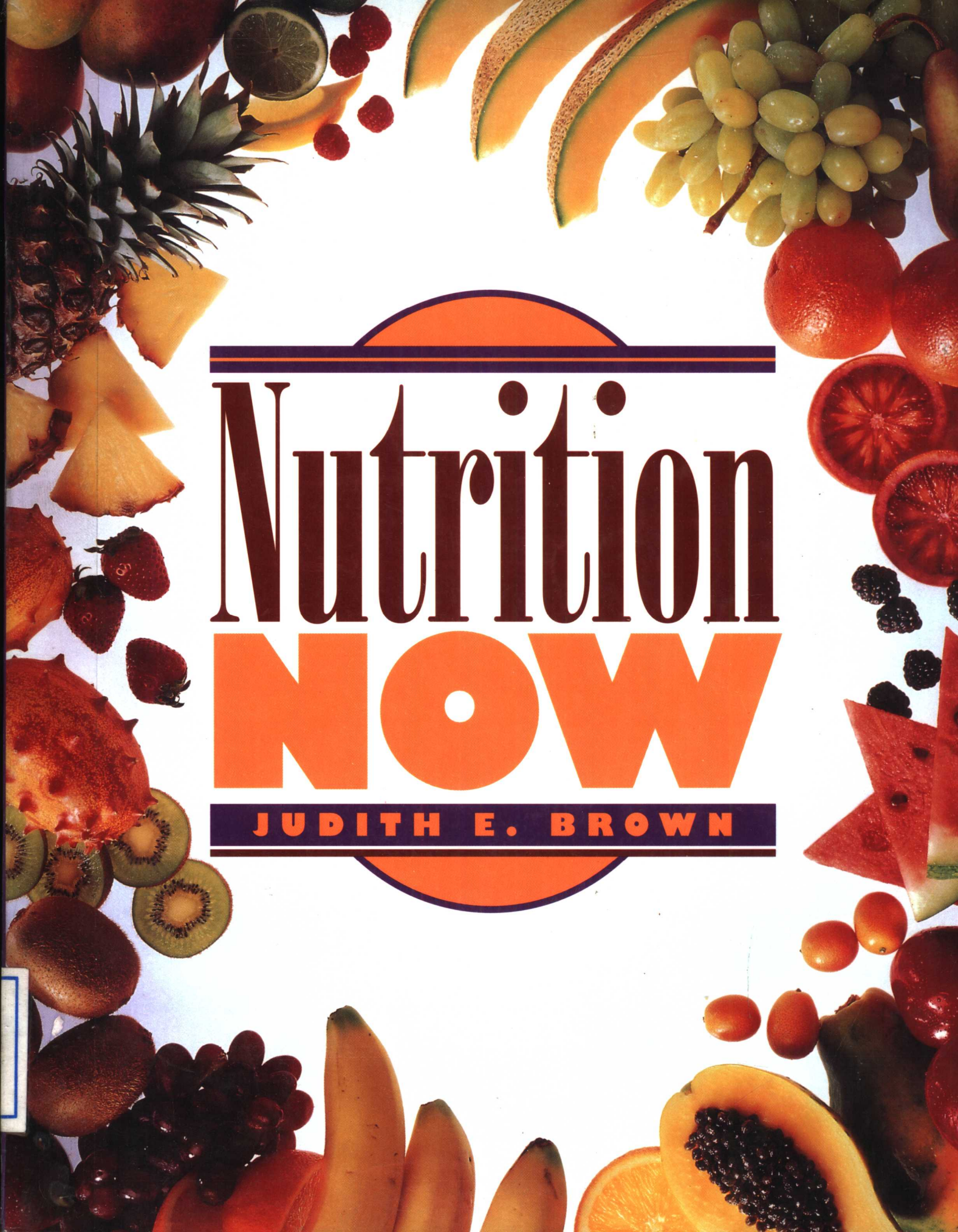
Nutrition
NOW
JUDITH E. BROWN

Nutrition Now

Custom Edition

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University of Minnesota

West Publishing Company
Minneapolis/St.Paul New York Los Angeles San Francisco

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By WEST PUBLISHING CO.
610 Opperman Drive
P.O. Box 64526
St. Paul, MN 55164–0526

