Growing old in a new age: video seminars

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Video Seminars
Growing Old in a New Age

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PREFAE

This book of readings is intended to assist the participants of the video seminars 'Growing Old in a New Age' in studying the subject. The video seminars are part of a thirteen part public television series 'Growing Old in a New Age', prepared by the Center on Aging of the University of Hawaii and which is part of the Annenberg/CPB Collection.

A declining birth rate combined with lengthening life expectancy is creating a dramatically older and different world population. These demographic changes and the gap between the needs for technology by the elderly and the range of suitable products and services available to them, are the basis for Gerontechnology. A starting point for gerontechnology is the knowledge about the ageing and aged people. Gerontology is concerned with research on the biological, psychological, medical, social, and economical aspects of ageing. The video seminars are a comprehensive introduction to gerontology. It will help participants understand the process of ageing and its impact on the lives of individuals and society.

This guide provides you with a summary of the key points presented in the video programs and a glossary of important terms and concepts introduced in the video. The reference to 'the text' in the summary of the key points is a reference to the book titled 'Social Gerontology: A Multidisciplinary Perspective' by Nancy R. Hooyman and H. Asuman Kiyak (ISBN 0 205 14134 X).

The 10 lessons offered in this series address questions as how one stays physically and mentally healthy and sustains a useful role throughout life. The programs draw upon the expertise of social and biological scientists, medical professionals and clinicians, as well as the personal experiences of more than 75 individuals of retirement age and beyond.

We hope you will find this seminar series helpful in understanding the subject.


Only for use with the video seminar 'Growing Old in a New Age', organized by the Institute for Gerontechnology, Eindhoven University of Technology.

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GROWING OLD IN A NEW AGE includes:

12 October 1994  **Myths and Realities of Aging**
Examines the common myths surrounding aging compared with today’s realities. Experts and elders describe how we learn about aging and how knowledge can help us debunk myths.

19 October 1994  **How the Body Ages**
Experts describe the universal physical changes that accompany aging and explain how other changes can be prevented. Researchers describe advances in cellular studies and the search for biomarkers of aging.

26 October 1994  **Maximizing Physical Potential of Older Adults**
Considers ways to develop the greatest physical potential in an aging individual while compensating for the effects of aging. Elders describe how lifestyle choices have helped them maintain an active healthy life.

02 November 1994  **Love, Intimacy and Sexuality**
Examines the sources of love and affection in old age and describes how aging may affect sexual and reproductive functioning. Older adults discuss their continuing need for companionship, intimacy, love, and sex.

09 November 1994  **Intellect, Personality and Mental Health**
Examines intellectual function and the nature of personality. Gerontologists describe longitudinal and cross-sectional research designs to study intellect and personality over the lifespan. Elders discuss mental health and stress-reduction techniques.

16 November 1994  **Learning, Memory and Speed of Behaviour**
Explores what happens to our mental capacities as we age. Techniques used to maintain and augment mental functioning are examined. Elders explain why lifelong learning is crucial.

23 November 1994  **Social Roles and Relationships in Old Age**
Looks at how family, friendship, work and leisure roles evolve as we age. Elders discuss coping with role losses resulting from retirement or death of a loved one. The pioneering of new roles is explored.

30 November 1994  **Illness and Disability**
Examines chronic health problems and availability of supportive services. Older people discuss how they cope with physical and mental illness and face tough decisions regarding institutionalization and costs of long-term care.

07 December 1994  **Dying, Death and Bereavement**
Discusses the services older people need to deal with dying and death. Elders describe their views on widowhood and management of grief. Experts examine the ethical dilemmas posed by terminal illness.

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14 December 1994  The Future of Aging
Explores generational conflicts, resource needs of a growing population of elders and the role of technology in improving quality of life for older adults. Experts describe how aging will be different in the 21st Century.
1. MYTHS AND REALITIES OF AGING

LEARNING OBJECTIVES

1) Explain how and why attitudes toward older people have changed over time.
2) Discuss the impact of the changing age structure of society.
3) Discuss the advantages and disadvantages of longitudinal and cross-sectional methods of studying aging.
4) Describe and “debunk” five common myths about aging and older adults.

