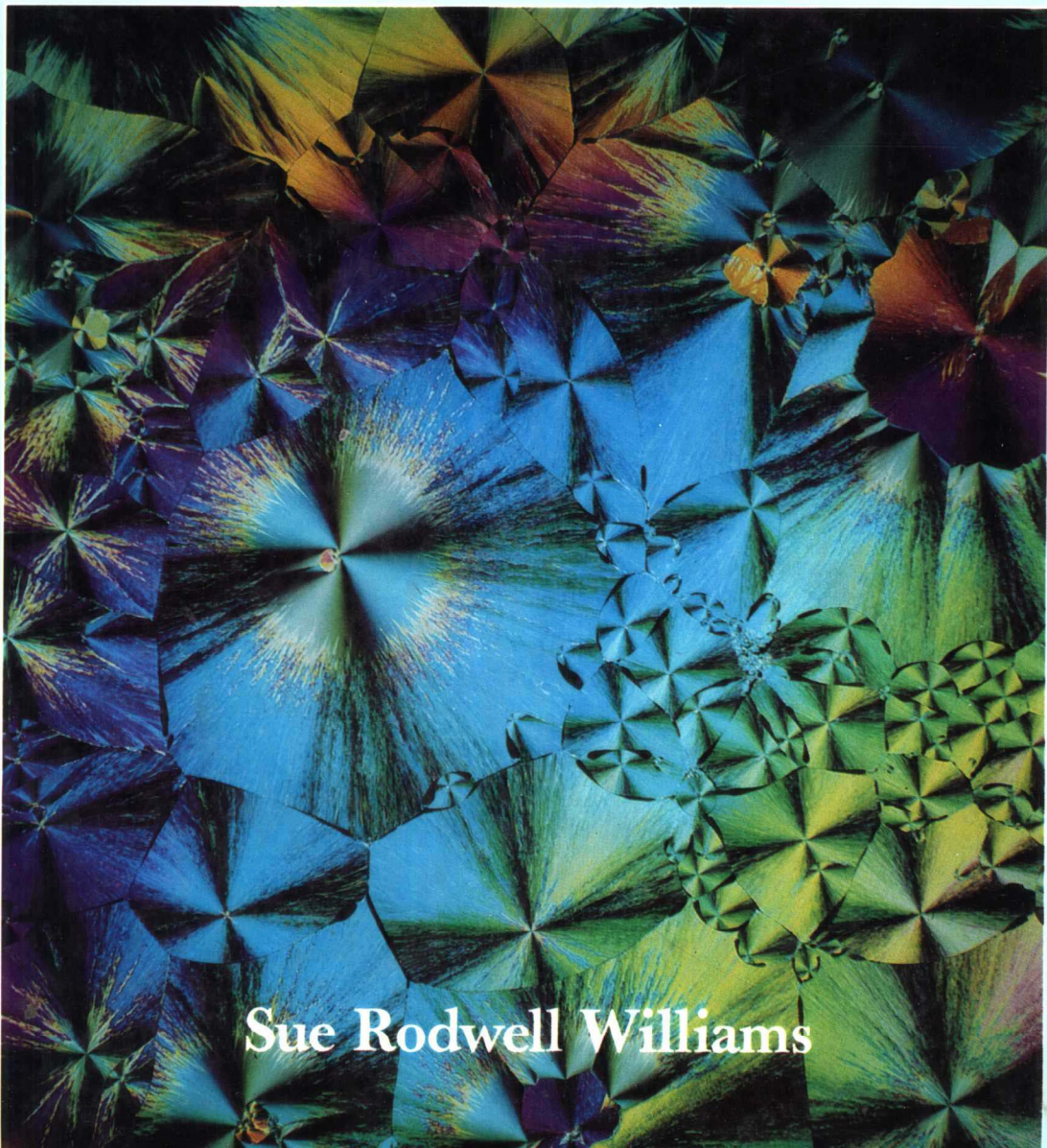


Essentials of Nutrition and Diet Therapy

Fifth edition



Sue Rodwell Williams

Essentials of Nutrition and Diet Therapy

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Fifth edition

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Preface

Through four previous editions, this compact “little” book has served the needs of students and teachers in the health sciences in many community colleges, as well as providing a sound but simple reference for busy practitioners. In truth, in all its editions, as its title indicates, it has captured and distilled the essence of my larger, more comprehensive college and university textbook, *Nutrition and Diet Therapy*, to lay a faithful foundation for further study and practice.

In this new fifth edition I have adhered to these same fundamental goals. But as in the previous, completely reformatted edition, here I have rewritten much of the material to reflect advancing knowledge as well as to continue the revised format. Thus its expanded current material and its organization continue to meet the more comprehensive needs of beginning students in the allied health professions today. All the while, it retains its sound, simple, substantive content, thoroughly updated and realistically applied to meet human health needs in our rapidly changing modern world.

