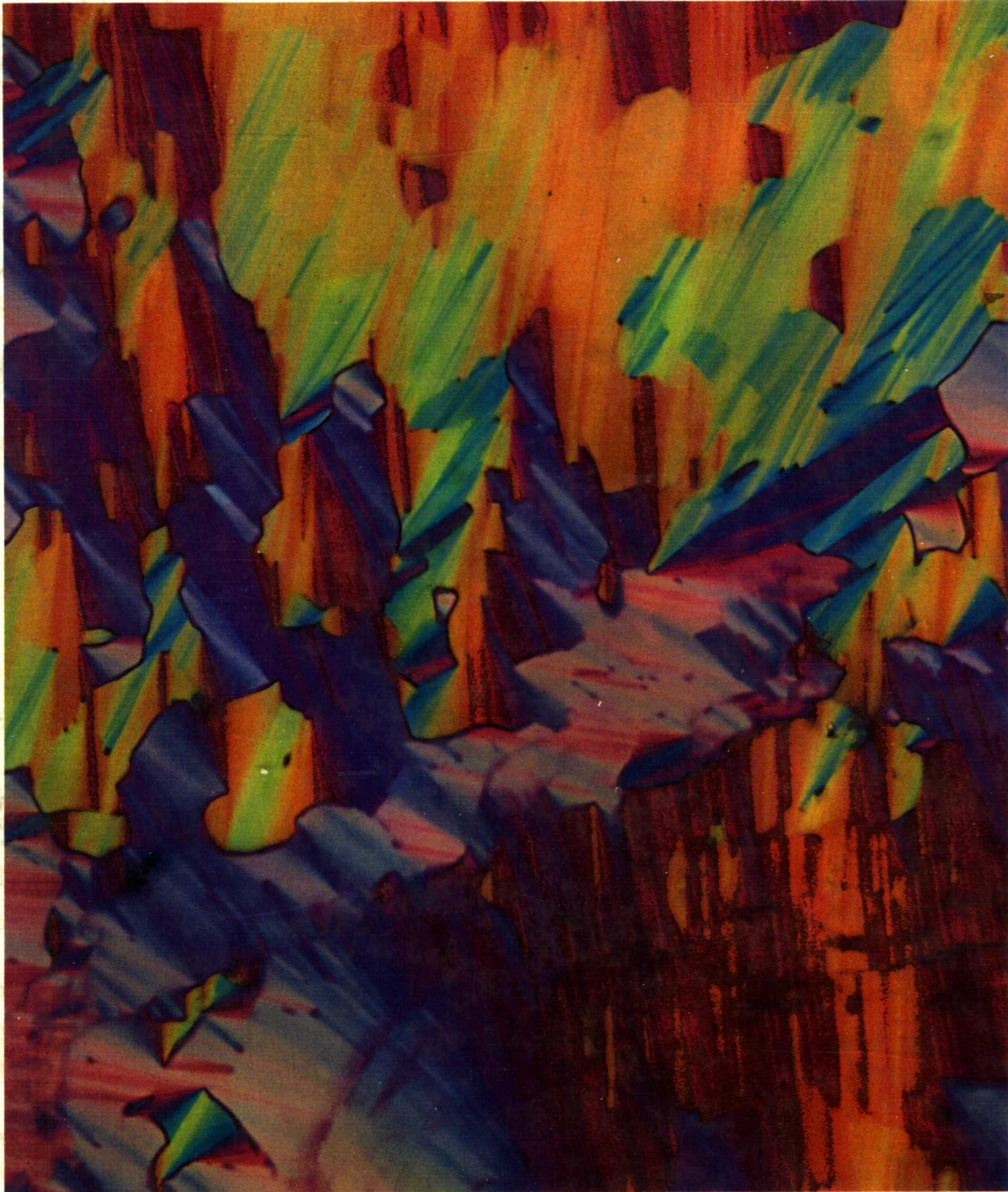


# **Nutrition and Diet Therapy**

**Sue Rodwell Williams**

**Fifth Edition**



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Fifth Edition  
With 304 illustrations



Times Mirror/Mosby College Publishing  
St. Louis • Toronto • Santa Clara 1985

Editor/Nancy K. Roberson  
Developmental Editor/Catherine Converse Bailey  
Manuscript Editor/Rebecca A. Reece  
Design/James Buddenbaum  
Production/Margaret B. Bridenbaugh, Jeanne Genz

Cover/Photomicrograph of liquid crystals of lecithin.