KEY POINTS

Changing Attitudes Toward Older People

Attitudes toward aging and older people have changed over time and often differ by culture. Research suggests that in prehistoric times, few people lived to an advanced old age. Those who did were respected and honored and usually served as the society's historians and mediators. When old people became frail and unproductive, however, society encouraged them to die or leave the community. Chapter 3 of the text provides several examples of this practice, known as geronticide or senicide. The text then traces the evolution of our views of old age through Western history and from traditional to modern societies.

Across time and culture, however, it appears that the status of older people corresponds to the amount of resources they control. Resources can include money, property, knowledge, religious power, and political power. Chapter 3 of the text gives examples of the relationship between status and resources of elderly people in a number of different cultures.

Modernization theory suggests that older people lose political and social power as the society places increasing value on technology, mass education, and nuclear (rather than extended) families. For example, when knowledge depends on experience, older people have the advantage and are respected in part because they control access to this knowledge. In more modern societies, young people often have more access to knowledge than older people, for example through school and exposure to computer technology. Thus, the status of older people begins to decline.

Older adults in the video appear to view old age as a positive time. Most of them are healthy and continue to control resources (for example they have homes, cars, Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
pensions, and experience) that command respect and allow them the freedom to fill meaningful roles in society. Mollie Pier, for example, realizes that old age is fun for her because she has good health, can still drive her car, and is secure financially.

Older adults who are not healthy or who have fewer resources may have a different experience of old age. David Reese didn’t really feel old until he started having health problems and experiencing limitations in his activities. Different views of aging by ethnic group may also stem from differential access to resources. Dr. Vern Bengtson describes a study in which older Caucasian Americans and African Americans were asked to identify the best thing about growing old. The Caucasians in the study liked the increased opportunity to travel that came with retirement. The African Americans, on the other hand, had fewer resources throughout their lives and were just happy to have survived to old age. Research suggests that older women, minorities, those who live alone, and those over 85 years old are likely to experience old age as a hardship.

Many older adults continue to act as preservers of cultural heritage. For example, Leo Salazar describes the role his own grandfather played in introducing him to his Hispanic heritage. Mollie learned about Jewish culture from her grandparents. Celestine Eggleston feels responsible for explaining the family’s African American heritage to her grandchildren and help them rise above prejudice in their own lives.

But other roles and attitudes are changing. Several adults in the video say they resist societal pressures to “act their age.” For example, Virginia Templeton resents societal notions that interest in sex stops at 39. Robert Okura is having trouble getting a job at age 62 years and resents being seen as “too old to work.” Ruth Dow occasionally shocks her children by taking off on adventures, such as sea plane rides.

Many changes stem from the fact that we have now, for the first time, large cohorts of people who are living into advanced old age. Who knows how a great-grandparent should act? So few people have been great-grandparents that we do not have role models. The older adults who become great-grandparents in the next decade will be pioneers of this relatively new role.

Dr. Gene Cohen tells us that medical schools only began adding geriatrics to the curriculum in the mid-1970s. Physicians and scientists who were interested in aging in the 1970s were pioneers in the field. Dr. Bengtson is glad he came into gerontology on the ground floor. He tells us it’s “a wonderful time to be a gerontologist. We’re just riding the crest of the first few waves of explanation, of understanding, of classification.”

Despite the general enthusiasm for aging expressed in the video, some older adults and experts have experienced ageism. Ageism includes stereotyping and discrimination based on age. Reasons for ageism are discussed in the Chapter 1 of the text and include: lack of knowledge about aging, a general fear of the aging process, and perceived competition for resources.

Statements like “all old people are forgetful” or “older people aren’t interested in sex” are stereotypes, or generalized beliefs based on age. We will identify and debate several common stereotypes about aging in the section below titled, “Common Myths about Aging and Older Adults.”

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Stereotyping can lead to discrimination. For example, Dr. Kenneth Brummel-Smith reminds us that calling older people names like “geezer” and “gomer” paints a negative picture of older people and isolates them from younger people. When negative feelings about older people become pervasive, we see a decline in society’s respect for aging and a decline in the self-esteem of older people themselves. Experts have experienced discrimination too. Dr. Leonard Hayflick remembers when expressing an interest in studying aging was “professional suicide” for a researcher.

According to Dr. Robert Atchley, the experience of ageism is usually worse for people who already experience other kinds of discrimination, such as sexism and racism. For example, Lou Glasse tells us that most studies on the diseases common in old age have excluded women. Ageist attitudes are apparent in the way buildings are constructed. Msgr. Charles Fahey has noticed that most churches and synagogues are poorly lit and inaccessible to people with disabilities.