00 99 98 97 96 8 7 6 5 4 3 2 1

ISBN 0–314–12284–2

Printed in the United States of America

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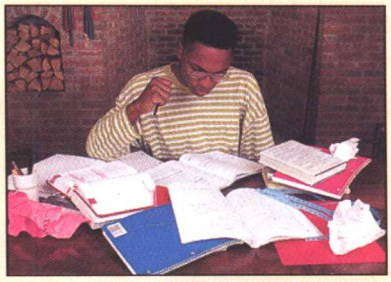
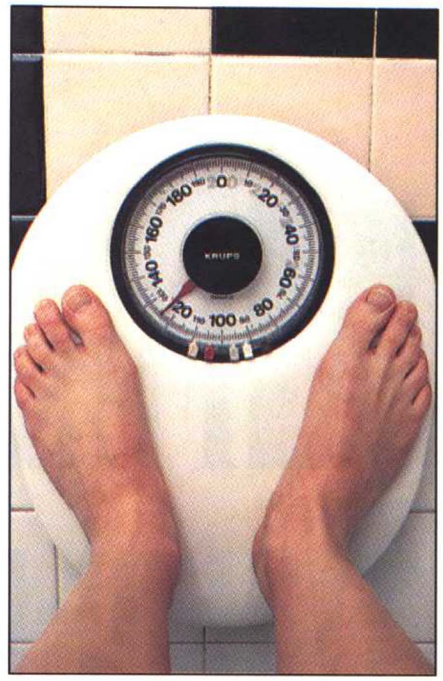
Introduction

