GERONTOLOGY

for the Health Care Professional

FOURTH EDITION

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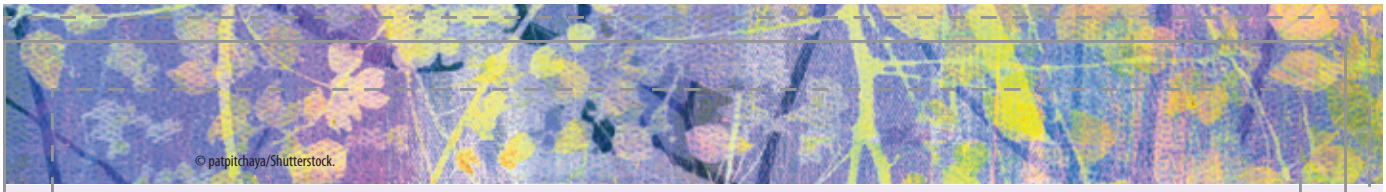


Dedication

This edition is dedicated to:

The older adults who have shown us how to live productive, healthy, and happy lives and for reminding us that age is more than just a number.

Our authors for their tireless writing efforts and commitment in educating healthcare workers, from students to seasoned professionals.

Our families who sacrificed their needs and wants when our work on this edition had to come first.

We thank all of you.

–Regi, Nancy, and Walter

Brief Contents

Contents

Introduction

Thank you for choosing to open this textbook and read this page. *Gerontology for the Health Care Professional, Fourth Edition* is designed with you in mind. Our goal is to provide a textbook that is reader-friendly and includes information that easily translates to healthcare practices.

As you read each chapter, we encourage you to consider the interprofessional roles of each of the healthcare professions listed below. While this is not an exclusive list and, most of the time, only a small portion of all the possible professions will actually be involved in working with any given client, we encourage you to think about how each profession *could* be involved and when a consultation or referral would be in order. You may need to investigate some of the following professions to familiarize yourself with their roles and further research is certainly encouraged.

The most prominent healthcare professionals involved in gerontological care are:

- Alternative Medicine Practitioners
- Art Therapists
- Athletic Trainers
- Audiologists
- Cardiovascular Technologists
- Case Managers
- Counselors
- Dental Practitioners
- Dieticians/Nutritionists
- Emergency Medical Practitioners
- Gerontologists
- Horticulture Therapists
- Imaging Technologists
- Massage Therapists
- Medical Laboratory Practitioners
- Medical Records Health Information Specialists
- Music Therapists
- Neuropsychologists
- Nursing Practitioners
- Occupational Therapy Practitioners
- Orientation and Mobility Specialists (low vision)
- Orthotists
- Physical Therapy Practitioners
- Physician Assistants
- Physicians
- Polysomnographers
- Prosthetists
- Psychiatrists
- Psychologists
- Radiological Technologists
- Recreation Therapists
- Rehabilitation Teachers (low vision)
- Respiratory Therapists
- Social Workers
- Speech and Language Pathologists
- Visual Care Specialists

We are fortunate to be living in an information-rich age in which Internet resources are readily available as never before. Certainly not everything available online can be relied upon, and therefore we need to read what is out there in cyberspace with critical

and questioning eyes. However, for individuals who want to learn, the floodgates have opened and the world of information is there for the learning.

How This Text Is Organized

The *Fourth Edition* begins with chapters on the social, psychological, and biological aspects of aging, including:

- Demographics (Chapter 1)
- Social Relationships and Roles (Chapter 2)
- Community Living (Chapter 3)
- End of Life (Chapter 4)
- Communication (Chapter 5)
- Policy (Chapter 6)
- Physiology (Chapter 7)
- Cognition and Psychology (Chapter 8)

Later chapters explore issues that, although not exclusive to older people, are of primary importance to the older population. These issues include:

- Functional Performance (Chapter 9)
- Drugs (Chapter 10)
- Nutrition (Chapter 11)
- Oral Health (Chapter 12)
- Sexuality (Chapter 13)
- Future of Aging (Chapter 14)

