

The Profession *of* Dietetics

SEVENTH
EDITION



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The Profession of Dietetics is written for students interested in understanding who dietetics professionals are, what they do, and how to become one. Few other professions offer so many educational routes for entry or so many options for employment. While such flexibility is advantageous, it can bewilder those contemplating entering the profession. The myriad roles filled by dietetics professionals can confuse those unfamiliar with the scope of education, experience, and expertise of Registered Dietitian Nutritionists (RDNs); Nutrition and Dietetic Technicians, Registered (NDTRs); and Certified Dietary Manager, Certified Food Protection Professionals (CDM[®], CFPPs[®]). This textbook has been updated during a time wrought with change and controversy. From contentious politics, to a pandemic, to the transition to a new dietetics education model, only one thing has remained certain—and that is uncertainty!

Following are some questions which are addressed:

- How is dietetics a profession? What are some current issues facing the profession?
- Who are dietetics professionals and what do they do?
- How has history influenced dietetics practice today?
- How has academic preparation evolved in response to changes in professional practice?
- Why is hands-on experience a vital component of preparation for entry-level practice?
- How are dietetics professionals credentialed and why is it important?
- What roles do NDTRs and CDM, CFPPs fill as members of the dietetics team?
- What hard and soft skills are necessary for success in dietetics practice?
- What are some benefits of belonging to professional organizations, such as the Academy of Nutrition and Dietetics?
- What might the future hold for dietetics education and practice?

Dietetics needs enthusiastic, creative, and open-minded critical thinkers to propel the profession forward. We hope that this book enlightens, informs, and inspires those who read it to become the dynamic trailblazers of the future.

KEY FEATURES OF THIS EDITION

Key features of this edition include the following:

- References the 2019 *Compensation & Benefits Survey of the Dietetics Profession*
- New chapter focused on NDTRs and CDM, CFPPs to include educational routes, credentialing requirements, salary and employment data, etc.
- Updates to historical milestones and diet fads or trends
- Updates to current issues to include the Affordable Care Act (ACA), Medicare reimbursement, and telehealth
- Reviews the 2017/2018 Accreditation Council for Education in Nutrition and Dietetics (ACEND) standards
- Details the Future Education Model (FEM) and the 2024 graduate degree mandate for prospective RDNs
- Describes the shift from specific hours of supervised practice experience to competency-based experiential learning
- Updates Dietetics Internship (DI) data through 2019
- Presents content outline and domains for RDN and NDTR examinations, along with expanded examination review options
- Discusses both Specialty and Advanced Practice credentials, including eligibility requirements
- Outlines relevant certifications offered by other professional organizations
- Focuses on applicable skills needed for success as a dietetics professional with an emphasis on both hard and soft skills
- Emphasizes the importance of communication, cultural competence, and critical thinking
- Updates the mission and vision of the Academy of Nutrition and Dietetics
- Highlights the benefits of the Academy of Nutrition and Dietetics membership to include affiliate membership, scholarships, optional practice and interest groups, and access to the Evidence Analysis Library (EAL)
- References 2017 Standards of Practice (SOPs) and Standards of Professional Performance (SOPPs)

- Provides current contact information for other professional organizations of interest to dietetics professionals
- Updates implications for dietetics practice based on the 2015 environmental scan by the Council on Future Practice (CFP)
- Showcases 26 dietetics professionals to include CDM, CFPPs; NDTRs; and RDNs. These leaders represent diversity in areas of practice, years of experience, academic preparation, geographical location, ethnicity, gender, etc.
- Includes updated acronyms commonly used in nutrition and dietetics
- Add *Definition of Terms* from the Academy of Nutrition and Dietetics; the complete text of the 2018 *Code of Ethics for the Nutrition and Dietetics Profession*; and the complete text of the 2020 *Code of Ethics for the Certified Dietary Manager*

In addition to the above, each chapter contains features to assist instructors in enriching the student learning experience. The ever-popular profiling of dietetics professionals feature has been expanded to include 26 RDNs, NDTRs, and CDM, CFPPs from various areas of practice and geographic regions. These profiles showcase information about each practitioner's career, as well as their advice for students considering dietetics as a career. Figures, tables, and photos are used throughout to elucidate key points and highlight important information. Each chapter concludes with selected websites related to the chapter contents and some discussion starters designed to engage students and instructors in thought-provoking discourse for which there may not be that "one correct answer." Instructors adopting this text will receive access to resources including learning objectives, detailed chapter outlines, expanded and updated student learning activities, additional questions for class discussion and material review, a test bank, and customizable PowerPoint slides.

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We could create an entire second textbook if we listed all the wonderful people who have made our labor of love possible. To the staff members of the Academy of Nutrition and Dietetics, the Accreditation Council for Education in Nutrition and Dietetics (ACEND), and the Commission on Dietetic Registration (CDR), thank you for clarifying details and assisting with minutia along the way so that we could provide our readers with updated, accurate information. We especially thank Chris Reidy, RD, who retired as Executive Director of the CDR in 2020, for her keen insights into the evolution of the credentialing process.

Joyce Gilbert, PhD, RDN, President and CEO of the Association of Nutrition and Food Professionals (ANFP), connected us with multiple responsive ANFP staff members to ensure that our portrayal of CDM, CFPPs is accurate. Emily Cowles, MS, RD, LD, Dietary Manager Program Coordinator at Barton Community College in Great Bend, KS, graciously provided her perspective about the growing interest in the CDM, CFPP credential.

Without the diverse group of dietetics professionals who provided personal insights about the profession and shared their heartfelt words of wisdom with the students who are required to read this textbook, the chapters of dry information would not be as relevant or as real. A highlight of the professional profiles is that of Harriet Cloud, MS, RD, who shared her story as a dietitian who completed her baccalaureate degree more than 70 years ago and continues to practice today. Where else can you “meet” someone who witnessed the discovery of some of the B vitamins and now has a LinkedIn profile?!

It goes without saying, but we are appreciative of the editorial and production staff at Jones & Bartlett Learning for their patience, guidance, and encouragement in completing this revision. Reviewers’ comments were taken to heart from the previous edition and, if a future revision comes to fruition, we are thankful for those who will agree to that tedious task. The year 2020 is likely the first in which video conferencing software deserves official applause for facilitating our collaborative process with the restrictions of time, distance, and a pandemic.

Finally, we thank our former dietetics students from Kansas State University and across the country who daily confirm our belief in the exciting future of the profession of dietetics.

—*Deb and Rebecca*

This seventh edition of *The Profession of Dietetics* represents a “passing of the torch” in the life of this text. I want to thank June Payne Palacio, PhD, RD, who, in 1995, invited me to co-author the first edition of this textbook. Her vision for this book and her love of the dietetics profession set the tone for our many years of work together on subsequent editions. When June retired as “first author,” I welcomed the talents of Rebecca DeYoung-Daniels, MBA, RDN, LD, as my co-author. Her insights as a practitioner in multiple areas of practice and her experience as a dietetics educator, both in on-campus and online venues, has sharpened the focus and enriched the content of our textbook.

I want to thank the production and editorial staff of Jones & Bartlett Learning who were willing to adjust deadlines while I healed from an injury midway through this venture. Their flexibility and support were so appreciated. I recovered just in time to hunker down during the COVID-19 pandemic. What better time to write a textbook! Love and thanks to my friends near and far, especially Sharon and Medo Morcos, who supported me with their good thoughts and prayers, both for healing and for inspiration! Last, but not least, many thanks to my co-author and dear friend, Rebecca, whose family has become my own, and whose wit and wisdom made this undertaking a real joy.

—Deb

As a first-time textbook author who had no inkling what I was walking into, I am eternally grateful for Deb’s expertise in making the task less painful than it could have been as we mulled over every word in the text together. A fellow colleague said that I would learn from the best and she was correct.