Manfred Kage, Peter Arnold, Inc.

Photo credits: p. 3 NASA; pp. 101, 163, 241, 273, 301,  
417, 433, 453, 597, 619, 637, 709, and 821 G. Robert  
Bishop; and p. 327 UNICEF/Bill Campbell.

Fifth Edition

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A division of The C.V. Mosby Company

11830 Westline Industrial Drive, St. Louis, Missouri 63146

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Previous editions copyrighted 1969, 1973, 1977, 1981

Printed in the United States of America

Library of Congress Cataloging in Publication Data

Williams, Sue Rodwell.

Nutrition and diet therapy.

Includes bibliographies and index.

1. Diet therapy. 2. Nutrition. I. Title.

[DNLM: 1. Diet Therapy. 2. Nutrition.

WB 400 W727n]

RM216.W684 1985 613.2 84-20690

ISBN 0-8016-5566-8

## Preface

From its beginning, through four highly successful editions, this nutrition text has provided a sound basis for student learning and clinical practice in the health professions. It has always maintained a strong research base and person-centered approach to the study and application of nutrition. I have been gratified by the considerable contact I have had with users in colleges and universities and clinical settings throughout the country and in other parts of the world and cherish their suggestions and expressions of appreciation.

Over the past few years since the previous edition, rapid changes have been occurring in nutrition. Its science base is expanding. Social problems and structures are changing. Health care systems and practices are changing. Public interest and concern with nutrition and health care is increasing. Nutrition has indeed become more prominent in the marketplace of competing ideas and products. It is small wonder, then, that all these changes are apparent in the field of nutrition education and professional practice, since nutrition is fundamentally a very human applied science and art.

This new edition reflects these far-reaching changes. Its guiding principle continues to be my own commitment in conjunction with that of my publisher to the integrity of previous editions. *Our expanded goal here is to produce a new book, completely updated and rewritten, incorporating new design and format with sound content to meet the expectations and changing needs of students, faculty, and practitioners in the health professions.*

### Major Changes in This Edition

In the literal sense of the word, this new edition of this classic text is indeed a new book. With the intent of accommodating the demands of a rapidly developing science and society, I have rewritten virtually 90% of the text and made major changes, using input from many professors, students, and clinicians, to increase its usefulness.

#### 1. New Chapters

I have included three new chapters to help meet current practice needs: Chapter 17, Nutrition and Physical Fitness; Chapter 20, Drug-Nutrient Interaction; and Chapter 31, Computers in Management of Nutrition Practice. These chapters strengthen the application of nutrition science and modern technology to meet the expanding needs of practitioners and their clients and patients.

#### 2. New Book Format and Design

A completely new format has been developed to enhance the book's appeal and encourage its use. The new one-column, two-color design makes it easier and more interesting to read.

#### 3. New Learning Aids

A number of educational aids (described in detail later) have been developed to assist both student and instructor in the teaching-learning process. These text items will greatly stimulate and facilitate student learning and supply the practitioner with ready clinical reference tools. They apply up-to-date nutrition science to practice needs and a number of current issues and controversies.



#### 4. New Illustrations

A new series of illustrations—anatomic illustrations, graphic line drawings, and photographs—helps both students and practitioners better understand the concepts and clinical practices presented.

#### 5. Enhanced Readability and Student Interest

Much attention has been given to directing this fifth edition to the issues of student interest and comprehension. Every effort has been made to enhance its readability and to enliven it stylistically. Great care was also exercised in the selection of all examples, case studies, controversial issues, and illustrations in the interest of ensuring maximal relevance.

### **Additional Changes New to This Edition**

Substantive changes have been made in the development and organization of current material in the text.

