

# PREFACE

**T**he ability to accurately assess nutritional status has become critically important in recent decades, as knowledge of and interest in the relationships between diet and health have increased. Nutrition researchers must be able to measure food and nutrient intake with accuracy and precision in order to identify causal relationships between diet and disease risk. Periodic monitoring of a nation's health and nutritional status is necessary to develop effective programs targeting specific health and nutrition concerns, such as atherogenic serum lipid and lipoprotein levels, hypertension, diabetes, food insecurity and hunger, maternal and infant health, and obesity. Awareness of these health and nutrition concerns has led the government to establish such programs as the National Cholesterol Education Program; the National Diabetes Education Program; the Supplemental Nutrition Assistance Program; the Special Supplemental Food Program for Women, Infants, and Children; and Sisters Together: Move More, Eat Better. Periodic nutritional and health monitoring provides empirical data to determine the cost effectiveness of such programs in attempts to preserve effective ones from changing political agendas and governmental budgetary priorities. Dietitians and physicians rely on objective measures of nutritional status before administering nutritional support to a critically ill patient and to determine that patient's responsiveness to treatment. The public is increasingly interested in the health implications of nutritional supplement use and of knowing how much of which supplements can actually improve health and reduce disease risk.

The sixth edition of *Nutritional Assessment* addresses these and many other topics, including computerized dietary analysis systems, national surveys of dietary intake and nutritional status, assessment techniques and standards for the hospitalized patient, nutritional assessment in the prevention of such diseases as coronary heart disease, osteoporosis, and diabetes, clinical assessment,

and proper counseling techniques. The sixth edition builds on the strengths of the previous five editions and is primarily a textbook for students of dietetics and public health nutrition. It is also intended to be a valuable reference for health professionals who interact on a regular basis with patients who have diet-related medical problems.

## ORGANIZATION

We recommend that study of *Nutritional Assessment* follow the progression of the 11 chapters in the order in which they are presented. Chapter 1 gives a thorough introduction to the topic of nutritional assessment and the Nutrition Care Process, exploring various definitions and concepts. Chapter 2 reviews the wide assortment of standards for nutrient intake, such as the Dietary Reference Intakes, the Food Exchange System, the MyPlate graphic, and the *Dietary Guidelines for Americans*, and it gives practical guidelines for their use.

Methods for measuring diet and the strengths and weaknesses of each technique are outlined in Chapter 3. Results from the U.S. Department of Agriculture's monitoring of food insecurity and hunger, the National Health and Nutrition Examination Survey, the Behavioral Risk Factor Surveillance System, and other diet and nutrition surveys are interpreted in Chapter 4, and statistics on the trends in food availability are summarized. Chapter 5 reviews the use of computerized dietary analysis systems in nutritional assessment and gives guidelines for evaluating the operating features, nutrient databases, and overall strengths and weaknesses of any commercially available program.

Chapters 6 and 7 survey anthropometric techniques for both healthy and hospitalized people, with complete descriptions of how to measure body skinfolds and circumferences and then make appropriate decisions on classification. Nutritional assessment, as it relates to prevention of coronary heart disease, hypertension, osteoporosis, and diabetes, is reviewed in Chapter 8. Numerous laboratory

tests are interpreted, and biochemical methods for assessing protein, iron, calcium, vitamin D, and other nutrient status are discussed in Chapter 9. Chapter 10 gives an overview of the clinical assessment of nutritional status. Chapter 11 reviews the major theories and techniques of both individual and group counseling methods.