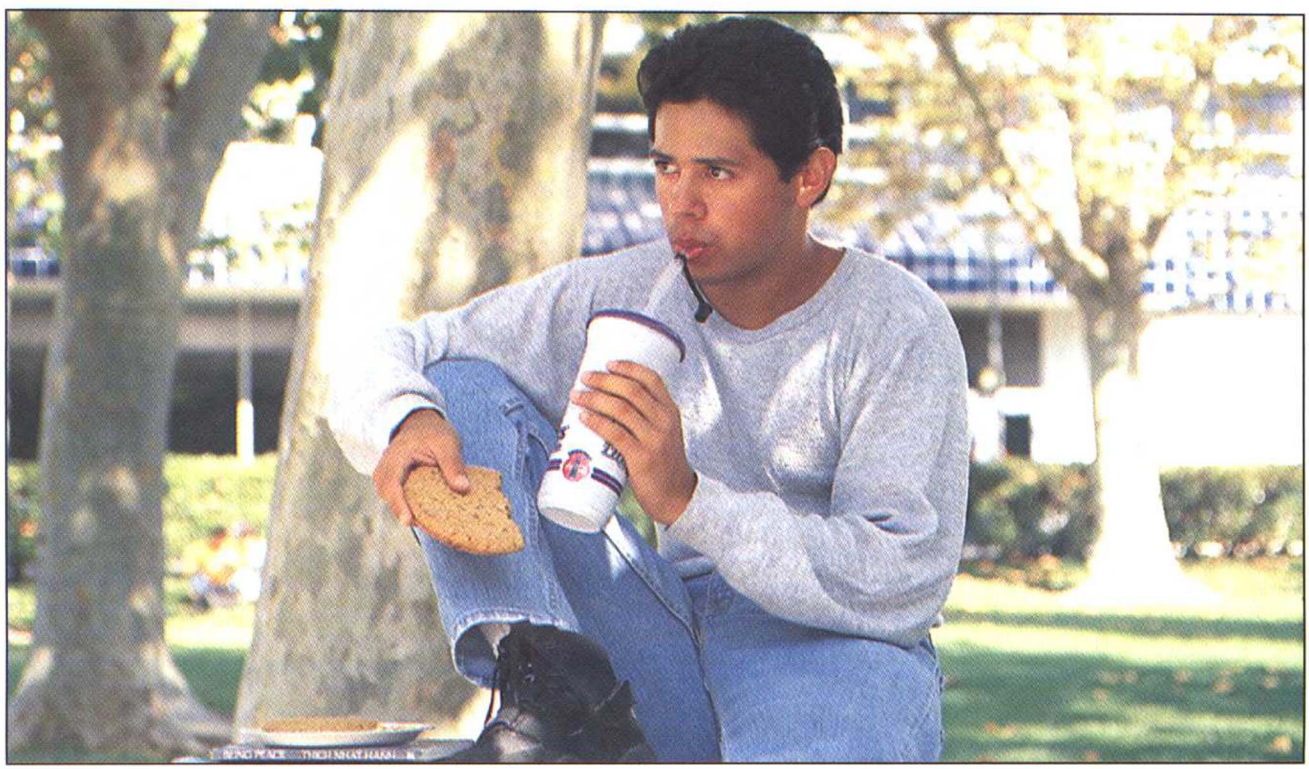


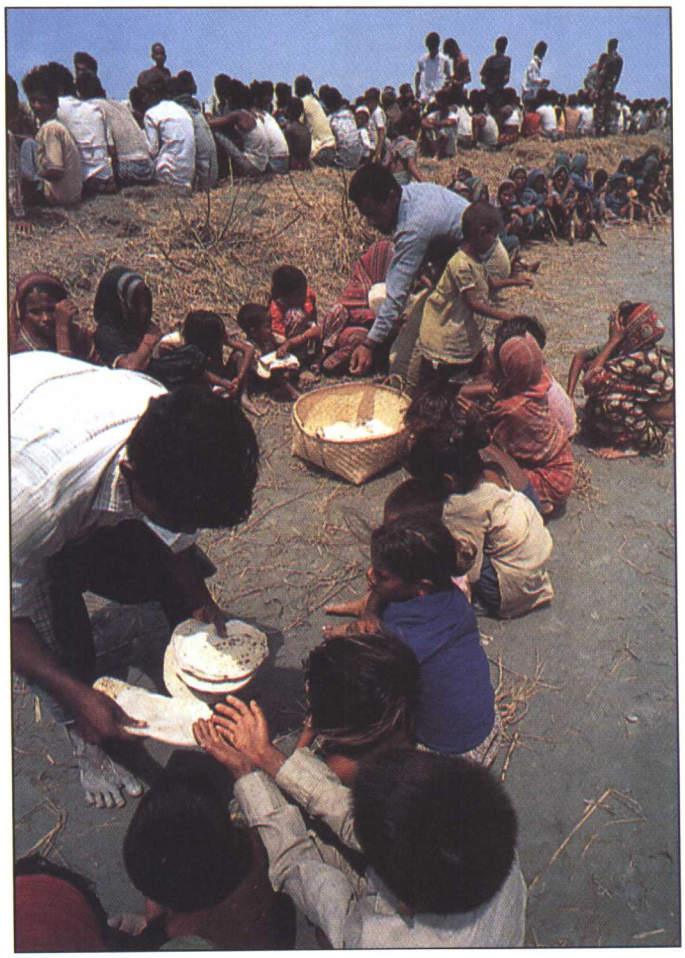
A First-Class Warm-up: The Meaning of Nutrition

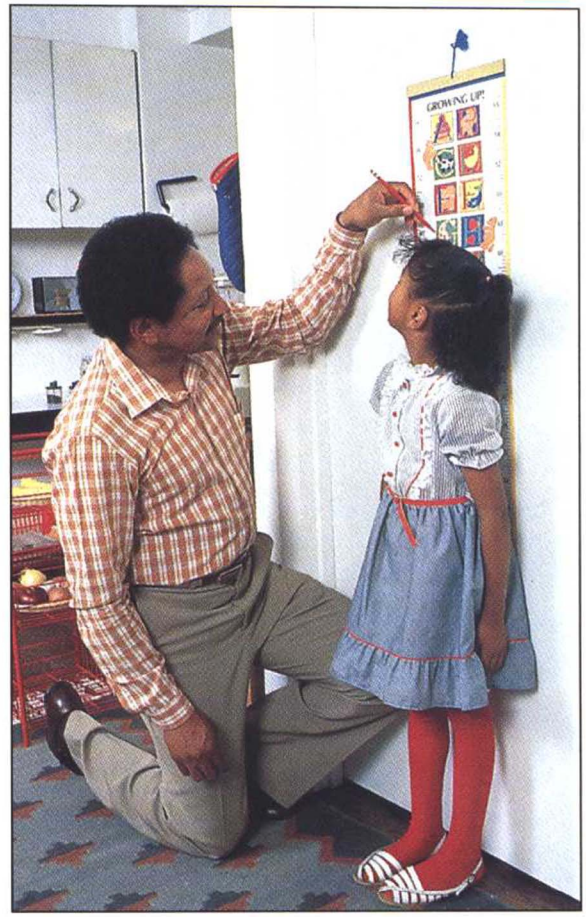
What is nutrition? It can be explained by situations captured in photographs as well as by words. This introduction presents a photographic tour of real-life situations that depict aspects of the study of nutrition.

Before the tour begins, take a moment to make yourself comfortable and clear your mind of clutter. Take a careful look at the photographs, pausing to mentally describe what each shows.








GROWING UP!