What Is New to the Fourth Edition

- NEW! Now in FULL color with a new and expanded art program!
- REVISED! Chapter 1 on demographics of aging offers more information about aging worldwide and the factors that contribute to a growing worldwide population.
- REVISED! Chapter 2 on social gerontology includes an expanded section on elder abuse.
- REVISED! Chapter 3 on community living has been expanded to include more information on aging in place and the continuum of care.
- NEW! New Chapter 4 on Loss, Grief, Death, and Dying.
- REVISED! Chapter 13 on sex and gender issues has been revised to reflect the lives of the LGBTQ community and other hidden populations.
- REVISED! Chapter 14 on the future of aging examines aging issues using community, family, and individual perspectives.
- NEW AND REVISED! Case Studies have been revised and additional ones added so there are two per chapter.
- UPDATED DATA! All information is updated to reflect current census data and statistics.

How to Use This Text

Gerontology for the Health Care Professional, Fourth Edition incorporates a number of engaging pedagogical features to aid in the student's understanding and retention of the material.

BEHAVIORAL OBJECTIVES

Upon completion of this chapter, the reader will be able to:

1. Differentiate between average life expectancy and maximum life span.
2. Compare and contrast the genetic and environmental theories of aging.
3. Explain the possible role of free radical formation in the aging process.
4. Identify common age-related changes related to the cardiovascular, respiratory, gastrointestinal, genitourinary, musculoskeletal, nervous, sensory, endocrine, immune, and integumentary systems.
5. Discuss health promotion for the aging process in relation to prevalent chronic diseases.

KEY TERMS

Atherosclerosis
Average life expectancy
Cataract
Chronic bronchitis
Chronic obstructive pulmonary disease
Diabetes mellitus
Diaphragm
Diverticulosis
Dysphagia
Fecal incontinence
Free radical
Gastritis
Hyposmia
Hypothalamus
Kyphosis
Maximum life span
Metastasize
Myocardial infarction
Osteoarthritis
Osteoporosis
Peptic ulcers
Presbycusis
Presbyopia
Sarcopenia
Senescence
Urinary incontinence
Xerostomia

Introduction

For hundreds of years, people have sought ways to live longer and slow down the aging process. Remedies have been promoted through abundant advertising and have included therapies such as special diets, vitamin supplements, cosmetic measures, and various other aids to help reduce the impact of aging. Even though researchers may study specific aspects of aging associated with their particular fields, a commonly held opinion is that the aging process is not linear, but multifaceted and influenced by individual biopsychosocial factors as well as external factors such as context, environment, and technology.

The **average life expectancy** (**TABLE 7-1**) in the United States has risen from about 47.3 years in 1900 to 78.8 years in 2015 (National Center for Health Statistics, 2017). This increase can largely be attributed to improvement in water supplies, sanitation, health technology, disease control, health promotion, and lower infant mortality rates (Forsberg & Fichtenberg, 2013). However, during the same period, there has been no change in the **maximum life span** (MLS), that is, the oldest age reached by an individual in a population, which is estimated to be about 120 years (Hayflick, 1997; Schneider, 1985). Although improvements in our standard of living have helped spare us from several causes of premature death, such as cholera, tuberculosis, and influenza, changes have done nothing to slow down the inherent aging process. In fact, any medical intervention that claims to slow down human aging must be shown to increase the MLS potential. But, to date, none have done so.

Behavioral Objectives at the beginning of each chapter help you focus on the most important concepts and can be used as a study tool to assess comprehension.

Each chapter lists the Key Terms that are highlighted throughout the text.

TABLE 7-1 Life Expectancy at Selected Ages, by Sex: United States 1900, 1950, 2014, and 2015

	Life Expectancy at Exact Age (Years)					
	At Birth			At Age 65		
Year	Both Sexes	Male	Female	Both Sexes	Male	Female
1900[1,2]	47.3	46.3	48.3			
1950[2]	68.2	65.6	71.1	13.9	12.8	15.0
2014[3]	78.9	76.5	81.3	19.4	18.0	20.6
2015[3]	78.8	76.3	81.2	19.4	18.0	20.6

[1]Death registration area only. The death registration area increased from 10 states and the District of Columbia (DC) in 1900 to the coterminous United States in 1933. See Appendix II, Registration area.
[2]Includes deaths of persons who were not residents of the 50 states and DC.
[3]Life expectancy estimates for 2015 are based on final Medicare data. Life expectancy estimates for 2014 and 2015 are based on preliminary Medicare data.
Data from National Center for Health Statistics. (2017). *Health, United States, 2016: With chartbook on long-term trends in health*. Hyattsville, MD: Centers for Disease Control and Prevention.