#### 1. Updated Introductory Focus

I have rewritten the book's introduction (Chapter 1) to focus immediate attention on current emphasis in nutrition practice: (1) a significant and necessary world view of nutrition and health in our increasingly interdependent world society and economics; (2) major U.S. health problems and the necessity of a team approach for their solution; and (3) changing concepts of health and disease and the effects of these changes on our current and future health care systems and practices. All these factors relate to an expanded role of nutrition in health care and in education for the health professions.

#### 2. More on Basic Nutrients

Each of the chapters in Part One, Foundations of Nutrition, reflects current research in fundamental nutrition science, with many applications in practice. For example, I have provided much more material on trace minerals (Chapter 8) based on current research and public interest, which will help the student distinguish between fact and fancy, and sound practice and fad.

#### 3. New Organization of Community Nutrition Section

Part Two, Applied Nutrition in Community Health, has been entirely reorganized to incorporate three chapters containing updated material emphasizing the human focus: (1) Chapter 11, Food Habits: Personal Beliefs and Social Influences; (2) Chapter 12, Family Nutrition Counseling and Education: Food Needs and Costs; and (3) Chapter 13, Nutritional Deficiency Diseases.

#### 4. New Approach to Weight Management

Part Three, Nutrition in Health Care Throughout the Life Cycle, offers new material on life-long health maintenance. The addition of new Chapter 17, Nutrition and Physical Fitness, and the complete revision of Chapter 18, Nutrition and Weight Management, reflect changing current practices. The new focus is on a "health model" rather than on the traditional medical model. There is an emphasis on personal integrity, with practical guides for support.

#### 5. Expanded Section on Clinical Nutrition

Part Four, Nutrition and Clinical Care, has been enhanced by the addition of two new chapters: Chapter 20, Drug-Nutrient Interaction, and Chapter 31, Computers in Management of Nutrition Practice. I have moved three chapters to this section, relating them to clinical care: Chapter 21, Nutritional Therapy in Diseases of Infancy and Childhood; Chapter 29, Nutrition in Rehabilitation; and Chapter 30, Nutrition and Mental

Health. The entire section has been extensively updated to reflect current clinical research and practice. For example, Chapter 22, Diabetes Mellitus, includes new material relating complex carbohydrates, a varying glycemic index, and fiber to individual types of diabetes and nutritional therapy and discussion of new trends in self-monitoring of blood glucose, new insulins, and “pump” dispensers. Chapter 25, Coronary Heart Disease and Hypertension, includes an expanded section on hypertension and the current emphasis on nutritional therapy. Chapter 26, Renal Disease, contains new material on kidney dialysis. Chapter 27, Nutrition and Surgery, and Chapter 28, Nutrition and Cancer, contain current information on special feeding modes using newly developed formulas, tubing, and parenteral equipment. The process highlighted in Chapter 19, Nutritional Assessment and Therapy, and the team approach concept—clinical nutritionists, nurses, and physicians working together—are emphasized throughout.

### **Learning Aids Within the Text**

As indicated, this new edition is singularly significant in its entirely new use of many learning aids throughout the text.

1. **Part Openers**

To provide a unifying thread for the entire book, each of the four main sections opens with a descriptive paragraph, which helps keep the broad picture before the student and relates the parts to the whole.

2. **Chapter Openers**

To alert students to the topic of each chapter and draw them into its study, each chapter opens with an illustration, brief focusing paragraphs, and key questions.

3. **Chapter Headings**

Throughout each chapter, the major sections and subsections are indicated by special type for ease in reading comprehension. Key concepts and terms are also brought out with bold type and italics.

4. **Marginal Material**

Information presented in the margins expands meaning of the text, enhances student interest, and facilitates study. This space focuses the student's attention on key concepts through definitions, comments, charts, line drawings, and photographs.

5. **Boxed Material**

In each chapter special material in boxes encourages the student “To Probe Further” into a particular topic and relates the text to useful “Clinical Application.”

6. **Definitions of Terms**

Key terms important to the student's understanding and application of the material in patient care are presented in three steps. They are first identified in the body of the text, often with meaningful root derivations of the words. Then they are extended into the margin for emphasis and finally collected in a comprehensive glossary with pronunciation guide for easy reference at the end of the book. This three-level approach to vocabulary development greatly improves the overall study and use of the text.