Not everyone who looks at the photographs will describe them in the same way. Reactions will vary somewhat due to personal experiences, interests, attitudes, and beliefs. An individual trying to gain weight will probably react differently to the photograph of the person on the scale than someone who is trying to lose weight. If you grew up in a family that farmed for a living, the picture of pesticides being sprayed on a crop may mean increased food production to you. But another person's reaction may be that pesticide residues on foods are harmful to health. Although knowledge about nutrition is generated by impersonal and objective methods, it can be a very personal subject.

NUTRITION DEFINED

In a nutshell, *nutrition* is the study of foods and health. It is a science that centers on foods, their nutrient and other chemical constituents, and the effects of food constituents on body processes and health. The scope of nutrition extends from the study of food choices to the effects of specific components of foods on health.

Nutrition:
The study of foods, their nutrients and other chemical constituents, and the effects of food constituents on health.

Nutrition Is a "Melting Pot" Science

The broad scope of nutrition makes it an interdisciplinary science. Knowledge provided by the behavioral and social sciences, for example, is needed in studies that examine how food preferences develop and how they may be changed. Information generated by the biological, chemical, physical, and food sciences is required to propose and explain diet and disease relationships. Methods developed by quantitative scientists such as mathematicians and statisticians are needed to guide decision making about the significance of results produced by nutrition research. The study of nutrition will bring you into contact with information from a variety of disciplines (Illustration I.1).

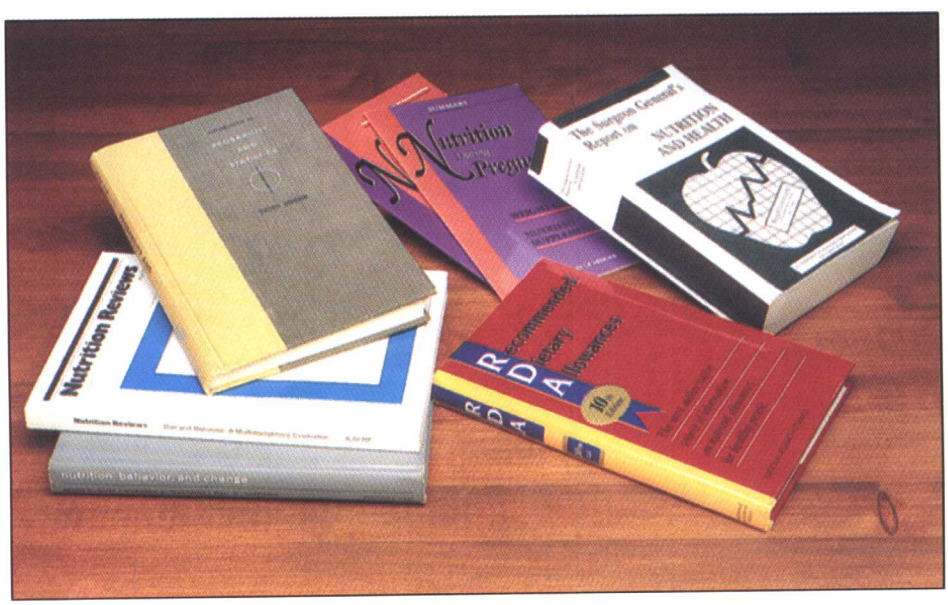


ILLUSTRATION I.1
Nutrition is an interdisciplinary science.

As you study this science, you will discover answers to a number of questions about your own diet, health, and eating behavior. Is obesity primarily due to eating behaviors, physical inactivity, or "slow metabolism"? How do you know whether new information you hear about nutrition is true? Can sugar harm more than your teeth? Can the right diet or supplement give you a competitive edge? What *is* a healthful diet, how do you know if you have one, and, if improvements seem warranted, what's the best way to go about changing your diet for the better? These are just a few of the questions that nutrition and your course of study into it will address. If all goes well, you will take from this learning experience not only knowledge about nutrition and health, but skills that will keep the information and insights working to your advantage for a long time to come.

1

Key Nutrition Concepts and Terms

NUTRITION SCOREBOARD

1. Calories are a component of food.
☐ TRUE ☐ FALSE

2. Nutrients are substances in food that are used by the body for growth and health.
☐ TRUE ☐ FALSE

3. The Recommended Dietary Allowances (RDAs) specify minimal levels of nutrients people should consume in their diet each day.
☐ TRUE ☐ FALSE

4. Both low and high intakes of nutrients threaten health.
☐ TRUE ☐ FALSE

5. Foods can basically be divided into two groups: those that are "good" for you and those that are "bad" for you.
☐ TRUE ☐ FALSE

(Answers in margin of next page)

☐ T ☑ F
1. Calories are used to measure the amount of energy supplied by food. They're a property of food, not a component of food.