An unchanging MLS coupled with increasing life expectancy suggests two dimensions to the aging process. First, it supports the notion of distinguishing disease from aging. To illustrate, one of the most important chapters in the history of medicine has been the eradication of smallpox from the face of the earth through the use of vaccines. Although children who are immunized against smallpox have been spared a devastating infectious disease, they are not likely to age more slowly than nonimmunized children. Second, a MLS that has not likely changed in centuries points to the existence of a "biological clock" that predetermines humans' length of life. No such clock has been discovered, and it is perhaps an oversimplification of human physiology to suggest that one single mechanism in the body is responsible for aging. Nonetheless, it certainly appears that there are relatively fixed limits on how long the human body lasts.

A fixed life span, however, does not necessarily sentence adults to pain and suffering as they get older. Many of the physiologic changes associated with aging can be slowed to some extent with a healthy diet and consistent regimen of moderate exercise. Moreover, many of the chronic diseases prevalent in older adults are either preventable or modifiable with healthy lifestyle habits (**TABLE 7-2**). Reduction of dietary fat (especially saturated fats and cholesterol) lowers one's risk of coronary artery disease and stroke (i.e., occlusion or rupture of a cerebral artery) as well as breast and colon cancer (Spence, 2007; Tufts University, 2012). A program of increased physical activity increases one's resting and maximum cardiac output (the amount of blood pumped out of the heart per minute) while decreasing the chance of developing hypertension (American Heart Association, 2014). To the extent that exercise helps prevent obesity, it also

Oral Administration

Most drug absorption after oral administration occurs in the small intestine. Thus, the rate of gastric emptying needs to be considered. In the older patient, gut motility in general and gastric emptying in particular takes a longer amount of time (Cusack, 2004). However, research studies have resulted in mixed results as to the clinical relevance of these findings.

Generally, the slowed gastric emptying is reflected clinically in a time delay in attaining maximal drug concentrations in the blood without a change in maximal drug concentration. Studies on the absorption of drugs from the small intestine showed some changes in this parameter, but the changes uncovered were inconsistent and did not lend themselves to broad generalization. Thus, oral administration of drugs, in general, does not significantly affect the clinical response to drugs (Cusack, 2004; McLean & Le Couteur, 2004).

Transdermal Administration

Transdermal administration or medication administered through the skin, often through the use of a patch, is a convenient way to administer a steady amount of drug over a prolonged period (**FIGURE 10-2**). Examples of drugs administered though transdermal administration include estrogen (female hormone), fentanyl (an opioid painkiller), and scopolamine (treats motion sickness). Yet, as people age, they experience changes in the skin that can lead to changes in how drugs are absorbed through the skin. The outer layer or epidermis thins with age and becomes dryer, allowing for a decreased absorption of drug through the skin. Thus, use of transdermal medications in older adults may lead to lower concentrations in the blood.

FIGURE 10-2 Transdermal patches administer drugs (e.g., fentanyl and nicotine) over a prolonged period through the skin.
© Image Point Fr/Shutterstock

Drug Distribution

The next phase of pharmacokinetics is distribution. Drugs distribute throughout the body based on their **physicochemical properties**, that is, the relationship between the chemical structure of the drug and its interactions with the body. The most important of these properties is the **hydrophilicity** or **lipophilicity** of the drug—is it more attracted to water or to fat, respectively? As people age, lean body mass decreases, which leads to increased fat content in the body. With fat content increased, a fat-soluble drug will show a larger volume of distribution, which will lower its concentration and lower its therapeutic efficacy. The effect of aging on distribution is very much dependent upon the specific drug, so there is no consensus on the general effect of all fat-soluble drugs.

Drug Metabolism

Drug metabolism is an area where the complexities of pharmacokinetics in older people are most apparent. The liver is the major organ of drug metabolism, although the intestines, lungs, and kidneys also have important drug metabolizing enzymes. Fortunately, in the absence of disease, drug metabolizing enzymes are not significantly affected by aging (McLean & Le Couteur, 2004). Other changes, however, are more significant. One factor that relates directly to drug metabolism is blood flow through the

Tables and Figures throughout help with comprehension of key concepts and summarize important information for students.