As society ages, and as we ourselves age, we will continue to reshape our views of aging and older adults. It appears that older people will have more and more options for how they live, who they live with, and what they do in old age. Increased choices will lead to increased questioning and testing on the part of older people. Already, Dr. Jeanette Takamura notices that retired friends are asking questions like: “who am I?” and “who does society permit me to be?”

With so many more people living into their 80s and 90s, Msgr. Fahey suggests we institute a special ceremony that signals an individual’s entry into the Third Age, the last 30 to 40 years of life. This ceremony would include a culturally-sanctioned period of transition in which people could take the time to reflect on who they are and what they want to do in their remaining decades.

Changes in the Age Structure of Society

The size of the elderly population is growing rapidly. Much of its growth has occurred in the past century. For example, in 1900 only 4% of Americans were 65 years of age or older; in 1990, almost 13% were elderly. For people born in 1900, the average life expectancy in the U.S. was 47 years; people born in 1989 are expected to live to age 75. The number of people aged 85 and older (a group known as the oldest-old) increased by 300% between 1960 and 1990, from about 1 million to about 3 million.

Subgroup differences exist, however, in average life expectancy. For example, women live an average of 7 years more than men and outnumber men in the older age groups. Figure 1-1 in the text shows that among people 85 years of age and older, there were only 44 men per 100 women in 1990. Mildred Tuttle sees evidence of this trend in her retirement community, Leisure World, where the average age of residents is 77 years and almost 80% of the residents are female. Ethnic differences exist as well. Compared to Caucasian Americans, the average life expectancy is 5 to 7 years less for African Americans and about 8 years less for Native Americans. However, the number of older African, Hispanic, Asian, and Native Americans is growing rapidly as well, and in some cases more rapidly than Caucasians. An introduction to aging and ethnicity is provided in Chapter 1 of the text.
Demographers use a population pyramid to illustrate the changing age structure of society. In Figure 1-5 in the text, the age distribution for the U.S. in 1987 looks somewhat like a pyramid. But by 2030, the age distribution is projected to look more like a bean pole. Dr. Bengtson sees evidence of this in his own family structure. In the early part of the century, his father's family contained one grandparent at the top of the pyramid and eleven children at the base. The Bengtson family now includes a great-grandparent, a grandparent, two parents, and three children...much more of a bean pole than a pyramid!

Present day age pyramids for developing countries look like U.S. age pyramids of the turn of the century (see Figure 1-10 in the text). However, as Dr. Linda Martin tells us, even countries with low proportions of elders today (see Figure 1-9 in the text) are experiencing increases in their number and proportion of older people.

What accounts for the growth of the elderly population? Advances in sanitation and immunization have allowed more children to survive infancy and grow to adulthood. Lower birth rates have resulted in a smaller proportion of children in the population. Improved nutrition and lifestyles, high cure rates for infectious disease, and improved medical care for chronic conditions have allowed those who reach maturity to live longer.

Another important U.S. phenomenon that affects the age structure of society is the Baby Boom, the term given to the large number of Americans born after World War II. The Baby Boom generation has been likened to "a pig in a python" because it causes a huge, demographic bulge as it moves through time. Due to its great size, this cohort has a big impact on society. For example, when the Baby Boomers were school-aged, more schools had to be built. Now, we don't need as many schools and some have been closed. Dr. James Dator notes that the Baby Boomers have always been vocal and, when they become senior citizens, he feels sure that they will continue working to win freedoms for their cohort.

Msgr. Fahey reminds us that we are among the first people in history who can look forward to a relatively long and certain life. Views of aging will change as members of the older generations continue to renegotiate old roles and try out new ones.

Methods of Studying Aging

In the past 20 years, scientists and researchers have paid increasing attention to studying age differences and age changes. Cross-sectional research is conducted at a single time point to look for differences between subjects of different ages. Longitudinal studies, on the other hand, follow the same group of people over time to look for changes that happen as people age.