7. **Illustration and Use of Color**

The expanded use of new illustrations throughout the text helps the student better understand important concepts and applications. Bold use of color enhances page design and artwork.

## 8. Chapter Summaries

To help the student pull the chapter material together again as a whole, each chapter text concludes with a summary of the key concepts presented and their significance or application. The student can then return to any part of the material for repeated study and clarification as needed.

## 9. Review Questions for Testing Comprehension

To help the student understand key parts of the chapter or to apply it to patient problems, questions are given after each chapter for review and analysis of the material presented.

## 10. Further Reading

In addition to referenced material in the text, an *annotated* list of suggestions for further reading for added interest and study is provided at the end of each chapter. These selections extend or apply the material in the text according to student needs and interest. The annotations themselves improve the student's ability to use them by identifying only that part of each reference that is relevant.

## 11. Issues and Answers

A special feature of each chapter is a concluding brief article on nutrition-related issues or controversies based on the text discussion. These interesting and motivating studies help the student see the importance of scientific thinking and develop sound judgment and openness to varied points of view.

## 12. Case Studies

In many chapters realistic case studies lead the student to apply the text material to related patient care problems. Each case is accompanied by questions for case analysis. These cases also help alert the student to applications of nutritional therapy for similar patient care needs in their own clinical assignments.

## 13. Diet guides

A variety of therapeutic diet guides are highlighted in the clinical chapters (Part Four).

## 14. Appendixes

The revised and expanded Appendixes include a number of new materials for use as reference tools and guides in learning and practice.

Food Value Tables There are 15 tables including major nutrient references and expanded material on fiber, sodium, caffeine, and fast foods.

Water and Electrolyte Balance Problems Diagrams illustrate the answers to clinical questions posed in Chapter 9.

Nutritional Assessment Tools and Standards New growth and development charts, height-weight tables, anthropometric percentiles, and standard laboratory values for blood and urine are included.

Food Guide: Exchange Lists for Meal Planning Current American Dietary Association food lists are given for diet calculations and meal patterns.

Tools for Calculating Diets for Children with Phenylketonuria Tables providing guidelines for recommended intake and sources of phenylalanine, protein, and kilocalories are complemented by an extensive food serving list.

Calculation Aids and Conversion Tables Tables and background material are provided on the metric and American systems of measurement, with an interconversion table for the two systems.

**References and Resources** Comprehensive lists are provided for recommended references, nutrition educational materials, and extended rehabilitation resources.

15. **Index**

I have extensively indexed material throughout the text with constant cross-referencing. In addition, a complete summary index of the entire text includes entries made under a variety of headings, enabling the reader to easily locate any topic desired.

**Supplementary Materials**

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

1. **Instructor's Manual**

Prepared by Betty J. Elliott of Truckee Meadows Community College, this valuable tool features suggested course syllabuses; chapter overviews; behavioral objectives; key terms; chapter outlines with teaching notes and suggestions; individual and group activities; additional lecture notes on controversial topics; "Nutrition in the News"; additional resources, including slides, films and filmstrips; transparency masters; and an extensive test-item bank of over 1500 questions.

2. **Computerized Test Bank (Questbank)**

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

3. **Overhead Transparency Acetates**

Twenty-four 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.

**A Personal Approach**

In the past, users of the text have responded very positively to the person-centered approach I have tried to develop. In this new edition I have sought to strengthen this approach further in several ways.

1. **Personal Writing Style**

In rewriting the entire book, I have used a fresh and highly readable personal style to reflect the very personal nature of human nutrition and health care and to communicate more directly to the reader. I wish to share my own self and feelings, born of many years of experience in clinical work and teaching, and to create interest and involvement in learning and in sound humanistic practice. In this manner I express my concern for students and their learning and for individuals and clients and their perspectives and needs.

2. **Personal Files**

Much of the personal application in these pages is drawn from my personal patient/client files and the many varied clinical and personal problems I have encountered in practice as a clinical nutrition specialist and educator. My patients and students have taught me much of what I have attempted to share with you.