To my friends and extended family, thank you for giving me the berth to focus on details which most readers do not realize are necessary in textbook authorship; you know who you are! I am especially thankful for my five children, Hope, Ian, Grace, Nigel, and Gavin, who are encouraging reminders that there are dynamic young adults working to make our future a better place despite the challenges thrown their way. To the light of my life and granddaughter, Sophia, who loves to read books and will likely never read this one, Nana loves you! And to Jeff, my best friend and husband of more than 30 years, your patience, faith, and enduring love continue to amaze me.

—Rebecca

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The Dietetics Profession

“To benefit as many as possible” appears on the seal of the Academy of Nutrition and Dietetics (Academy). It is an even more relevant goal of the profession today than it was in 1940 when the seal was first adopted by what was then called the American Dietetic Association. The scope of professional practice is continually widening, and the knowledge base of nutrition is deepening. Since the first meeting in Cleveland, OH, in 1917, the Academy has grown to be the largest food and nutrition organization in the world. This growth has occurred because members have diverse educational and experiential foundations, which allow them to practice in a myriad of areas.

What is dietetics? What makes it a profession? Who are today’s Registered Dietitian Nutritionists (RDNs)? Who are today’s Nutrition and Dietetic Technicians, Registered (NDTRs)? Where do these professionals work? What do they do? What compensation and benefits do they enjoy in their positions? What are some of the issues facing the profession today? These are the questions that are addressed in this chapter.

What Is Dietetics?

At the center of the professional association seal (**Figure 1-1**) are images representing the three main characteristics of the profession: (1) a balance, representing science as the foundation of dietetics; (2) a caduceus, representing the close relationship between dietetics and medicine; and (3) a cooking vessel, representing cooking and food preparation. Surrounding these are a shaft of wheat, representing bread as the staff of life; acanthus leaves, representing growth and life; and a cornucopia, representing an abundant food supply.

The name of the association and its founding date are printed around the edge. The seal appears on registration certificates for both RDNs and



FIGURE 1-1 Academy of Nutrition and Dietetics Seal.
Courtesy of Academy of Nutrition and Dietetics.

NDTRs, and on the gold member pin. Consider the following dictionary definitions of *dietetics*:

- “The scientific study of food preparation and intake”¹
- “The science of applying nutritional principles to the planning and preparation of foods and regulation of the diet in relation to both health and disease”²

These definitions seem woefully inadequate for what the profession has become. The basis of dietetics is the firm belief that optimal nutrition is essential for the health and well-being of every individual. This is why dietetics is an important component of healthcare. A team effort by doctors, nurses, dietitians, and other healthcare providers is usually necessary to help a patient return to health. It is plausible that no other profession offers so many diverse opportunities outside the traditional healthcare arena as does the field of dietetics. Early dietetics practitioners were typically found in institutional kitchens, a position for which the dictionary definitions would have been adequate. Today, dietitians can be found almost anywhere! For this reason, a 2019 survey of dietetics practitioners provided a very broad definition of *dietetics*:

*A dietetics-related position is considered to be any position that requires or makes use of your education, training, and/or experience in dietetics or nutrition, including situations outside of “traditional” dietetics practice.*³

What Is a Profession?

A general definition of a *profession* might be “an occupation for which preliminary training is intellectual in character, involving knowledge and learning as distinguished from mere skill, which is pursued largely for others and not merely for oneself and in which financial return is not an accepted measure of success.”⁴

The Goals Committee of the Academy interpreted a profession as a calling requiring the following:

- Specialized knowledge and often long and intensive preparation
- Maintenance, by force of organization or concerted opinion, of high standards of achievement and conduct

- Instruction in skills and methods as well as scientific, historical, or scholarly principles underlying such skills and methods
 - Commitment of its members to continued study
 - A kind of work that has as its primary purpose the rendering of a public service⁵
- A professional is one who represents or belongs to a profession.

How Is Dietetics a Profession?

Five main characteristics of dietetics practice qualify it for professional status:

1. A specialized body of knowledge
2. Specialized services rendered to society
3. An obligation for service to the client that overrides personal considerations
4. Concern for competence and honor among the practitioners
5. An obligation to continuing education, research, and sharing of knowledge for the common good.⁶

What Is a Registered Dietitian Nutritionist?

A dietitian has been defined as “a professional person who is a translator of the science and art of foods, nutrition, and dietetics in the service of people—whether individually or in families or larger groups; healthy or sick; and at all stages of the life cycle.”⁶ Another definition proposed by the Academy is: “RDNs are the food and nutrition experts who can translate the science of nutrition into practical solutions for healthy living. RDNs use their nutrition expertise to help individuals make unique, positive lifestyle changes. They work throughout the community in hospitals, schools, public health clinics, nursing homes, fitness centers, food management, food industry, universities, research and private practice. RDNs are advocates for advancing the nutritional status of Americans and people around the world.”⁷

Some titles need to be clarified at this point: *dietitian*; *registered dietitian*; *registered dietitian nutritionist*; *nutritionist*; and *licensed dietitian*. There is no difference between a registered dietitian (RD) and a registered dietitian nutritionist (RDN). The Academy and the Commission on Dietetic Registration (CDR) have given RDs the option to use RDN because it highlights expertise in nutrition which may be a more understandable term to the public than just “dietitian.”⁸ For the sake of simplicity, the acronym RDN will be used throughout this book. An RDN has completed the required academic training (Chapter 3) and supervised practice program (Chapter 4), and has successfully passed the national credentialing exam. Additionally, RDNs must complete 75 hours of continuing education every 5 years and some must be licensed in the state where they work. There are no such requirements for the title “nutritionist”; the term has no standards of education or training. “All registered dietitians are nutritionists, but

not all nutritionists are registered dietitians.”⁸ This means that almost anyone can use the title “nutritionist” with little or no training in the field—and many do. This is just one reason why many states have regulatory laws that either require or permit dietitians to be licensed if they wish to practice as a RDN in that state. A licensed dietitian (LD) or licensed dietitian nutritionist (LDN) is a professional who has been licensed by a specific state to ensure competence. Varying state requirements for licensure are frequently met through the same education, training, and national examination required for RDNs.⁸ Licensure will be discussed more in Chapter 5.

Some RDNs have additional certification in specialized areas of practice, such as pediatric nutrition (CSP, Board Certified Specialist in Pediatric Nutrition), pediatric critical care nutrition (CSPCC, Certified Specialist in Pediatric Critical Care Nutrition), obesity and weight management (CSOWM, Interdisciplinary Specialist in Obesity and Weight Management), renal nutrition (CSR, Board Certified Specialist in Renal Nutrition), sports dietetics (CSSD, Board Certified Specialist in Sports Dietetics), gerontological nutrition (CSG, Board Certified Specialist in Gerontological Nutrition), and oncology nutrition (CSO, Board Certified Specialist in Oncology Nutrition).⁹

What Is a Nutrition and Dietetics Technician, Registered?

There is no difference between a dietetic technician, registered (DTR) and a nutrition and dietetics technician, registered (NDTR), again, if the professional wishes to showcase the nutrition aspect of their work. For the sake of simplicity, the acronym NDTR will be used throughout this book (**Figure 1–2**). NDTRs are trained in food and nutrition and should be an integral part of healthcare and foodservice management teams. Like RDNs, NDTRs must complete an academic program and a supervised practice experience, then pass a national written examination in order to use the title.⁷

The Academy provides this definition of the NDTR: “NDTRs are educated and trained at the technical level of nutrition and dietetics practice for the delivery of safe, culturally competent, quality food and nutrition services. They are nationally credentialed and are an integral part of healthcare and foodservice management teams. They work under the supervision of a registered dietitian nutritionist when in direct patient/client nutrition care; and they may work independently in providing general nutrition education to healthy populations.”⁷

Dietetics practice is based on the application of principles derived from the integration of knowledge from many disciplines. Successful dietetics practitioners, including both RDNs and NDTRs, apply skills and attitudes to translate this knowledge in order to help people achieve and maintain optimal health. **Figure 1-3** is a graphic depiction of the knowledge areas, skills, and attitudes essential for successful dietetics practice.



FIGURE 1-2 A nutrition and dietetics technician, registered (NDTR) at work.
© BONNINSTUDIO/Shutterstock

Who Are Dietitians?