## NEW TO THIS EDITION

The numerous revisions and additions to the sixth edition of *Nutritional Assessment* make it the most comprehensive and up-to-date textbook available on the subject. Included in this edition are updates to the U.S. Department of Agriculture's nutrient databases, recent advances in computerized dietary analysis systems, and information on the increased availability of online dietary analysis systems such as the National Cancer Institute's Internet-based automated self-administered 24-hour dietary recall. The coverage of surveys conducted by the U.S. Department of Health and Human Services such as the Pregnancy Nutrition Surveillance System, the Pediatric Nutrition Surveillance System, the Total Diet Study, and the Behavioral Risk Factor Surveillance System has been expanded. Data and graphics on food and nutrient intake and the prevalence of overweight, obesity, hypertension, and food insecurity have been thoroughly updated. Discussion of plasma-based markers of coronary heart disease risk, lifestyle modifications to prevent and manage hypertension, the diagnosis and prevention of osteoporosis, and the diagnostic criteria for diabetes has been expanded and updated.

Student Learning Outcomes have been added to the beginning of each chapter to outline the concepts to be learned.

The food composition tables (Appendix I in the fifth edition) have been removed and substituted with online tables from *Home and Garden Bulletin #72* (Gebhardt, Susan E., and Robin G. Thomas. 2002. Nutritive Value of Foods. U.S. Department of Agriculture, Agricultural Research Service, Home and Garden Bulletin 72). The online food composition tables will allow the student to perform manual calculations of the nutrient content of their diet using a concise database.

### Chapter 1

- Expanded and detailed coverage of the Nutrition Care Process in nutritional assessment, monitoring, and evaluation.
- Updated tables and figures reflecting the most recent data from the National Center for Health Statistics and the National Health and Nutrition Examination Survey.
- New information on the *Healthy People 2020 Objectives*.
- The recently updated American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention are included.

### Chapter 2

- Updated DRI tables for vitamin D and calcium.
- Revised coverage of nutrient density.
- Discussion of the *2010 Dietary Guidelines for Americans*.
- Coverage of the MyPlate graphic.

### Chapter 3

- Discussion of the ASA24, the National Cancer Institute's Internet-based automated self-administered 24-hour dietary recall.
- Coverage of the new Diet History Questionnaire II from the National Cancer Institute.
- Updated coverage of the DHQ\*Web, an automated, Web-based food frequency questionnaire.
- Introduction of the NHANES Food Frequency Questionnaire.
- Updated coverage of technological innovations in dietary measurement.
- New information and figures on estimating portion sizes.

### Chapter 4

- Updated discussion of per capita food availability data.
- New information on Loss-Adjusted Food Availability data.
- Updated data from the USDA on food security.
- Updated discussion of the NHANES Mobile Examination Center.
- More than 20 new or revised figures illustrating U.S. dietary practices.
- Updated discussion of dietary trends in the United States.

### Chapter 5

- Revised list of terms and acronyms with definitions used by the Nutrient Data Laboratory (NDL).
- Complete update on the USDA National Nutrient Database for Standard Reference, Release 24.
- New information on the Choose My Plate SuperTracker ([www.choosemyplate.gov/SuperTracker](http://www.choosemyplate.gov/SuperTracker)).
- Updated information on computerized dietary analysis systems.

### Chapter 6

- New information on the updated CDC growth charts from birth to 2 years of age.
- Updated prevalence data on overweight and obesity from NHANES.

- Updated information on the relationship between body weight and disease risk.
- New information on the global prevalence of overweight and obesity.

## Chapter 7

- Updated discussion on nutritional screening of the hospitalized patient.
- Discussion of the Mini Nutritional Assessment and the new Mini Nutrition Assessment–Short Form.
- New discussion of the Malnutrition Universal Screening Tool.

## Chapter 8

- Update on questions regarding the causal relationship between serum HDL-C and coronary heart disease.
- Expanded coverage of the primordial and primary prevention of coronary heart disease in youth.
- Discussion of the NHLBI's report, *The Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents*.
- Discussion of new guidelines for universal lipid and lipoprotein screening in youth.
- Updated figures on the prevalence of dyslipidemia and hypertension.
- New tables on food sources of calcium and treatment recommendations for promoting bone health.
- Updated diagnostic criteria for gestational diabetes from the American Diabetes Association.
- Updated criteria for diagnosing diabetes from the American Diabetes Association which now include glycated hemoglobin or HbA<sub>1c</sub>.
- Updates to the medical nutrition therapy of diabetes.