☑ T ☐ F
2. That's the definition of nutrients.

☐ T ☑ F
3. The RDAs include a "margin of safety" so your diet may be adequate if you consume somewhat less than the RDA amounts.

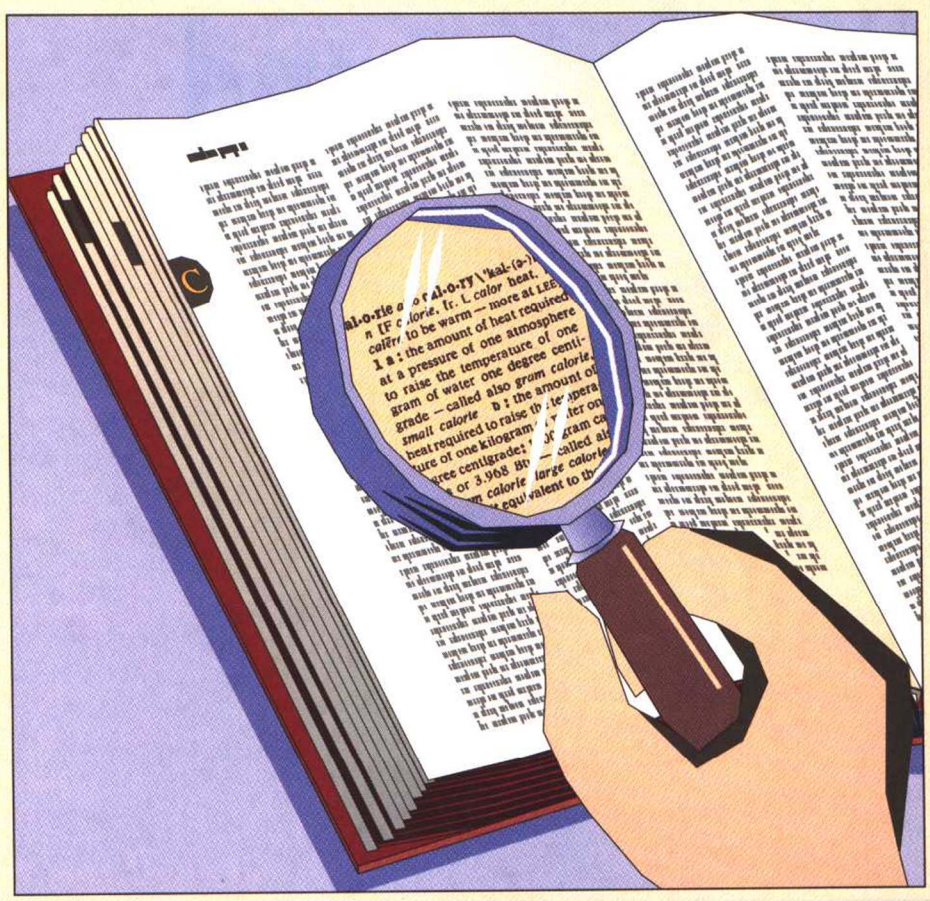
☑ T ☐ F
4. Inadequate as well as excessive intake levels of vitamins, minerals, and other nutrients can be harmful to health.

☐ T ☑ F
5. There are *no* good or bad foods, but there are healthy and unhealthy diets.

KEY CONCEPTS AND FACTS

I. At the core of the science of nutrition are concepts that represent basic "truths" and serve as the foundation of our understanding about normal nutrition. (They are listed in Illustration 1-16.)

II. Most nutrition concepts relate to nutrients.



FOUNDATION KNOWLEDGE FOR THINKING ABOUT NUTRITION

Common sense requires a common knowledge.

You don't have to be a *bona fide* nutritionist to think like one. What you need is a grasp of the language and the basic concepts of the science. It's the purpose of this unit to give you this background. The essential topics covered here are explored in greater depth in units to come and they build upon this foundation knowledge. With a working knowledge of nutrition terms and the concepts that provide the foundation of our understanding about nutrition, you will have an uncommonly good sense of nutrition.

NUTRITION CONCEPT #1

Food is a basic need of humans.