Each type of study has its advantages and disadvantages. Cross-sectional studies are usually easier and less expensive than longitudinal studies because the subjects are interviewed at a single time point. On the other hand, it is hard to know if differences among subjects are really due to age. Are differences instead due to cultural or historical conditions that shaped different-aged subjects differently? Longitudinal studies eliminate this problem, known as the cohort effect. However, longitudinal studies may be compromised by attrition, i.e., subjects drop out over the course of the
study. When attrition is selective (subjects with certain characteristics drop out while subjects with other characteristics stay in), research findings may be biased toward those who stayed in the study.

Sequential designs combine cross-sectional and longitudinal methods in order to examine age differences and age changes at the same time. Dr. James Birren gives an example of a Swedish study that used a sequential design. Subjects enter the study at age 70. Every 5 years, a new group of 70-year-old people enter the study. Data are collected on all subjects. Both age differences (between successive cohorts entered in the study) and age changes (in the subjects re-surveyed at regular intervals) are being measured. The findings to date suggest that each cohort is healthier than the last. Other studies, and the methods used to conduct them, are described in Chapter 2 of the text.

Common Myths about Aging and Older Adults

A number of myths are presented and disputed in the video and in Chapter 1 of the text. Dr. Herman Feifel, in the video, scoffs at the myth that all older people are the same. He explains that there is great diversity among the aged. Dr. Atchley wonders how anyone can stereotype older adults. “Older adulthood” spans 40 years and is comprised of people of different races, genders, backgrounds, and experiences. How can we develop a general statement that captures the essence of all of the people in these groups?

Another common myth is that older people cannot learn new things. But Dr. Takamura has first hand evidence of older adults who have embraced and excelled at computer technology. David Reese learned to play the piano in retirement.

Do all older people want to retire? According to our experts, most older adults want options for work and leisure. In the past, mandatory retirement rules have limited older adults’ options for working past the age of 65 or 70. But continued work may add structure and spice to life, without which, Rabbi Grollman tells us, you may find that your Wednesday hair cut is the high point of your week.

It’s a myth that all older people are conservative or religious. In fact, most people maintain their political and religious beliefs throughout life. In addition, Dr. Fernando Torres-Gil notes that many older people are receptive to new ideas and can change their minds when presented with new information and persuasive arguments.

Dr. Atchley notes that positive stereotypes (such as “all older people are wise”) are as damaging as negative stereotypes. Again, we see a wide variance in how people age and we need to give older people the latitude to explore their own developmental paths.

Lou Glasse discusses our ideas about attractiveness. When the population was dominated by young people, beauty was equated with youth. But as the population ages, she bets we will begin thinking differently about who is and who isn’t attractive. You can probably think of several older movie and television stars who are considered “sexy.” And sex doesn’t end at 39, as Virginia Templeton fears most young people believe. In fact, the desire for sexual intimacy and the ability to enjoy sex continues
throughout life. Roger and Mary Sue Wonson tell us that their sexuality just "gets better with old age."

... Nor are all older people infirm or irreversibly disabled. Only 5 percent of adults over age 65 reside in nursing homes at any one time and health providers have found that many conditions previously considered to be part of the aging process can actually be treated and reversed. For example, Dr. Theodore Koff tells how his clinic has reversed many cases of incontinence (loss of bowel or bladder control) in older adults.

It's a myth that children abandon their parents. In fact, Dr. Robyn Stone tells us that 85 to 95 percent of long-term care needed by older adults is provided by family members. Dr. Martin notes, however, that while we have more opportunities to live together in multi-generational families compared to the past, few families actually choose to live together in a single household. As Ruth Dow tells us, she loves her independence and won't give it up until she has to. Although independent, older adults continue to play vital roles within the family. Dr. Meredith Minkler sees an increase in grandmothers caring for grandchildren.

Dr. Colette Browne closes the video with her wish for the future: That we begin to view aging, not as a process of decline and decay, but as a natural course of continued growth and development over the lifespan, filled with joys and challenges.
2. HOW THE BODY AGES

LEARNING OBJECTIVES

1) Describe how the biological changes that occur with aging affect appearance, strength, stamina, and resistance to disease.

2) Discuss environmental and programmed theories of biological aging.

3) Describe two directions for future research in the biology of aging.