As indicated, this book is in essence an abridgement of my larger text. It follows a similar format and style to facilitate learning and lay a beginning foundation for sound clinical practice. To achieve these goals in this current edition, I have made a number of changes:

Major Changes in This Edition

New Chapters

Several new chapters apply the expanding science of nutrition to changing health care needs and provide in our developing technology tools for its clinical practice and management. These new chapters include Chapter 16, “Nutrition and Stress Management,” and Chapter 25, “Nutritional Support in Disabling Disease.”

New Illustrations

A number of new illustrations enhance the overall design and provide learning support. These added graphs, charts, and photographs portray concepts introduced and help students grasp the clinical problems encountered in patient care.

Enhanced Readability and Student Interest

A large amount of the text has been rewritten to incorporate new material in a writing style designed to capture student interest and present comprehen-

sive subject matter in a sound and simple manner. Many issues of student interest and public-professional controversy are discussed. The many examples used open up meaning and understanding. Topics of current relevance clarify questions and concerns.

Additional Changes New to This Edition

In addition to these major changes, I have made substantive changes in the development and organization of material in this new edition:

Chapter 1 has been rewritten to include an immediate introduction of all types of current nutritional guides used in the United States for health promotion: (1) Nutrient standards: the U.S. Recommended Dietary Allowances (RDA); (2) Food guides: the Basic Four Food Groups and the Exchange Lists Food Guide; and (3) Health promotion guidelines: the general guide, *Nutrition and Your Health: Dietary Guidelines for Americans*; and the specific health guides, *The Prudent Diet* of the American Heart Association, and the report *Diet, Nutrition, and Cancer* of the National Cancer Institute and the American Cancer Society. Here in one place the student or practitioner will have ready access to these frequently used guides, with a description of the development and use of each one. These guides expand the continuing focus in this introductory chapter on changing health care needs in our rapidly changing world. They illustrate especially the vital role of nutrition in our major U.S. health problems in relation to those of the world, and focus on our increasing concern with a preventive team approach to health promotion, both in our health care system and in our public food marketplace.

Part I, "Introduction to Human Nutrition," adds updated and new material based on current research in the nutritional sciences and its application in community and clinical practice. For example, there is new content on the omega-3 fatty acids and additions in apolipoproteins, dietary fiber, vitamins, and trace minerals to help students distinguish faddish claims from sound ideas and practice in their study and patient care.

Part II, "Community Nutrition: The Life Cycle," continues its focus on family and individual nutritional needs through the life cycle with emphasis on *health maintenance*. This emphasis is strengthened by the timely new Chapter 16, "Nutrition and Stress Management," which discusses stress as a significant modern health risk, its far-reaching physiologic effect on the body, sources of stress in our lives, and approaches to high-risk stress management. This new chapter on stress joins updated chapters on physical fitness and weight management to round out the discussion of basic risk factors associated with our modern life-style and environment that contribute to health problems.

Part III, "Introduction to Diet Therapy," presents updated material reflecting current research and practice. This is particularly evident in Chapter 20, "Coronary Heart Disease and Hypertension." This key chapter has been revised to incorporate current knowledge and practice that has moved from controversy to consensus about the relation of nutrition to the underlying disease process atherosclerosis, focusing on the key role of cholesterol and other lipids and launching the National Cholesterol Education Program through National Institutes of Health (NIH). Basic assessment guides and the step-wise diet program being used in this national cholesterol evaluation and education effort are included. This updating carries through in all clinical nutrition chapters. For example, the chapter on diabetes mellitus moves

from previous trends into their current application in practice in all phases of therapy, including diet, insulins, self-monitoring of blood glucose, and tighter control to prevent complications. Finally, the new Chapter 25, "Nutrition Support in Disabling Disease," presents a general nutrition support base to meet rehabilitative needs, and a special focus on three particularly debilitating conditions, often having devastating results, that demand specific nutritional therapy: rheumatoid arthritis, chronic obstructive pulmonary disease (COPD), and acquired immune deficiency syndrome (AIDS).

Throughout the text, many learning aids continue to be developed to help unify and teach the comprehensive material:

Chapter openers focus immediate attention on the key chapter topic, giving a brief overview statement, chapter objectives, and a theme photograph.

Chapter headings and subheadings of special type and color help to organize the content, relate key concepts, and make for easy reading.

Marginal material highlights definitions, data, comments, line drawings, and photographs to expand understanding of text discussion.

Boxed material expands or illustrates text discussions with "To Probe Further" and "Clinical Application" nuggets to stimulate thought.

Definitions of terms are clarified in the running text, side margins, and a summary glossary at the end of the book complete with pronunciation guide. This three-level approach to vocabulary development greatly improves overall study and use of the text.