Humans need enough food to live and the right assortment of foods for optimal health. In the best of all worlds, the need for food is combined with the condition of *food security*. People who experience food security have access at all times to a sufficient supply of safe, nutritious foods. They are able to acquire acceptable foods in socially acceptable ways—without having to scavenge or steal food, for example, in order to eat or to feed their family. *Food insecurity* exists whenever the availability of safe, nutritious foods, or the ability to acquire them in socially acceptable ways, is limited or uncertain (Illustration 1.1).[1]

Food security:
Access at all times to a sufficient supply of safe, nutritious foods.

Food insecurity:
The limited or uncertain availability of safe, nutritious foods.

NUTRITION CONCEPT #2

Foods provide energy (calories) and nutrients needed for growth and health.

People eat foods for many different reasons. The most compelling reason is that we need the calories and nutrients supplied by food to maintain health and life.

ILLUSTRATION 1.1
Food insecurity.

Calorie:
A unit of measure of the amount of energy supplied by food. (Also known as kilocalories, or the "large Calorie" with a capital "C.")

Nutrients:
Chemical substances found in food that are used by the body for growth and health. The six categories of nutrients are carbohydrates, proteins, fats, vitamins, minerals, and water.

A *calorie* is a unit of measure of the amount of energy in a food—and of how much energy will be transferred to the person who eats it. *Nutrients* are chemical substances present in food that are used by the body (Illustration 1.2). Essentially everything that's in our body was once a nutrient in food we consumed.

Although we often refer to the number of calories in this food or that one, calories are not a substance present in food. And, because calories are a unit of measure, they do not qualify as a nutrient.

There are six categories of nutrients (Illustration 1.3), and each category (except water) consists of a number of different substances used by the body for growth and health. The carbohydrate category includes simple sugars and complex carbohydrates (starches and dietary fiber). The protein category includes 20 amino acids, the chemical units that serve as the "building blocks" for protein. A number of different types of fat are included in the fat category. Of primary concern are the saturated fats, unsaturated fats, and cholesterol (read more about them in Illustration 1.3). The vitamin category consists of 13 vitamins, and the mineral category includes 15 minerals. Water makes up a nutrient category by itself.

Carbohydrates, proteins, and fats supply calories and are called the "energy nutrients." Although each of these three types of nutrients performs a variety of functions, they share the property of being the body's only sources of fuel. Vitamins, minerals, and water are chemicals needed for the conversion of carbohydrates, proteins, and fats into energy and for the building and maintenance of muscles, blood components, bones, and other parts of the body.

Some Nutrients Must Be Provided by the Diet

Many nutrients are required for growth and health. The body can manufacture some of these from raw materials supplied by food, but others must come assembled. Nutrients that the body cannot make, or

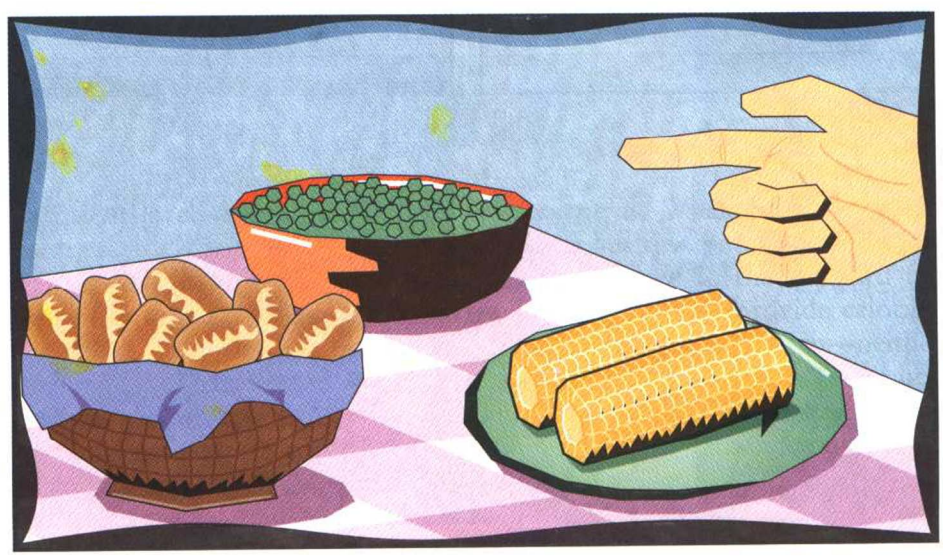


ILLUSTRATION 1.2
Foods provide nutrients. Please pass the complex carbohydrates, thiamin, and niacin . . . I mean, the rolls!