Guidelines That Encourage Healthy Eating Patterns

1. Follow a healthy eating pattern across the lifespan. All food and beverage choices matter. Choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.	Follow a healthy eating pattern over time to help support a healthy body weight and reduce the risk of chronic disease. ■ A healthy eating pattern includes: fruits, vegetables, protein, dairy, grains, and oils. ■ A healthy eating pattern limits: saturated fats and *trans* fats, added sugars, and sodium.
2. Focus on variety, nutrient density, and amount. To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.	Choose a variety of nutrient-dense foods from each food group in recommended amounts. Examples include ■ Fruits: apples, grapes ■ Vegetables: lettuce, celery ■ Protein: chicken breast, unsalted walnuts ■ Dairy: fat-free milk ■ Grains: whole-grain bread ■ Oils: mayonnaise
3. Limit calories from added sugars and saturated fats and reduce sodium intake. Consume an eating pattern low in added sugars, saturated fats, and sodium. Cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.	Consume an eating pattern low in added sugars, saturated fats, and sodium. Examples include ■ Saturated fats: ice cream, burger ■ Added sugars: aerated drinks, muffin ■ Sodium: pizza, sandwich
4. Shift to healthier food and beverage choices. Choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Consider cultural and personal preferences to make these shifts easier to accomplish and maintain.	Replace typical food and beverages choices with more nutrient-dense options. Be sure to consider personal preferences to maintain shifts over time. For example, replacing macaroni and cheese with vegetable salads.
5. Support healthy eating patterns for all. Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities.	Everyone has a role in helping to create and support healthy eating patterns in places where we learn, work, live, and play.

FIGURE 11-3 Dietary Guidelines for Americans 2015–2020.
Reproduced from U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. 2015–2020 Dietary Guidelines. www.health.gov/dietaryguidelines/2015/

Review material is included at the end of each chapter for classroom use, homework, or self-assessment: Case Studies, Learning Activities, and Review Questions.

Summary 51

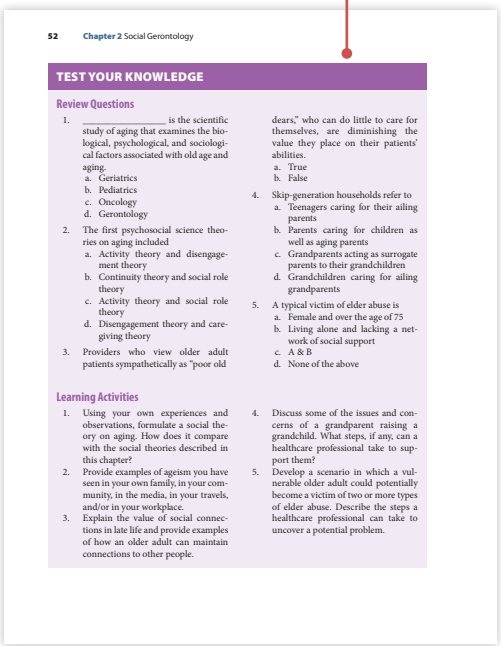
CASE STUDIES

Case 1: John and Jason are both 68 years old and have been an exclusive couple for 33 years. Although they cannot legally marry in their state, their lives are inextricably interwoven, even though many people are not aware of their relationship—only a handful of close friends know. John is a banker and commutes daily into the city to work. Jason is an instructor at a local community college and generally walks to his office. They have kept their relationship relatively secret because they fear that others will "out" them, which they fear will force them to leave the careers they adore. One day, Jason suffers a severe stroke and their carefully constructed world begins to unravel. As gay men, neither is provided the rights of a spouse in terms of overseeing medical care, and John is quickly pushed aside at the hospital as the staff ask who the next of kin is. As days go by, John remains at Jason's side, and one nurse in particular repeatedly makes comments about the two old gay guys and how they don't deserve her time or care. A doctor pulls John aside and advises him to start looking for a nursing home for Jason. The thought of losing Jason and placing him in a nursing home is more than John can bear. He believes the nursing home staff would be no different than the hospital staff and would not accept the men's relationship. John decides to quit his job to care for Jason at home. When his boss asks him why he is leaving, John lies and says his mother's health is failing and she needs him. The first 3 months of care go relatively well, but as Jason's health declines, John recognizes he needs help and a break from caregiving, but feels he has no one to turn to.