Illustration and color emphasis integrate page design and content with clarifying artwork.

Chapter summaries review chapter highlights and help students place details in the "big picture."

Review questions help test comprehension of chapter material and lead students to analyze and apply key concepts.

Further readings provide brief annotated guides to expanded background sources relevant to chapter topics.

Issues and Answers present short articles, a number of them new to this edition, on current issues and controversies related to chapter material to stimulate thinking, practical application, and questions.

Diet guides in clinical chapters provide sample food lists for patient care and education.

Appendixes include reference tables and tools for use in study projects and practice. Food value tables include nutrient and energy references for a variety of basic foods. Current American Diabetes Association food exchange lists are given for diet calculations, meal planning, and patient education.

The index extends the basic text cross-referencing and provides a quick reference to the book's content topics.

Several available supplements enhance the teaching/learning process. Information on these helpful packages may be obtained from the publisher.

Instructor's Manual

Prepared by Betty J. Elliott of Truckee Meadows Community College, this valuable tool features suggested course syllabuses; chapter reviews; behavioral objectives; key terms; chapter outlines with teaching notes on contro-

Learning Aids Within the Text

Supplementary Materials

versial topics; "Nutrition in the News"; additional resources, including slides, films, and filmstrips; transparency masters; and an extensive test-item band of approximately 1300 questions.

Computerized Test Bank (Diploma)

This tool provides test items from the instructor's manual on floppy disk, compatible with IBM-PC and Apple II and IIfx computers. It is free to adopters of the text.

Overhead Transparency Acetates

Illustrations of important, hard-to-understand concepts are available as acetate transparencies. These useful tools facilitate learning of key concepts discussed in the text and are free to adopters of the text.

Self-Study Guide

This concise little companion continues to serve as a general learning aid during initial courses, as well as a tool for review of the text for professional examinations or for practitioners needing to update knowledge. It includes many items to support learning of each chapter's content: chapter focus; summary-review quiz; discussion questions to stimulate thinking; true-false and multiple choice test items to test comprehension; numerous guides for individual and group projects that involve experiments, case studies, and situational problems; and inquiry questions that relate an "Issues and Answers" article to current health care problems.

Personal Approach

My person-centered approach in past editions remains in this new text. It is enhanced by (1) a personal writing style that reflects my own convictions and commitments about student learning and patient care; (2) extensive use of ever-expanding personal files and materials gathered from my own clinical practice, teaching, and biochemical-metabolic work; and (3) practical applications of scientific knowledge in realistic *human* terms to find personal solutions to individual problems.

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Many persons have helped me in this book project and I am grateful for their contributions. To these persons I give my thanks: to my publisher and editorial staff, especially Pat Coryell and Loren Stevenson for their constant skill and support; to the reviewers for their valuable time and suggestions:

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Sue Rodwell Williams
Berkeley, California

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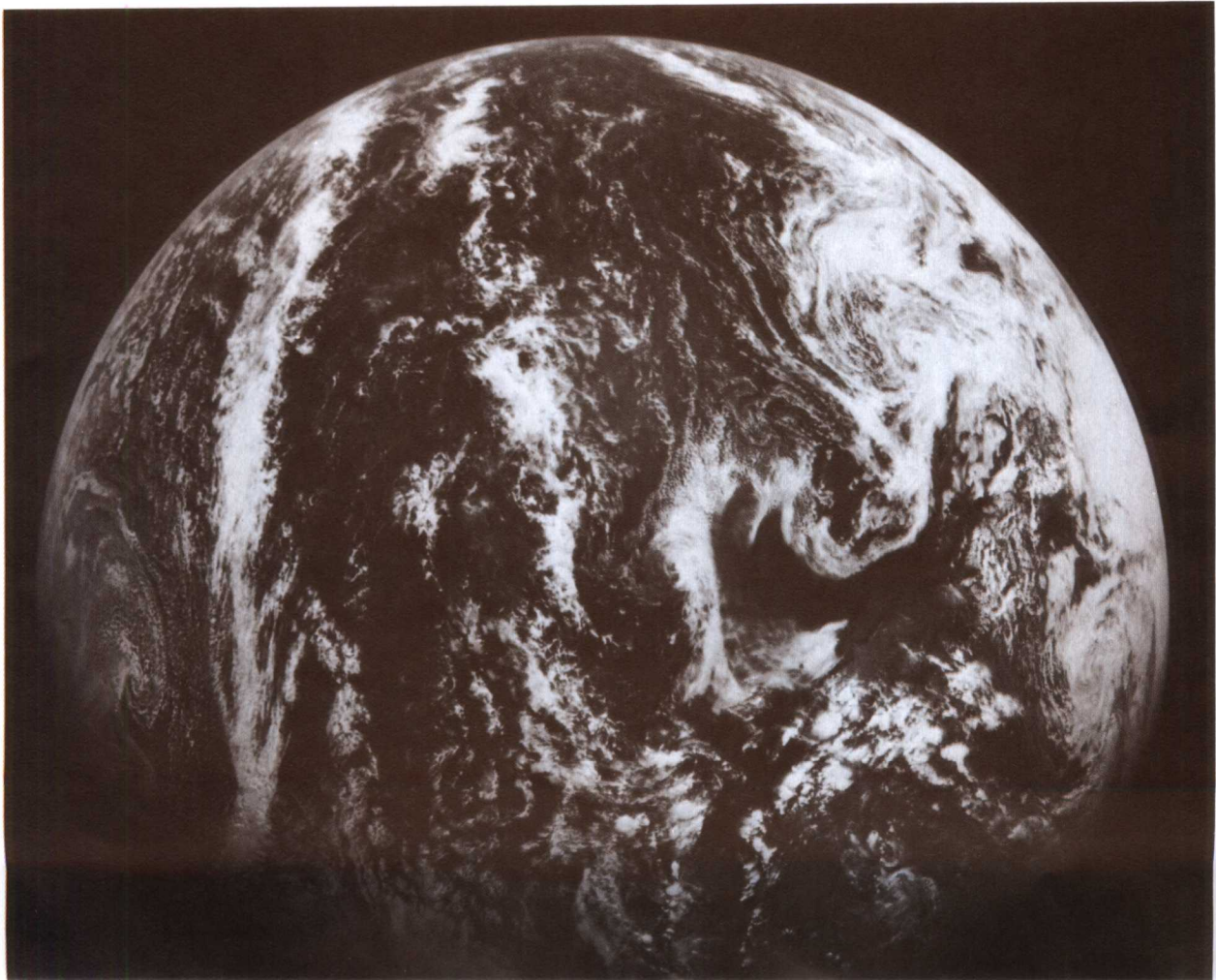
Introduction to Human Nutrition