KEY POINTS

Biological Changes in Aging

Chapter 5 in the text presents details on the biological changes that occur with age. The most overt signs of biological aging, or senescence, are in our appearance. Skin wrinkles over time because cell replacement in the epidermis (outermost layer of skin) decreases with age and the collagen (connective tissue) that makes up the dermis (second layer of skin) loses elasticity. With exposure to skin-damaging sun and wind, the skin can darken, dry, or become cancerous. In the video, David Reese discusses his experience with skin cancer; he hopes to prevent its recurrence by wearing sunscreen and a hat whenever he goes outside. In addition, the deepest layers of skin (known as subcutaneous layers) lose fat and water, making it more difficult for older people to regulate their internal temperature. Ilse Darling reports that she has become more sensitive to cold over the years. Wound healing also slows with age.

As our levels of estrogen and testosterone decrease over the years, the rate of hair replacement decreases as well. Hair follicles shrink in diameter with age and lose pigment, so that our hair thins and grays. While disguising skin and hair changes has generated a huge cosmetics industry in modern societies, age does have its advantages. Dr. Gene Cohen reports that Bertrand Russell appreciated looking older; he noticed that the whiter his hair became, the more likely people were to believe what he had to say!

Changes also occur in the musculo-skeletal system. Stature starts to decline at about age 25, the spine may become more curved, and the shoulders may stoop. Bone loss can also occur in the jaw bone of people who have no teeth. Loss of cartilage in the joints can cause arthritic stiffness. Body composition changes, with decreased proportions of water and lean muscle and an increased proportion of fat (see Figure 5-1 in the text). Muscle tone and strength decline with age.

Figure 5-2 in the text displays graphically how normal aging results in declines in metabolism, cardiac function, lung capacity, and kidney function. Specifically, breathing capacity decreases as the muscles that operate the lungs lose elasticity. The number of cilia (hairlike structures) in the airways is also reduced, and this makes it harder to remove pollutants and irritants from the air we breathe. The heart and blood vessels also lose elasticity, the muscle in the heart is replaced with fat, and blood vessel walls line with lipids (fat). Blood pressure tends to increase with age (see Figure 5-3 in the text). Dr. Edward Lakatta and Dr. Michael Crow discuss cardiovascular changes in the video.
Changes in the kidneys result in a slower rate at which impurities are filtered from the blood and a decreased capacity to absorb glucose (sugar). Bladder capacity is reduced and the sensation of needing to urinate becomes delayed. The gastrointestinal system slows as muscle function and enzyme levels decline. Changes to the reproductive organs also occur; these are elaborated upon in Program Lesson 4, "Love, Intimacy, and Sexuality."

Brain cells die as we age, but because we have an enormous reserve of neurons (nerve cells), mental ability does not decline with normal aging. Brain cells that remain develop new extensions, or synapses, so that communication between areas of the brain is maintained, although transmission tends to slow with age. Reaction time and reflexes also decline. Fine motor control, over handwriting for example, is also reduced as noted by Ilse Darling.

Several older adults in the video notice that they have a reduced capacity for activities requiring physical strength and stamina. For example, Ilse Darling says she can no longer plant bushes in her garden, is a lot slower at ping-pong, swims fewer laps in the pool, and is stiffer after her swim compared to when she was younger. Roger Wonson and Donald McClure find they are slower at tennis.

Many of the experts in the video, however, cite scientific evidence that these declines are delayed in people who engage in regular physical activity and watch their diets. In fact, Dr. Lakatta notes that arteries do not stiffen in individuals in non-industrialized societies who maintain high levels of activity and consume very small amounts of sodium chloride (salt).

Although research has found patterns of physical decline in normal aging, we see a great variance in the rate of aging among older adults. Dr. Richard Sprott illustrates this when he compares Aunt Maude, who is active and healthy in her 60s, with a person in his or her 50s who has slowed down considerably. The experts concur that individual aging is based in genetic inheritance but is greatly influenced by lifestyle and environment. Ways in which lifestyle and environment can help maximize physical potential are discussed further in Program Lesson 3, "Maximizing Physical Potential of Older Adults."