A 2019 survey of 8,765 dietetics practitioners, conducted by the Academy, found that 95% of dietetics professionals are female, with a median age of 41 years. The field is predominantly white; 10% of respondents indicated a race other than white and 6% identified themselves as Hispanic. The median number of years of work experience for RDNs was 12, and for NDTRs 10. All RDNs hold bachelor's degrees, with 50% holding a master's degree and 3% a doctorate. Forty-five percent of RDNs are members of the Academy, 39% have a state license, and 23% hold one or more specialty certifications.³

Fifty-five percent of NDTRs hold a bachelor's degree or higher, and 27% are members of the Academy. Four percent of NDTRs have a state license, and 10% hold one or more specialty certifications.³

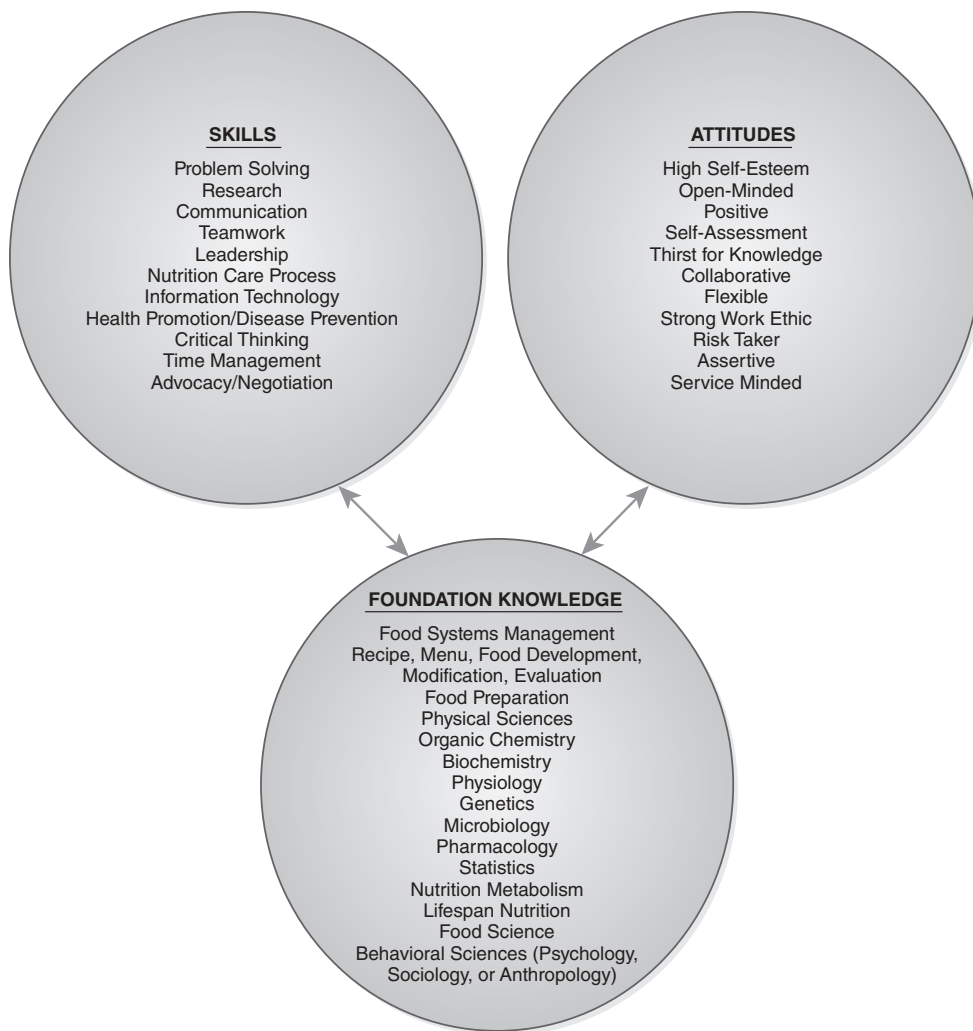


FIGURE 1-3 Model for dietetics practice.

Where Do Dietetics Professionals Work and What Do They Do?

Dietetics practice can be divided into seven key areas: clinical—acute care/inpatient, clinical—ambulatory care, clinical—long-term care, food and nutrition management, community, consultation and business, and education and research. Within these seven areas, 60 different job titles account for 93% of all dietetics employment.³ The percentage breakdown for those working in these seven practice areas is shown in Table 1-1.

TABLE 1-1**Percentage of Professionals in the Seven Practice Areas Within Dietetics**

Practice Area	RDNs	NDTRs
Clinical Nutrition—Acute Care/Inpatient	40%	42%
Clinical Nutrition—Ambulatory Care	14%	0%
Clinical Nutrition—Long-Term Care	6%	8%
Food and Nutrition Management	9%	20%
Community	9%	18%
Consultation and Business	9%	2%
Education and Research	6%	1%

Data from: Academy of Nutrition and Dietetics. 2019 Compensation and Benefits Survey of the Dietetics Profession. Chicago: Academy of Nutrition and Dietetics; 2020.

The following are the most common position titles in dietetics practice:

Clinical Nutrition—Acute Care/Inpatient

Dietetic Technician, Clinical

Clinical Dietitian

Clinical Dietitian, Specialist—Bariatrics

Clinical Dietitian, Specialist—Cardiac

Clinical Dietitian, Specialist—Developmental Disorders

Clinical Dietitian, Specialist—Diabetes

Clinical Dietitian, Specialist—Eating Disorders

Clinical Dietitian, Specialist—HIV/AIDS

Clinical Dietitian, Specialist—Oncology

Clinical Dietitian, Specialist—Psychiatric

Clinical Dietitian, Specialist—Renal

Clinical Dietitian, Specialist—Substance Abuse

Clinical Dietitian, Specialist—Surgery

Clinical Dietitian, Specialist—Transplant

Pediatric/Neonatal Dietitian

Nutrition Support Dietitian

Clinical Nutrition—Ambulatory Care

Outpatient Dietitian, General

Outpatient Dietitian, Specialist—Allergy

Outpatient Dietitian, Specialist—Cardiac Rehabilitation

Outpatient Dietitian, Specialist—Diabetes

Outpatient Dietitian, Specialist—Eating Disorders

Outpatient Dietitian, Specialist—Oncology

Outpatient Dietitian, Specialist—Pediatrics

Outpatient Dietitian, Specialist—Renal
Outpatient Dietitian, Specialist—Weight Management
Home Care Dietitian

Clinical Nutrition—Long-Term Care

Clinical Dietitian, Long-Term Care
Dietetic Technician, Long-Term Care

Food and Nutrition Management

Executive-Level Professional
Director of Food and Nutrition Services
Director of Clinical Nutrition
Clinical Nutrition Manager
Assistant Foodservice Director
School Foodservice Director
Dietetic Technician, Foodservice Management
Nutrition Informatics Specialist/Analyst

Community

Women, Infants, and Children (WIC) Nutritionist
Public Health Nutritionist
Cooperative Extension Educator/Specialist
School/Child Care Nutritionist
Corrections Dietitian
Nutrition Coordinator for Head Start Program
Nutritionist for Food Bank or Assistance Program

Consultation and Business

Private Practice Dietitian—Patient/Client Nutrition Care
Consultant—Community and/or Corporate Programs
Consultant—Communications
Sales Representative
Public Relations and/or Marketing Professional
Corporate Dietitian
Research and Development Nutritionist
Manager of Nutrition Communications
Director of Nutrition

Education and Research

Instructor/Lecturer
Assistant Professor
Associate Professor
Professor
Administrator, Higher Education
Didactic Program Director
Dietetics Internship Director
Research Dietitian

Other Positions Not Listed³

In summary, most RDNs are found in the following settings:

- **Hospitals (Figure 1–4)**
 - Educate patients about nutrition.
 - Provide nutrition support.
 - Manage medical nutrition therapy (MNT).
 - Oversee foodservice operations.
- **Schools**
 - Manage the foodservice operations to include purchasing food, supervising preparation, directing the staff, and controlling the budget (Figure 1–5).
 - Create healthy menus, update wellness programs, and create nutrition programming.
- **Community and Public Health Centers**
 - Educate, monitor, and advise various populations about healthy eating to improve their life quality.
 - Guide nutrition programs through organizations such as Head Start.