## Chapter 9

- Eleven new figures on biochemical indicators of vitamin and mineral status.
- Updated information on the assessment of protein status.
- New information on assessing iron status including measurement of serum soluble transferrin receptor and use of the body iron model.
- New section on the iodine status of the U.S. population.
- New information on using retinol isotope dilution for assessing vitamin A status.
- Updated discussion on assessing folate status.
- New information on assessing vitamin B<sub>12</sub> status.
- New section on assessing vitamin D status.

## Appendices

- International Dietetics & Nutrition Terminology for nutritional assessment and monitoring, nutrition diagnosis, and nutrition intervention have been added.

- Addition of the Diet History Questionnaire II and NHANES Food Frequency Questionnaires.
- Updated anthropometric reference data from NHANES.

## NUTRITIONAL ASSESSMENT WEBSITE ([www.mhhe.com/lee-nieman6](http://www.mhhe.com/lee-nieman6))

This website provides readers with a convenient and authoritative online source for additional information and resources on nutritional assessment. Following the organization of the book's chapters, it contains links to private and governmental websites related to nutritional assessment, sources of data from national health and nutrition surveys, and links to suppliers of nutritional assessment equipment. It serves to update readers on new information and developments in the field of nutritional assessment as they become available. For instructors, a password-protected testbank and PPT lecture outlines are available.

## FEATURES

### Chapter Outline and Student Learning Outcomes

Each chapter begins with an outline of the contents of the chapter and a set of student learning outcomes. Reading these before beginning the chapter gives the student an idea of the material to be covered and the key concepts contained in the chapter, and serve as useful review tools when the student is studying for exams.

### Figures and Tables

There are more than 100 tables in the text, supplemented with 160 graphs, illustrations, and photographs, and nearly 70 text boxes. Figures in Chapter 4, for example, illustrate trends in food and nutrient intake based on data from the National Health and Nutrition Examination Survey and the U.S. Department of Agriculture's monitoring of food available for consumption from the U.S. food supply. Chapters 6 and 7 contain numerous photographs illustrating the exact procedures involved in skinfold measurement and other anthropometric techniques used in assessing nutritional status.

### Summaries

A summary at the end of each chapter highlights all important chapter information and will be especially helpful when the student reviews for exams.

### References

A complete list of up-to-date references is included at the end of each chapter. This list provides the student and instructor with extensive sources for continued study.

## Assessment Activities

Most chapters end with two or three practical assessment activities to help the student better understand the concepts presented in the chapter. For example, some activities are analyzing diet using software on a personal computer, obtaining information on food composition from online databases, accessing nutritional monitoring data from government websites, practicing anthropometry and one-on-one dietary counseling, and interpreting serum lipid and lipoprotein results.

## Appendixes

Appendixes A, B, and C contain the International Dietetics & Nutrition Terminology for nutritional assessment and monitoring, nutrition diagnosis, and nutrition intervention. Various recording forms and questionnaires used in measuring diet are presented in Appendixes D through I, including the first several pages of the Diet History Questionnaire II and the NHANES Food Frequency Questionnaire, and sections of the 2011 Behavioral Risk Factor Surveillance System Questionnaire. Appendix J lists suppliers of nutritional assessment equipment. Appendix K provides the CDC clinical growth charts for children and adolescents, including the recently revised charts for infants and children from birth to 2 years of age. Various anthropometric standards are tabled in Appendixes L through P. Appendix Q provides reference data for serum lipid and lipoprotein levels for children, adolescents, and adults. Appendix R contains a form for self-monitoring dietary intake, and Appendix S has a checklist for counseling competencies.

## Glossary

Throughout the text, important terms are shown in bold-face type. Concise definitions for more than 360 terms can be found in the glossary.

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