As Mollie Pier says, "getting older is not a disease." And, in fact, most normal age changes do not threaten health. But some age changes do put older adults at higher risk of disease. Dr. William Adler tells us that a decline in lymphocyte function over the life course makes the immune system less effective in protecting us from illness or helping us recover. He notes that the incidence of respiratory illnesses among adults over age 65 is as high as among children under 5 years of age (these two groups are most susceptible to disease), but that the mortality, or death rate, is 30 times higher in the older group. Knowing this, Dr. Adler is disturbed by the fact that less than 20% of older adults take advantage of vaccines that can help them avoid contracting influenza and pneumonia. These, and other, common diseases of old age are covered in Program Lesson 10, "Illness and Disability."
Theories of Biological Aging

Two themes emerge when biological theories of aging are discussed. A group of theories centers around the idea that lifespan and the aging process are genetically programmed or governed by some biological clock. Dr. Sprott notes that, from biblical times, the maximum human lifespan has not appeared to exceed 115 to 120 years. Another class of theories link aging with the damaging effects of the environment and poor lifestyle.

The text provides an overview of five theories of biological aging; each helps us understand the biology of aging but none totally explains what causes aging. The Wear and Tear Theory purports that each species ages at a genetically-determined rate within a genetically-determined lifespan. This, compounded by environmental stress and poor lifestyle, leads to the deterioration of cells, and to frailty and death. The Autoimmune Theory suggests that, as the body's immune system declines with age, it becomes defective and attacks itself. The Cross-Linkage Theory associates aging with the loss of collagen (connective tissue) in the skin, blood vessels, muscles, eyes, and other organs. The Free Radical Theory links aging with the destructive effects of free radicals, highly reactive chemical compounds with an unpaired electron. The Cellular Aging Theory is based on Dr. Leonard Hayflick's finding that cells are mortal.

Dr. Sprott feels that “many of the differences between individuals within a species are genetically programmed, but that interaction with the environment is very, very significant.” Because of this belief, he jogs four times a week.

As Dr. Cohen explains, longitudinal studies, those in which a group of people is followed for several decades, help researchers differentiate between biological changes associated with normal aging and changes associated with disease. Longitudinal studies have also provided clues about the effects of lifestyle on lifespan. For example, findings from the Baltimore Longitudinal Study of Aging (BLSA) suggest that obesity cuts years from the lifespan while “not smoking” adds years to life.

Donald McClure, a participant with the BLSA, explains that the study provides him with a complete physical examination every few years and then compares his biological status to his baseline profile. He learns of any abnormalities and follows up with his personal physician. Dr. Jeffrey Metter notes that, on the average, male participants in the study have lived eight years longer than men in the general population. This may be because the study attracted people who were already interested in health, because the study raised participant awareness about health and health promotion (as expressed by Donald McClure), or because of selective attrition (the less healthy participants dropped out over time). Although the study was initially restricted to men, Ilse Darling, and other women, joined the study in 1978.

Future Research in the Biology of Aging

The video introduces some of the promising avenues for research on biological aging, particularly in the areas of cell aging, cell death, genetic mapping, genetic replacement therapy, and biomarkers of aging. Robert Harootyan and Drs. Hayflick, Sprott, Antonino Passaniti, and Cohen discuss scientific explorations in these areas.

Dr. Hayflick says that the overt signs of aging, such as wrinkles and gray hair, “are very simple reflections of an enormous number of changes that occur at much more sophisticated levels of biology,” i.e., at the cell level, at the organ level, and at the tissue level.
level. He has spent his career studying cell mortality. A central question in aging research is "why do cells stop dividing?" On the other hand, why do cancer cells divide out-of-control? Dr. Passaniti and Dr. Cohen see these as two sides of the same question and support more research in this area.

The Genome Project is attempting to identify the position and function of every gene on every human chromosome. The first two chromosomes were fully mapped in 1992 and Robert Harootyan believes they will all be mapped by 2005. The video and text explain how this project may help us add quality to life; if we understand the hormones needed for genetic function, we can replace depleted hormones through injection and reverse aspects of the aging process. For example, growth hormone injections in animals have been associated with increased muscle mass, reduced fat, and improved activity levels. We could also alter, correct, or replace defective genes that speed aging or cause disease. An example would be in people with progeria, a rare condition in which the aging process is speeded up and death occurs at age 15 or 20. If the genes that control this process were replaced, would the person with progeria age at a more normal rate? Dr. Passaniti describes efforts in which defective immune system genes are replaced in humans. Most genetic experimentation, however, is conducted on fast-living, fast-breeding fruit flies. Experiments with fruit flies suggest that their genes can be manipulated to double or triple their lifespan.