3. **Balanced Behavioral and Physical Science Base**

Along with my strong physiologic and biochemical research base for nutrition science and practice, I have tried to use a *balancing emphasis* on the behavioral sciences and the psychosocial base of nutritional patterns,



care, and health behaviors. These are the twin realities of human life with which we must constantly deal in practice.

#### 4. Practical Application

All the chapters supply expanded practical application of current research in very realistic human terms. There are no "pat" answers to many health care problems, and individual situations often require individual solutions. In every case this approach to individualized care is evident throughout the many clinical application boxes, the text, and the illustrations.

### Acknowledgments

A textbook of this sort is never the work of one person. It develops into the planned product through the committed hands and hearts of a number of persons. It would be impossible to name all individuals involved, but several groups deserve special recognition.

First of all, I am grateful to the many reviewers who gave their valuable time and skills to strengthen the manuscript. A first group reviewed edition four to help lay valuable groundwork for planning the manuscript development:

Margaret Ball  
University of Colorado  
Nan Conrad  
University of Illinois Medical Center at Chicago  
Joanne Malenock  
University of Pittsburgh  
Judie Pfiffner  
St. Joseph's Hospital School of Nursing  
Edward T. Sheehan  
University of Arizona  
Mary Jane Slesinski  
Citizens General School of Nursing

A second group reviewed the initial manuscript for edition five and gave detailed suggestions for developing the final draft:

Wayne Brouillette  
University of Alabama in Birmingham  
Mary Cameron  
University of Mississippi  
Marie Carter  
St. Louis Community College  
Patillo Donald  
University of Virginia  
Betty J. Elliott  
Truckee Meadows Community College  
Bette Felton  
California State University, Hayward  
Ethel Fowler  
Palm Beach Junior College  
Glenda Harris  
University of Alabama in Birmingham  
Earl Harrison  
Wright State University  
Gabrielle Kende  
Lansing Community College

Philomena Lomena  
University of Northern Colorado  
Carol Nelson  
Spokane Community College  
J. Leighton Read  
Harvard University  
Janet Robuck  
University of Alabama in Birmingham  
Delaine Williamson  
Northeastern University  
Elisabeth Wirick  
University of Northern Colorado

Second, I am indebted to Times Mirror/Mosby College Publishing and the many persons there who had a part in this extensive project. Especially do I thank my Publisher, Glenn Turner, who also shares my love for good food and good wine and appreciates our California vintages, and to his capable editorial staff, Nancy K. Roberson and Catherine Converse Bailey, who worked very closely with me through all our throes of manuscript planning and production. My special gratitude goes to my very supportive and excellent Manuscript Editor, Becky Reece, who provided me both with her talents in shaping the manuscript and her personal support. I am also grateful for the help of Director of Production, Kay Kramer, and artist, Barbara Cousins. To our very capable marketing manager, Beth Lewis, I owe a great deal for guiding the results of my efforts to its ultimate users.

Third, I am grateful to all those persons who worked with me on my own staff during various stages of manuscript production: Mary Ann Lebar, who organized the research and data-handling process; Vivian Har, Carol Hopkins, Debbie Marino, Janet Leader, Sheila Walsh, Michele Jacquin, Esther Kwan, and Valerie Wookey, the research assistants who gathered the comprehensive materials I requested; Earl Redfern for helping with photography; Sharman Murphy for helping organize initial material for the community nutrition section; and Carol Carter, not only for her excellent help with the sidebars but also for her never-failing good humor and support. I owe a special debt of gratitude to my business manager, Jim Williams, and to my production assistant, Ruth Williams, whose artistic and creative talents, as well as her computer skills, have made lasting imprints on this book. It is a better book because of her sensitive input.

Fourth, my life has been enriched over the years by my many students, interns, colleagues, clients, and patients; their contributions are revealed in all my work. Each one taught me something about human experience, and I am grateful for those opportunities for personal growth.

And finally, but most of all, I am grateful for the loving support of my family, who provided refuge in time of need and shared both my problems and my celebrations throughout this work. All these dear persons close to me have stimulated me enormously and have never ceased to share in this family project—"the book"!

Sue Rodwell Williams

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## Part Three

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