |
| _____ | d. Lipids | |
| _____ | e. Minerals | |
| _____ | f. Protein | |

8. The classes of nutrients needed for growth and maintenance of tissues and for the regulation of body processes include:
- a.
 - b.
 - c.
 - d.
 - e.
9. "You should eat a variety of foods from each of the four food groups." List the four food groups and state the number of servings recommended daily for the adult from each group.

GROUP

NUMBER OF SERVINGS

- a.
- b.
- c.
- d.

10. State the "survival rules" for using nutrient supplements.

- a.
- b.
- c.

11. List four common diseases of "affluence."

- a.
- b.
- c.
- d.