FIGURE 1-4 A clinical registered dietitian nutritionist (RDN).
© Stock-Asso/Shutterstock



FIGURE 1-5 A RDN who works in school foodservice and one of her employees.
© Monkey Business Images/Shutterstock

- **Senior Living Facilities**
 - Consult with Certified Dietary Manager, Certified Food Protection Professionals (CDM[®], CFPPs[®]) about foodservice management to include menu evaluation.
 - Engage with the healthcare team to monitor the nutritional status of high-risk residents.
- **Fitness Centers, Sports Nutrition, and Corporate Wellness Programs**
 - Educate members and employees about nutrition and fitness.
 - Work with sports teams and dance companies to enhance members' training and performance (Figure 1-6).
- **Food and Nutrition-Related Businesses**
 - Work in communications, consumer affairs, public relations, marketing, and product development.
 - Consult with chefs in both commercial and academic settings.
 - Provide point-of-sale nutrition education in supermarkets.
- **Universities**
 - Teach current and future members of the healthcare team to include physicians, physician assistants, nurses, dietetics students and interns, dentists, and others.
 - Engage in research.
- **Research Settings**
 - Direct and collaborate on experimental research to answer critical questions for food and pharmaceutical companies, universities, and hospitals.



FIGURE 1-6 Two RDNs who work in sports nutrition.
© stockimages/Shutterstock

- **Private Practice and Consulting Services**
 - Contract with healthcare and food companies.
 - Provide services to restaurant and foodservice managers, food vendors and distributors, athletes, long-term care residents, and company employees.
 - Provide individualized nutrition counseling to clients in a variety of settings to include physician offices that provide MNT.
- **Culinary**
 - Combine the scientific and practical applications of food and nutrition.
 - Link their passions for both food and nutrition in dual careers as chefs and dietetics professionals.
- **Media**
 - Serve as formal spokespersons for the Academy or as experts on food and nutrition for multiple media outlets.
 - Engage as editors for both print and online publications or author books.
- **Integrative and Functional Medicine**
 - Focus on a holistic approach to wellness.
 - Personalize therapies centered on whole foods, specific supplements, and mind-body techniques.
- **Nutrition Informatics**
 - Retrieve, organize, store, and optimize use of data for enhanced problem-solving and decision-making in the food and nutrition arena.¹⁰

NDTRs may also be found working independently or in teams with RDNs in a variety of work settings to include healthcare, business and industry, public and community health, foodservice, and research. NDTRs commonly work in:

- **Hospitals, HMOs, clinics, long-term care facilities, retirement communities, hospices, home healthcare agencies, and research facilities**
 - Help treat and prevent disease by assisting the RDN with multiple critical tasks.
- **Schools, day care centers, correctional facilities, restaurants, healthcare facilities, corporations, and hospitals**
 - Manage foodservice operations to include food purchasing and preparation, supervising employees, and teaching nutrition classes (Figure 1-7).
- **WIC programs, public health agencies, Meals on Wheels, and other community health programs**
 - Develop and teach nutrition classes for the specific population served.
- **Health clubs, weight-management clinics, and community wellness centers**
 - Educate clients about food, fitness, and health.
- **Food companies, contract food management companies, food vendors, and food distribution companies**
 - Develop menus, oversee foodservice sanitation and food safety, and prepare food labeling information and nutrient analysis.¹⁰



FIGURE 1-7 A NDTR teaching a nutrition class for preschoolers.
Courtesy of Sharmin Sampat.

What Is the Salary Range for RDNs and NDTRs?

As is true for most professions, salary ranges and fees charged vary by region of the country, employment setting, scope of responsibility, and supply and demand. According to the professional association's 2019 Compensation and Benefits Survey, the median annual income in the U.S. for RDNs who have been working at least 1 year is \$68,000 and, for NDTRs who have been working in a position for at least 1 year, \$45,800.³ The U.S. Bureau of Labor Statistics 2020 data reported the median salary for RDNs was \$61,270 and the median salary for NDTRs in 2019 was \$28,400.¹¹ These discrepancies in salary exist based on timing of surveys, the population included, those reporting their salaries, and more. It is important to have an educated understanding of the wage and benefits landscape where you wish to be employed for the best snapshot of compensation in a specific setting. The statistics generated by the 2019 survey from the Academy show that the salary for both RDNs and NDTRs increases as the number of years of experience increases, as the level and scope of supervisory responsibility increases, and as the size of the budget that is managed increases. While a master's degree will be required for all new RDNs in 2024, graduate degrees have minimal impact on salaries at this time. However, the area of practice does matter! The highest paying practice areas for RDNs are consultation and business, food and nutrition management, education, and research. The lowest paying areas are clinical nutrition, community nutrition, and long-term care. For NDTRs, the highest paying practice area is food and nutrition management with community nutrition positions paying the least.³ Again, survey your locale for salaries which can quickly change given the shifting political and economic horizons.

In addition to pay, fringe benefits are an important employment consideration. When compared with the benefits of other professional and technical employees in private industry, dietetics professionals' benefits are very favorable.

What Are Some of the Current Issues Facing Dietetics Practice?

This is an exciting time to be a food and nutrition professional. According to the U.S. Bureau of Labor Statistics, the employment of dietitians and nutritionists is projected to grow 11% from 2018 to 2028, almost twice as fast as the average 5% for all occupations.¹¹ The role of food in preventing and treating diseases, such as diabetes and heart disease, is well known. Understanding that lifestyle choices, such as diet and exercise, can make a dramatic difference in quality of life is widespread. People are eager for information that can give them an edge in competitive sports; improve their appearance; and make them feel better, live longer, and enjoy more productive lives. What we eat can dramatically affect our health, creating a demand for those who can provide accurate information. Everybody needs qualified dietetics professionals!

The Centers for Disease Control and Prevention (CDC) relays that “six in ten Americans live with at least one chronic disease, like heart disease and stroke, cancer, and diabetes” and that “four in ten adults have two or more.”¹² These chronic diseases are often related to the worldwide health issue of obesity. In the U.S. alone, the obesity rate jumped from 30.5% in 1999–2000 to 42.4% in 2017–2018.¹³ A government-sponsored research study showed that the annual healthcare cost of obesity in the U.S. doubled in less than a decade and may be as high as \$147 billion a year.¹⁴

Job growth in healthcare continues to be strong. Between 2018 and 2028, positions in healthcare fields are expected to grow by 14%, almost three times that of other occupations.¹⁵ A number of factors accounts for this growth. The “graying of America” will create the need for more specialized medical care, home healthcare, and geriatric specialists. Also, the increasing focus on wellness and preventive medicine has contributed to the expanding healthcare field. According to one expert, “While fast food and customer service may churn out a greater total volume of new jobs, those in healthcare are almost as plentiful and offer better pay, prospects, and benefits, plus the stability of a nearly recession-proof industry.”¹⁶

Job growth in dietetics and nutrition will result from an increasing emphasis on disease prevention through improved dietary habits. The aging population will boost demand for nutritional counseling in hospitals, residential care facilities, prisons, community health programs, and home healthcare agencies...and that is just one example! The public’s growing interest in nutrition, health, and prudent lifestyles will continue to increase demand. In addition, Medicare now covers MNT and some related services for those with diabetes and renal disease.¹⁷ Dietitians with specialized training and certifications beyond minimum requirements may enjoy even better job opportunities. Those specializing in renal disease, diabetes, or gerontology will benefit from the growing number of people with diabetes and the aging population.