Dr. Sprott is very excited about using genetic engineering, as this process is called, for tackling problems at the somatic cell level (tissue and organs are composed of somatic cells) as described in the preceding paragraph. He stresses that, in the context of gerontological research, genetic engineering does not refer to the manipulation of genes at the germ cell (egg and sperm) level to create "politically acceptable" people.

Researchers also continue to search for human biomarkers of aging. Dr. Sprott explains that a biomarker is a scientific measure that allows us to judge the rate at which an individual is aging. It is important to identify biomarkers so that when we intervene to change one's rate of aging, we will know whether we succeeded or not. In other words, we would hope that our intervention resulted in a delayed appearance of the biomarkers. Dr. Sprott gives us an example from research with mice. By feeding mice an adequately nutritious but low-calorie diet (the intervention), researchers noticed significant delay in the appearance of laboratory-induced tumors (the biomarker). These experiments also suggested that caloric restriction with adequate nutrition extended the average mouse lifespan by 35%.

But how long do older adults want to live? Mollie Pier notes that the definition of "long life" has changed from 53 years old in her grandmother's time to 90 or 100 years old now. David Reese would like to live to see 100, providing he can still see, hear, and move around. Leo Salazar would like to live life to its fullest and then die quickly in his sleep. Dr. Sprott agrees that biological research should concentrate on improving the quality of the terminal third, or last one-third of one's lifespan. Dr. Cohen suggests that biological researchers do not want to replicate the experience of mythical Tithanus, to whom Zeus granted immortality but not eternal youth; according to mythology, Tithanus lives to this day, growing more and more frail.

Mollie Pier summarizes for experts and elders alike by hoping that, "whatever research is going on now will not just prolong life, but give [it] a very, very good quality."
3. MAXIMIZING PHYSICAL POTENTIAL OF OLDER ADULTS

LEARNING OBJECTIVES

1) Explain the value of physical fitness and good nutrition over the lifespan.
2) Describe changes that occur with aging in vision, hearing, and sleep patterns.
3) Give three examples that illustrate the concept of person-environment interaction in aging.
4) Describe how gender and ethnicity affect health status in later life.

KEY POINTS

Physical Fitness and Good Nutrition over the Lifespan

Research suggests that physical fitness and good nutrition are important to the health of older people. In the video, Dr. Jerome Fleg says, "we think that regular exercise certainly puts more life in your years, and...that it may even put more years in your life." Specific benefits of physical fitness and aerobic exercise include improved muscle tone, increased oxygen consumption, reduced blood pressure, improved sugar and fat metabolism, weight control, and stress control. Members of the Danvers Walkers have noticed improvements since they began exercising; one says that exercise helps control her arthritis, another found that it helped her recover from a stroke, and a third says it helped her adjust after placing her husband in a nursing home. Jane Potter finds that a daily swim keeps her limber and makes her feel better.

Dr. Michael Kaplan reports that even people who begin exercise programs in later life show improvements in their life expectancy. Donald McClure began to take exercise more seriously when he learned that he had diabetes. Although he admits that it was tough to change his lifestyle, he was able to do so by increasing his association with people who were already involved in exercise programs. David Reese began to exercise after his heart bypass surgery and has progressed to walking three miles and doing 15 to 20 minutes of calisthenics a day. The text notes that even very frail elderly

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people can benefit from increased exercise, for example range-of-motion exercises for bed-bound adults who might otherwise experience contractures. Sedentary older adults who want to start exercising should have a thorough medical exam and get their physician's advice about type and amount of exercise. As Dr. Kaplan states, "it really isn't ever too late to begin an active exercise program."

What kind of exercise is best? Dr. Fleg recommends a program of cross-training with both aerobic and resistance activities; the aerobic activities improve cardio-pulmonary function and stamina while the resistance activities improve muscle tone and strength. Adults should engage in sensible exercise on a regular basis (3 to 5 times a week), rather than trying to make up for a month of no exercise with a strenuous game of racquetball. Some adults who have been active throughout life report that they need to modify their activities in later life. For example, Walter Morris had to reduce his tennis playing due to arthritis and aging changes in his knees; instead he does more swimming and walking. Jane Potter's physician tells her that it's not how fast she swims or the stroke she uses, but that she continues to swim throughout her life.