1. **How are John and Jason's challenges in providing Jason with care different from the challenges faced by a heterosexual couple?**
2. **What challenges do healthcare professionals face in providing care to same-sex couples?**
3. **What can healthcare professionals do to help couples like John and Jason successfully manage their healthcare challenges?**

Case 2: Barbara, age 42, is a lucky woman, or at least that is what everyone tells her. She has an adoring husband, smart children, a career as a store manager, and impeccable taste in fashion. Barbara has always been an excellent multitasker and has successfully balanced her marriage, family, and career for 20 years. She makes every task look effortless. So, when her mother started having health problems, Barbara was sure to set aside the time needed to help. She always assumed she would be the best one to help her mother, even though she lived 200 miles away, because she was reliable and dependable. Barbara has a brother and sister who could probably help, but they have their own careers and families and they are just fine letting Barbara take over. They trust Barbara. After a few months, Barbara thought that being a long-distance caregiver was not that hard. She struggled a bit at first, but soon organized all the information she needed about her mother's health problems and care. She was in touch with doctors on a regular basis and authorized whatever care was needed. Soon, she started managing her mother's finances. It did not cross Barbara's mind to call her siblings to update them, and they did not think to call her. Barbara was pleased that she could provide for her mother from a distance. Although long-distance caregiving was not convenient and often forced her to change her plans, she could not imagine not being available for her mom. One day, Barbara received a call that her mother had been hospitalized. She called her sister and they agreed to meet at their mother's home and travel together to the hospital. Secretly, Barbara was glad to meet with her sister because she was getting tired of having the extra burden of her mother's life on her shoulders alone. Last week at work, the regional manager told her that her enthusiasm and work performance had started to slip. Even her husband had made a few comments that she did not seem to have the time for him and their children anymore. Barbara knew things needed to change, but just was not sure what to do.

1. **What should Barbara do and why?**
2. **What steps does Barbara need to take to ensure her own needs are being cared for?**



52 Chapter 2 Social Gerontology

TEST YOUR KNOWLEDGE

Review Questions

1. _____ is the scientific study of aging that examines the biological, psychological, and sociological factors associated with old age and aging.
   a. Geriatrics
   b. Pediatrics
   c. Oncology
   d. Gerontology
2. The first psychosocial science theories on aging included
   a. Activity theory and disengagement theory
   b. Continuity theory and social role theory
   c. Activity theory and social role theory
   d. Disengagement theory and caregiving theory
3. Providers who view older adult patients sympathetically as "poor old dears," who can do little to care for themselves, are diminishing the value they place on their patients' abilities.
   a. True
   b. False
4. Skip-generation households refer to
   a. Teenagers caring for their ailing parents
   b. Parents caring for children as well as aging parents
   c. Grandparents acting as surrogate parents to their grandchildren
   d. Grandchildren caring for ailing grandparents
5. A typical victim of elder abuse is
   a. Female and over the age of 75
   b. Living alone and lacking a network of social support
   c. A & B
   d. None of the above

Learning Activities

1. Using your own experiences and observations, formulate a social theory on aging. How does it compare with the social theories described in this chapter?
2. Provide examples of ageism you have seen in your own family, in your community, in the media, in your travels, and/or in your workplace.
3. Explain the value of social connections in late life and provide examples of how an older adult can maintain connections to other people.
4. Discuss some of the issues and concerns of a grandparent raising a grandchild. What steps, if any, can a healthcare professional take to support them?
5. Develop a scenario in which a vulnerable older adult could potentially become a victim of two or more types of elder abuse. Describe the steps a healthcare professional can take to uncover a potential problem.

Instructor Resources

Qualified instructors will receive a full suite of instructor resources, including:

- More than 250 slides in PowerPoint format
- A test bank with chapter-by-chapter questions along with midterm and final tests
- Case studies along with potential answers
- An Instructor's Manual containing a summary, key terms and definitions, teaching tips, and a list of material and online resources

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