Aside from patients who need MNT, opportunities abound for persons simply interested in better health. The 2020 COVID-19 pandemic, for example, resulted in more Americans cooking at home, often including their children in meal preparation. RDNs have reported anecdotally that their clients are taking better care of themselves in terms of food and lifestyle choices, and more people have become interested in where their food is sourced. Even in a jarring time, RDNs have found positive outcomes as they help clients who are coping with rising food costs, supply chain issues, income uncertainty, and food insecurity.¹⁸

There may be some clouds on the otherwise rosy horizon of the healthcare industry. Cost-containment measures, such as budget cutting, downsizing, realignments, outsourcing, and mergers, may affect growth. Some predict that funding for Medicare programs will be reduced, forcing Medicare patients to pay for some costs themselves. Negative factors specifically affecting job opportunities in dietetics and nutrition include employers who may substitute

less-educated and lower-paid workers to do nutrition-related work. Also, the demand for nutrition counseling is related to the client's ability to pay, either out-of-pocket or through insurance reimbursement. Insurance coverage for nutrition services varies widely. Hospitals and long-term care facilities employ large numbers of RDNs and NDTRs, but they increasingly contract with outside firms to run their foodservice operations.

Although dietetics practitioners are regarded as experts in nutrition, they continue to lack public recognition of their knowledge and skills. While the American public has increased its knowledge and understanding of food and nutrition, misinformation abounds. Social media and popular magazines are full of attention-grabbing, but often inaccurate, nutrition messages. Many people lack the educational background to discriminate between fact and fiction. Many believe that if it is in "print," it must be true. Buyer, beware!

Summary

*The horizon leans forward
Offering you space
To place new steps of change*

—Excerpt from "On the Pulse of Morning," 1993 presidential
inaugural poem by Maya Angelou¹⁹

.....

The scope of dietetics practice is almost limitless. The creation of new, exciting positions that require food and nutrition education and training will continue as long as members of the profession have the imagination and determination to succeed.

"The world is happier, healthier, [and] better off because of the work you do," proclaimed Rabbi Harold S. Kushner to the dietetics professionals gathered at a 1991 dietetics association national conference.²⁰ The work of dietetics is considered a profession because it requires a specialized body of knowledge; because members render specialized services to society; because their obligations to serve override personal considerations; and because members consider competence, honor, continuing education, research, and sharing of knowledge for the common good to be necessary.

Dietetics practice encompasses nutrition therapy, the food industry, health promotion and disease prevention, foodservice systems, entrepreneurship, education, and more. Applying their training and knowledge in the fields of science, leadership, technology, research, and management, dietetics professionals communicate and collaborate to provide food and nutrition services for individuals, groups, and communities.

Dietetics practitioners work in private practices or hospitals, with patients referred by physicians for help in implementing necessary nutritional modifications. They serve as consultants in corporate wellness programs, weight loss programs, and eating disorder clinics. Professional athletes and athletic teams often have full-time RDNs on their training staffs.

Dietetics practitioners are also involved in scientific research and education. Increasing numbers of dietitians have careers in sales, marketing, and public relations. They work in the food industry; for pharmaceutical and computer companies; for software developers, pharmaceutical, and computer companies; and for equipment manufacturers. They are involved in many areas of community outreach, especially with pregnant women, women with infants and young children, and the elderly.

These practitioners are particularly qualified to manage foodservice operations in hospitals, nursing homes, colleges and universities, public schools, commercial restaurants, correctional facilities, catering operations, airline commissaries, and community programs. Interest is growing in combining nutrition credentials with other degrees, such as those in business, law, nursing, physical fitness, and the culinary arts.

Societal needs are best served by having a population that is adequately nourished. The profession of dietetics serves people by offering correct and current information so that individuals can make informed choices. Through their specialized education and training, dietetics professionals are uniquely qualified to “benefit as many as possible” in the global arena of food and nutrition.

Courtesy of Aarti Batavia.



Profile of a Professional

Aarti Batavia, MS, RDN, CLT, CFSP, IFMCP

Nutrition & Wellness Consulting LLC
Novi, MI

What is your favorite aspect of being a Registered Dietitian Nutritionist, working in your area of dietetics practice?

Being a RDN and certified functional medicine practitioner has been a rewarding profession intellectually, emotionally, and spiritually. It has helped me to see chronic health issues from a holistic perspective and understand my patients better. It has also been a means of ethical earning, helping the community and having leadership roles within our dietetics community. My favorite aspect about being a Registered Dietitian Nutritionist is to help individuals

achieve their higher selves. Once the patients feel better, they do not have to think about their pain and suffering but rather focus on their family, personal goals, and other important aspects of their being which they were unable to do when they were unwell. It also gives me an opportunity to explore and share my passion for creating new recipes for my patients. It's rewarding for me to experiment with food while creating interesting menus for my patients. Being an expert in the field of nutrition and functional medicine has also opened doors with



Courtesy of Aarti Batavia.

regards to speaking engagements. This helps me share my knowledge and experience with my fellow colleagues and students and elevates our profession.

What advice/wisdom do you have for students who are considering a career in dietetics?

1. Be honest and sincere with yourself.
2. Treat people with respect.
3. Network during FNCE and other nutrition-related conferences, seminars, and workshops.
4. Sky is the limit. Follow your heart and your dreams and you are bound to succeed.
5. Do only what you are passionate about.
6. Enjoy what you do. If it doesn't make you happy, quit. Do yourself and people around you a favor and don't make everyday a drag.
7. Be on top of your game. Research your subject well.
8. Play along and take small breaks.
9. Not sure if work-life balance exists but make sure you are centered.
10. Enjoy being on planet EARTH. ☺

Courtesy of Kyle J. Lamprecht.



Profile of a Professional

Kyle J. Lamprecht, MS, RD, CSP, CSR, CD

Metabolic/Outpatient Pediatric Specialty Dietitian

University of Vermont Medical Center

Burlington, VT

What is your favorite aspect of being a Registered Dietitian, working in your area of dietetics practice?

My favorite aspect of being a RD is having the opportunity to influence our youth through nutrition education and interventions. Working in Pediatric Nephrology grants me the excitement and clinical intensity of renal nutrition as well as the humbling experience of supporting pediatric patients'

growth and development as well as families overall. RDs play an enormous role in the care of pediatric patients with complex conditions and I am beyond thankful to have the opportunity to impact these patients' lives.

What advice/wisdom do you have for students who are considering a career in dietetics?

The field of dietetics is forever evolving with new opportunities and ways for nutrition professionals to impact lives for the better. Additionally, nutrition is preventative medicine, which continues to grow in importance and value within our healthcare system. If you have a passion for helping and healing others and believe in the power of food and nutrition, then a career in dietetics is your calling. We welcome fresh minds, energy, and passion to continue to drive our mission for improving global health and the well-being of all.

Selected Websites

- www.eatright.org (The public site of The Academy of Nutrition and Dietetics, the world's largest organization of food and nutrition professionals)
- www.bls.gov (The U.S. Bureau of Labor Statistics has data about occupations, job growth, salaries, etc.)
- www.cdrnet.org (The Commission on Dietetic Registration is the credentialing agency for dietetics professionals in the U.S.)

Discussion Starters

1. What areas of practice interest you the most? What kinds of salaries are offered in these areas based on the geographic region where you want to work?
2. Dietetic Practice Groups (DPGs) are a good way to network with professionals who work in specific areas of dietetics. Refer to the list of DPGs in Chapter 8 and see if there are any which interest you. Do they have accessible websites? Are there practitioners in your community who are members

of these DPGs? If so, are you able to shadow them in their workplaces to start building your professional network?

3. Did any of the practice areas surprise you? Are there additional workplaces which **should** employ dietetics professionals and why?

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A Brief History of Dietetics

In the Beginning

History provides people with an opportunity to learn from past mistakes and can also show which of the seeds that were sown blossomed into successes and why. As stated on Radford University's Department of History website:

The study of history is a window into the past that provides understanding of the present day, and how individuals, nations, and the global community might develop in the future. Historical study instructs how societies came to be and examines cultural, political, social, and economic influences across time and space.¹

When the Academy of Nutrition and Dietetics (Academy) turned 100 in 2017, many considered it the 100th birthday of dietetics itself. The past century has been characterized by an ever-changing landscape of world events, legislation, social and economic changes, and scientific discoveries, all of which have impacted the dietetics profession.