1 Nutrition and Health

Chapter Objectives

After studying this chapter the student should be able to:

1. Identify today's main world health problems and describe their root causes in terms of food supply.
2. Define the major U.S. health problems and relate them to social and nutritional factors.
3. Distinguish the functions of food and of nutrients and describe levels of nutritional status.
4. Identify four major social influences on our changing concepts of health and disease.
5. Identify four basic changes in the current U.S. health care system and their effects on our health care practices, especially team care.
6. Describe the expanding role of nutrition in health care and define human nutrition in terms of health needs and personal social needs.



PREVIEW

Why should persons working in health care be concerned about nutrition? What is health? How is nutrition related? What is nutrition? What does it do?

To answer such basic questions and meet realistic and practical needs in today's world, the study of nutrition and health must focus first on *change*. Our physical bodies and personalities, our scientific knowledge and society are all constantly changing. These constant life changes must be in some kind of *positive balance* to produce healthy living. Thus in our study the learning concepts of *change* and *balance* will provide a fundamental framework. Although we may view and define health and disease in different ways, a primary basis for promoting health and preventing disease must always be a wholesome food supply for all persons and the sound nutrition it provides.

In this first chapter, then, we introduce three increasingly interdependent issues: a broad world nutrition view, an understanding of our own major U.S. health problems, and a person-centered health team approach for meeting these problems, promoting health, and preventing disease. We will consider the far-reaching effects of change in today's world on nutrition and health, the ways persons define health and disease, and the role of nutrition in health care.

Main World Health Problems**Food Security**

Perhaps in no other area do we realize the necessity of mutual interaction and interdependence among the countries of our world more than in the issue of food security and, hence, survival. Today food security is of great concern in international discussions. The Food and Agriculture Organization (FAO) of the United Nations focuses on food security in terms of the three basic issues on which it depends: food production, stability of food supplies, and economic access to food. We have learned, often through sad experience, that in the small world of our planet Earth events in one place cause disrupting effects in other parts as well. We know now that in a very real sense we are all bound together for survival.

Population Expansion and Food Supply

With our expanding world population, the ultimate objective of world food security is to ensure that all people are able to buy or grow the basic food they need. But this is not a simple problem with simple solutions. The world has made some progress in coping with its food problems, but the tasks that still lie ahead are monumental. The surplus food stocks of exporting countries do not fill the bellies of hungry people in a major part of the world. A major determinant of food security in the world is the agricultural production possible in developing countries of south and east Asia, since these countries contain about half of the world's population. But food security in these populous regions is still fragile. Some of the most devastated area is the

Nutrition and World Health

Approximately 15 to 20 million people in the world, principally in the poorer countries, die each year of hunger-related causes. It is estimated that some 450 million persons throughout the world suffer from severe malnutrition, consuming less than 1.2 times the kilocalories required to maintain even the basal metabolic rate.