Prior to 1917, dietetics practice had an interesting, rich, and diverse past that stemmed from the much older history of food and health. You probably recognize the idioms “An ounce of prevention is worth a pound of cure” and “An apple a day keeps the doctor away,” which relay subtle advice about food. The role of food in preventing, curing, treating, or causing illness has actually been recognized since the beginning of recorded human history. “If a man has pain inside, food and drink coming back to his mouth ... let him refrain from eating onions for three days” is the first known written dietary recommendation, carved on Babylonian stone tablets around 2500 BCE.² The typical daily regimen during this time consisted of barley paste or bread, onions, a few beans, and beer.

The book of Judges in the Hebrew Bible contains a prenatal dietary prescription that has withstood the test of time: “Therefore beware, and drink no wine or strong drink, and eat nothing unclean, for lo, you shall conceive

and bear a son.”³ The book of Daniel contains what is probably the first controlled dietary experiment. Daniel and the other young men from Judah asked their Babylonian guards to allow them to maintain their ancestral traditions and eat legumes, bread, and drink water rather than the king’s rich food and wine allowance for 10 days. At the end of the 10 days, they were healthier and better nourished than all the young men who had lived on the food assigned to them by the king.⁴

Scurvy, which is caused by a vitamin C deficiency, was described as early as 1500 BCE in the Ebers Papyrus, and other descriptions appear in ancient Greek and Roman writings.⁵ The word *diet* is from the Greek *diatta*, which means “way of life.”⁶ It appears in many early writings, including those of Hippocrates and Galen.⁷ The oldest known cookbook, Apicius’s *De re Culinaria* (approximately 100 BCE), contains many dietary principles that are still sound today.⁸ Of the 10 volumes comprising this ancient cookbook, one is completely devoted to pulses, or legumes, which are also mentioned in the Hebrew Bible. In ancient China, food therapy was practiced as a special branch of medicine.⁹ Chinese observations about diabetes date to the third century, and descriptions of night blindness and its correct dietary cure date to the seventh century.^{10,11}

The Middle Ages

During the Song Dynasty (960–1279 CE) in China, Ben Cao Tu Jing, in the *Atlas of Materia Medica* (1061), described an experiment to determine the efficacy of ginseng. He suggested, “In order to evaluate the efficacy of ginseng, find two people and let one eat ginseng and run, and the other run without ginseng. The one that did not eat ginseng will develop shortness of breath sooner.”¹²

William the Conqueror was probably one of the first famous names in history to go on a weight-loss diet. In 1087, he tried to lose weight by going on a liquid diet, taking to his bed, and consuming nothing but alcohol!

Hospital records from St. Bartholomew’s Hospital (**Figure 2-1**), founded in Britain in 1123, provide the first written evidence of a typical hospital menu. Bread and beer formed the basis of the diet.¹³ This obviously inadequate and unpalatable diet led to a prevalence of scurvy (a condition characterized by weakness, joint pain, skin lesions and bruising, bleeding gums, and loose teeth) among patients. Other conditions in early British hospitals were also poor: sanitation was nonexistent, overcrowding was common, buildings were unsafe, and stern disciplinary measures were used on noncompliant patients.

With the publication of *De re Medicina* in 1478 in Florence, Italy, diet became an important part of medical practice. In this publication, medicine was divided into three branches: diseases treated manually, diseases treated by medicine, and diseases treated by diet. In 1480, the first printed cookbook appeared. It referenced quality and varieties of meat, fish, fruits, and vegetables; discussed how they nourish the body; and provided directions on how they should be prepared.¹⁴

Weight-loss books appeared in the late 1600s to early 1700s. A Scotsman, Dr. George Cheyne, wrote two popular books, *An Essay of Health and Long Life*

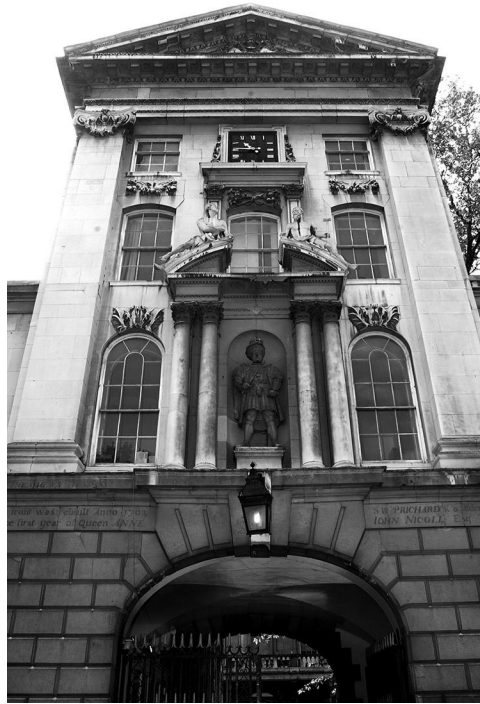


FIGURE 2-1 St. Bartholomew's Hospital, London.
Courtesy of Barts and the London NHS Trust.

and *The English Malady*, in which he described a milk diet, claiming that it kept him “lank, fleet, and nimble.”¹⁵

Progress (?) in the Eighteenth and Nineteenth Centuries

The first hospitals in the U.S. were in Philadelphia—Philadelphia General Hospital was built in 1731, and Pennsylvania Hospital (**Figure 2-2**) in 1751.¹³ In these hospitals, little thought was given to food and conditions were very poor. Mush and molasses were the usual fare, with a pint of beer included for supper.¹⁶ After the War of 1812, fruit was added to the menu as a garnish.

Until the eighteenth century, beliefs and writings about diet were based on insufficient scientific evidence. However, advances in chemistry and physics laid the foundation necessary to establish dietetics as a profession. The work of Antoine-Laurent de Lavoisier (1743–1794) on digestion is generally regarded as the first modern, scientific research focused on nutrition (**Figure 2-3**). The son of a wealthy Parisian lawyer, Lavoisier was trained as a lawyer and chemistry was merely his hobby.¹⁷

Nutritional epidemiology, the study of the relationship of diet to human disease, is usually dated to 1747, the same year as the earliest known clinical trial was conducted by Dr. James Lind (**Figure 2-4**). Lind was the ship doctor on the HMS *Salisbury* when it set sail from England to the Plymouth Colony. During this



FIGURE 2-2 Pennsylvania Hospital, one of the first hospitals in the U.S..
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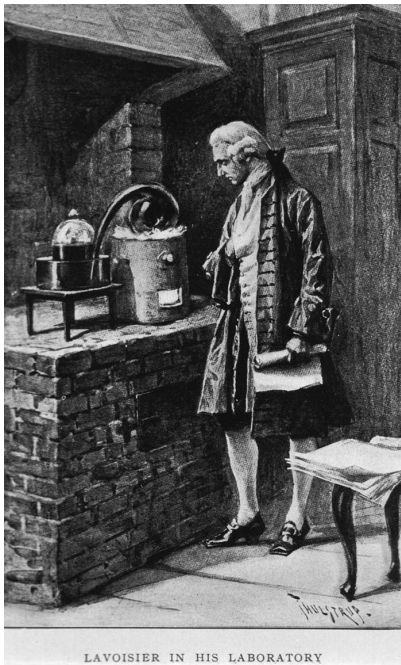


FIGURE 2-3 Antoine Lavoisier is shown with the chemistry apparatus he used to study digestion.
Courtesy of the National Library of Medicine.



FIGURE 2-4 A portrait of James Lind holding his book about scurvy.
Courtesy of the Royal College of Physicians of Edinburgh.

time period, scurvy and typhoid were often responsible for the deaths of more than half of the crew members of sailing ships. A British report in 1600 indicated that, in the previous 20 years, more than 10,000 mariners had died from scurvy alone. On board the *Salisbury*, Lind took 12 men ill with scurvy and divided them into six groups of two each. All ate the same food for breakfast, lunch, and dinner, but each group received a different supplement each day:

1. Quart of apple juice
2. Twenty-five drops of elixir vitriol (sulfuric acid and aromatics)
3. Two spoonsful of vinegar three times a day
4. Concoction of herbs and spices
5. Half-pint of seawater daily
6. Two oranges and one lemon

The two men who ate the oranges and lemons recovered almost immediately. Both were fit enough to return to work in 6 days, and one became the nurse to the others. The two who drank the apple juice improved but were not well enough to work. None of the others showed any improvement. Lind concluded that citrus contained something which counteracted the ravages of scurvy, so he gave all the men oranges and lemons, and they were cured. This discovery was followed by the development of a method to concentrate and preserve citrus juices for use at sea. In 1795, the British Royal Navy provided a daily ration of lemon or lime juice as an antiscorbutic (protects against scurvy). At the time, both lemons and limes were called limes, so Americans and Australians began to call English ships and sailors “lime-juicers” and “limeys.” In the early twentieth century, a deficiency of vitamin C (ascorbic acid) was determined to be the cause of scurvy.⁵

Progress in understanding the relationship of nutrition and health, however, was slow. A patient in an English hospital in the eighteenth century would receive the same menu each day:

- Four to five ounces of meat (usually boiled for the broth)
- Three-quarters to one pound of bread
- Two to three pints of beer
- Pottage or pudding

Fruits and vegetables were missing from this daily allowance—some suspected they were harmful, and others believed they had medicinal, rather than nutritive, value. Small amounts of cheese, butter, roots, and greens were sometimes included in the daily fare. Family and friends could bring food to supplement the meager hospital offerings, or patients could buy food from the food sellers who came through the wards.

The most expensive item on the menu was beer. Doctors at the time believed that alcohol was necessary to treat illness. Water was often contaminated, so beer was used extensively. When cost-cutting measures were instituted, the patient’s beer allowance was reduced or eliminated. Patients who were unable to eat the full diet or those who complained about the food were disciplined. Punishments included

cutting the food allowance in half, omitting some meals entirely, or restricting patients to toast and water for a week.¹⁸

Meanwhile, famous individuals continued to go on diets, and other individuals became famous because of the diets they promoted. In 1811, the romantic poet Lord Byron reduced his weight from 194 to 130 pounds by drenching his food in vinegar. In the 1830s in the U.S., the Reverend Sylvester Graham, nicknamed “Dr. Sawdust,” railed against the sin of gluttony, which he said led to lust, indigestion, and the rearing of unhealthy children. His recommended Spartan diet included coarse, yeast-free, brown bread (including his famous Graham cracker), vegetables, and water.¹⁵

Little improvement in hospital conditions occurred until the humanitarian movement of the late nineteenth century when greater progress was made. Florence Nightingale (1820–1910) (**Figure 2-5**), a superintendent of nurses in British military hospitals in Turkey during the Crimean War (1854–1856), established food-service for the troops. With the help of a French chef, Alexis Soyer, she reduced the death rate of injured soldiers by improving diet and sanitary conditions. Later, in her writings and nursing practice, Nightingale continued to demonstrate her belief



FIGURE 2-5 A portrait of Florence Nightingale.

Courtesy of Library of Congress, Prints & Photographs Division
[reproduction number cph.3a09175].

in the importance of nutrition and foodservice management by emphasizing the selection and service of food, and the art and science of feeding the sick.¹⁹

Around the same time, the low-carbohydrate, high-protein diet was introduced. London undertaker William Banting lost 50 pounds on a high-protein regimen consisting of lean meat, dry toast, soft-cooked eggs, and vegetables. His 1864 book, *Letter on Corpulence*, became a bestseller and, by 1880, “Banting” had become the foremost American weight-loss strategy. Another proponent of high-protein diets, Dr. James Salisbury, recommended minced meat patties (“Salisbury” steaks) and hot water for improving health and aiding weight loss.¹⁵

The Iowa Agriculture School in Ames was probably the first college to offer courses in cookery in 1872. A yearly course in “household chemistry,” which included cookery, was started in 1877 at the Kansas State Agricultural College in Manhattan.²⁰ Other colleges and universities soon followed their lead.

In 1876, Dr. John Harvey Kellogg became the staff physician of the Battle Creek Sanitarium in Battle Creek, MI. Kellogg invented granola and toasted flakes, for which his name is well known. At the time, he was known as a diet guru who crusaded for vegetarianism, pure foods, slow chewing, calorie counting, colon cleansing, and individualized diets.¹⁵

Sarah Tyson Rorer (1849–1937) is considered the first American dietitian. (Figure 2-6). Her background consisted of some medical school lectures and a 3-month cooking course. In 1878, Rorer opened the Philadelphia Cooking School where students learned about food values, protein, and carbohydrates, but nothing about calories or vitamins. Students took 10 classes in chemistry, several in physiology and hygiene, and 10 on cooking for the sick. Twelve students graduated



FIGURE 2-6 Sarah Tyson Rorer, first American dietitian (left) and Lenna Frances Cooper (right) in a carriage at the Battle Creek Sanitarium. Courtesy of the Academy of Nutrition and Dietetics.

each year for 33 years, and they secured positions planning meals and supervising production in hospital kitchens.²¹

In 1877, the American Medical Association formed a Committee on Dietetics and asked Rorer to edit a new publication entitled *The Dietetic Gazette*.²² Later, she published *Household News*, writing articles about feeding the sick and designing kitchens, plus answering readers' diet-related questions.²³ In her lifetime, she authored more than 50 books and booklets, and wrote articles for such magazines as *The Ladies' Home Journal*, *Table Talk*, and *Good Housekeeping*.²⁴ Rorer also established the first diet kitchen and dietary counseling service at the request of three well-known physicians.

Meanwhile, popular diets continued to evolve. Milk diets, previously prescribed for indigestion and weight gain, became popular for weight loss. Dr. Edward Hooker Dewey recommended skipping breakfast and a moderate fast as a weight-loss strategy. Other doctors of the time touted substituting carbohydrates with protein and limiting consumption of alcohol.¹⁵

Initially thought to be an infectious disease, beriberi (a condition characterized by weakness in the limbs and, later, weakening of the cardiac muscles, leading to heart failure) received attention from several researchers around the world. In 1884, Kanehiro Takaki linked Japanese sailors' diets of polished rice to the disease. By adding milk and vegetables to the sailors' diets, he eliminated their beriberi.²⁵ In 1889, Christiaan Eijkman in the Dutch East Indies took Takaki's research one step further by proposing a nutritional hypothesis for the cause of beriberi. Eijkman experimented with the diets of chickens and concluded that unpolished rice contained an "anti-beriberi factor."²⁶ As with vitamin C, the identification of vitamin B₁ (thiamine) as the deficient nutrient came much later.

In 1896, the United States Department of Agriculture (USDA) published *Bulletin 28*, which featured the first food composition tables.²⁷ The *Bulletin* remained an indispensable resource for dietetics practitioners for many years.

In 1898, when businessman Horace Fletcher was denied life insurance because of his weight, he lost 40 pounds by chewing every mouthful of food to liquefy it before swallowing. The slow chewing movement ("Fletcherism") grew in popularity, supported by diet guru Kellogg. His patients were instructed to chew every mouthful of food 32 times before swallowing, and this became known as "Fletcherizing."¹⁵

At the Lake Placid Conference on Home Economics in 1899, the term *dietitian* was first defined. The conference attendees determined that the title *dietitian* should be "applied to persons who specialize in the knowledge of food and can meet the demands of the medical profession for diet therapy."²⁸

The Twentieth Century

Florence Corbett established the first internship for dietitians in 1903 at the New York Department of Charities. Applicants for the 3-month course had to be older than 25 years of age with a degree in home economics and 1 year of teaching experience.⁷

In 1907, an English doctor, William Fletcher, conducted an experiment on inmates of a mental institution in Kuala Lumpur, Malaysia, which provided definitive proof that certain types of rice were either the direct or indirect cause of beriberi. His experiment was rigorous and mimicked several features of a modern randomized trial.²⁶

Working at the famed Lister Institute in London in 1912, Casimir Funk (1884–1967), a Polish-born biochemist, took Dr. Fletcher's thinking to the next level. He isolated the active substances in the husks of unpolished rice that were preventing beriberi and named them *amines*, because he believed they were derived from ammonia. Because these substances appeared essential for life, he added the prefix *vita*. Later, he postulated the existence of four such substances (B₁, B₂, C, and D), which he stated were necessary for normal health and for the prevention of deficiency diseases. Discovery and synthesis of all the individual vitamins would come even later, but this initial discovery was a milestone in the history of nutrition.²⁹

In 1910, dietitians were practicing in poorly defined roles with a diversity of titles. Few people could define the role of the *dietist*, *dietician*, *dietitian*, or *nutrition worker*, as dietitians were variously called. The title *nutritionist* appeared in the early 1920s, and the spelling of *dietitian* was agreed upon in 1930.³⁰

Fighting faddism and quackery was an issue in 1910, just as it is today. "Fletcherizing" was just one example of a harmless but ineffective popular notion of that day. Calorie counting, either high-protein or low-protein diets, and natural foods were other popular fads. Food scales, initially developed for use by persons with diabetes, became important tools in many diet plans.

Nutrition research received an unexpected boost with the outbreak of World War I. In 1917, when 2.5 million British military draftees completed physical examinations, 41% were deemed unfit for duty, most commonly because of poor nutritional status.³¹ In the U.S., the American Red Cross enrolled dietitians for military duty. The initial qualifications were established by the National Committee on Dietitian Service of the American Red Cross. These qualifications were 2 years of college study in home economics plus 4 months of hands-on experience in hospital dietetics. The first military dietitian to serve overseas was deployed in May 1917 and, in World War I, 356 dietitians served in the armed forces.³² Mary Pascoe Huddleson, a dietitian with Base Hospital Numbers 8, 117, and 214, was among them. Marjorie Hulsizer Copher was another dietitian who served overseas with Harvard U.S. Army Base Hospital Number 5, with British Expeditionary Force, May 1917–December 1918, and then with Base Hospital Number 57, American Expeditionary Force. She was decorated by King George V of England and by the French government for improving foodservice delivery systems in field hospitals and for introducing the relatively new profession of dietetics to the British Army. She later served as Chief Dietitian at Barnes Hospital in St. Louis, MO. The highest honor bestowed by the Academy is named in her honor.³³

Dietitians provided critical food and nutrition expertise as the U.S. and Europe struggled with severe food shortages during World War I. The expertise of these brave dietitians provided leadership for both the nourishment of hospitalized



FIGURE 2-7 Lulu Graves, first president of the American Dietetic Association, now known as the Academy of Nutrition and Dietetics, in her office with her assistant. Courtesy of the Academy of Nutrition and Dietetics.

soldiers and the general public at home. Dietitians encouraged food conservation and advised the government on efficient methods of food production, distribution, and preparation.

When the American Home Economics Association decided not to hold its annual meeting in 1917 because of the war, two dietitians, Lenna Frances Cooper (previously shown in Figure 2-6) and Lulu G. Graves (Figure 2-7), organized a special meeting of hospital dietitians to discuss emergency war needs. Out of that meeting of 98 people, the American Dietetic Association (ADA) was formed (Figure 2-8). This association, with 39 charter members and dues of \$1 per year, was formed to address the interests of dietitians. Its first president was Lulu Graves from Lakeside Hospital in Cleveland, OH (Figure 2-9). Graves served as president for the first 3 years and Lenna Frances Cooper served as the first vice president.⁷

In 1918, *Diet and Health with a Key to the Calories*, written by a well-known female physician in America, Dr. Lulu Hunt Peters, was a bestseller. The diet began with a fast, then transitioned to “Fletcherizing” and calorie counting, with a daily limit of 1,200 calories prescribed for life.¹⁵

Dieto-therapy, as practiced in the early 1900s, included many special diets, such as the Sippy Diet for ulcers, which consisted of cream and poached eggs. Diets for those with diabetes varied widely, even after the discovery of insulin in 1921. Doctors prescribed very restrictive diets of 600 to 750 calories a day for severely obese patients beginning in 1928, and 10 years later, the regimen was reduced to 400 calories a day.



FIGURE 2-8 Attendees at the 1917 conference where the American Dietetic Association, now known as the Academy of Nutrition and Dietetics, was founded.
Courtesy of the Academy of Nutrition and Dietetics.



FIGURE 2-9 Lakeside Hospital kitchen, 1905. The first meeting of the American Dietetic Association was held in the basement of this hospital in 1917.
Courtesy of the Academy of Nutrition and Dietetics.

The 1920s saw a dizzying array of food-limiting fad diets. The 18-day Hollywood diet allowed 585 calories a day, limited mostly to grapefruit, oranges, eggs, and Melba toast. The lamb chop and the pineapple diets were also popular. The first food-combining diet was introduced where dieters were admonished not to combine starches, fruits, and proteins in the same meal.¹⁵

On a scientific level, the successful dietary treatment of pernicious anemia was reported in 1926 in the *Journal of the American Medical Association*.³⁴ The passage

of the federal Maternity and Infancy Act in the 1920s allowed state health departments to employ nutritionists.³⁰ The passage of Title V of the Social Security Act in 1935 provided major impetus for the employment of nutrition consultants in state and local health departments by making federal funds available for that purpose.^{30,35}

In 1922, the Medical Department Professional Service School at Walter Reed General Hospital was established, becoming the first Army training program for dietitians. The program met ADA requirements and was the only training course provided for dietitians by the Army from 1922 to 1942 (**Figure 2-10**). World War II contributed to the public recognition of the role of dietitians. Nearly 2,000 dietitians were commissioned in the armed services, and many others educated the public at home. The practice of dietetics broadened to include institutions such as restaurants, airlines, and industrial plants. After the war, dietitians were granted full military status, and their position in healthcare settings was strengthened with the emphasis on allied health professions and the healthcare team concept.⁷

The National School Lunch Act of 1946 established school lunch programs, providing employment opportunities for dietitians in foodservice management and nutrition education. The Hill-Burton Hospital Facilities Survey and Construction Act of 1946 and the Medicare and Medicaid legislation of the 1960s created demand for the services of consultant dietitians in healthcare facilities such as nursing homes.³⁵

In 1948, Take Off Pounds Sensibly (TOPS) became the first national group dieting organization. The TOPS program focused on calories, scales, food diaries, and mutual support. Still going strong, TOPS has added physical activity and virtual support meetings to its mix of weight-loss strategies.^{15,36}



FIGURE 2-10 Dietitians at Walter Reed General Hospital in 1922.
Courtesy of the Academy of Nutrition and Dietetics.



FIGURE 2-11 A recruiting poster for dietitians and physical and occupational therapists during the Korean War. Women's Medical Specialist Corp recruiting poster. U.S. War Poster Collection (MSS044), Betty H. Carter Women Veterans Historical Project, University of North Carolina at Greensboro, NC, USA.

Dietitians were actively recruited for service during the Korean War (Figure 2-11). At this time, the role of military dietitians expanded to include not only therapeutic dietetics, but also the supervision and operation of the entire hospital foodservice.³²

Joining TOPS as group dieting organizations, Overeaters Anonymous was founded in 1960 and Weight Watchers in 1961. During this same time, Mead Johnson introduced a diet formula, Metrecal, whose success spawned many imitators. The 1960s generated a number of diet book bestsellers. Touting low-carbohydrate, high-protein diets were *Calories Don't Count* and *The Doctor's Quick Weight Loss Diet*. In the alcohol-friendly, low-carbohydrate category were *The Drinking Man's Diet* and *Martinis and Whipped Cream*.¹⁵

The civil rights movement in the 1960s brought the issues of poverty and hunger into the political spotlight. The government launched its war on poverty and Senator Hubert Humphrey worked with the Senate Select Committee on Nutrition and Human Needs.³⁷ As a result of these and other efforts, USDA food assistance programs for low-income families were established or expanded in the 1970s. Important among these were the Food Stamp Program and school lunch and breakfast programs; child care and summer foodservice for children; supplemental feeding programs for Women, Infants, and Children (WIC); and nutrition for the elderly.³⁸