The basic principles of a good diet are similar for all adults: consume a variety of foods; increase consumption of fresh fruits, fresh vegetables, legumes and whole grains; and reduce intake of red meat, fat, and sugar. Dr. Kiyak notes that increased intake of antioxidants (found in fruits and vegetables) has been linked to increased longevity and delayed tumor growth. Findings from the Baltimore Longitudinal Study on Aging suggest that participants have made positive dietary changes over the past 30 years, as they now report consuming more fiber and fewer fats.

Older adults should also guard against excessive weight gain, which is associated with higher incidence of diabetes, heart disease, high blood pressure, and some types of cancer. Belonging to a support group called KOPS (Keep Off Pounds Sensibly) helps Mollie Pier maintain her ideal weight.

A number of age-related changes can affect nutritional status. For example, sensory changes in taste and smell may reduce enjoyment of food, resulting in loss of appetite or a tendency to over-salt meals. Loose teeth or poorly fitting dentures can lead to difficulty chewing, poor digestion, and low intake of food. Chronic illness and depression can reduce the appetite. For example, since his wife died Charles Stump has found that just walking in his kitchen makes him sad; he only eats in restaurants now. High prices of food and poor access to stores and restaurants can negatively impact an older person's nutritional status.

Knowing the importance of maintaining a good diet, most communities sponsor programs like community meal sites and meals-on-wheels. Nutrition programs must meet the needs of the specific community in which they are located; the video describes feeding programs for elderly people in rural areas and for elderly people of different cultural and ethnic backgrounds.

Physical fitness and good nutrition are two important components of most health promotion programs. Other components include stress management, injury and illness prevention, and early detection of disease. While the onset of many chronic diseases can be prevented or delayed by healthy lifestyle habits, remember that health status is
also influenced by genetic disposition and environmental exposures. When disease does occur, early detection is crucial. Older adults should have regular medical check-ups that include screening for hypertension, heart disease, breast cancer in women, prostate cancer in men, colon cancer, diabetes, glaucoma, and adverse drug interactions. These conditions, if caught early, can be cured or managed without severely curtailing longevity. For example, Doris Birchander's breast cancer was diagnosed and treated in an early stage and she can expect many years of productive living ahead. In contrast, Joseph Serrao's cancer was diagnosed in a late stage and he tells us that his prognosis is not good.

While it is important to take responsibility for one's health, the text points out that health can also be improved by enacting broad social changes. Examples include increasing feeding and food stamp programs for low-income adults, expanding access to health care and disease screening, reimbursing for the costs of exercise programs, decreasing the amount of salt in processed food, and involving mass media in health education campaigns.

**Age-Related Changes in Vision, Hearing, and Sleep**

Figure 6.1 in the text shows the parts of the eye. Age-related changes in vision include a thickening and flattening of the surface of the cornea, a decrease in the size of the pupil, and a decrease in the response time of the pupil in changing light conditions. These changes may negatively impact an older adult's ability to function in low-light situations.

The eye disease glaucoma can result from inefficient drainage of, or excessive production of, aqueous humour. If caught early, glaucoma can be controlled with medications or surgery; in later stages, it can result in tunnel vision and blindness.

With age, the lens of the eye becomes less elastic and the muscles that control the lens deteriorate. These changes cause presbyopia (problems with close vision), which is easily corrected with glasses. The lens also becomes more opaque with age. Severely clouded lenses are called cataracts, most of which can be removed surgically with good results. Yellowing of the lens also occurs and this results in a decreased ability to discriminate among colors. In addition, normal age changes can lead to reduced perception of depth and distance and reduced peripheral vision. The eye disease macular degeneration can cause poor central vision.

Figure 6.2 in the text presents a diagram of the ear. With advancing age, the supporting walls of the external auditory canals deteriorate, joints within the ear may become arthritic or fixed, and the cochlea undergoes structural changes. Occupational exposure to noise can also damage the ear. The result is decreased ability to hear. The text notes that up to 75% of the population age 65 and older in the U.S. has mild to moderate loss of hearing. A text box in Chapter 6, "Hearing Loss and Personality Change," describes a possible side-effect of uncorrected hearing problems. Fortunately, hearing aids can help most older adults compensate for age-associated hearing loss. Tinnitus refers to a high-pitched ringing in the ears. Although it cannot be cured and can be distracting, this condition is not dangerous.
Many older adults also notice changes in their sleep patterns, e.g., that sleep is lighter, shorter, and more disrupted. Circadian rhythms may change from a two-phase pattern (awake in the day and asleep at night) to a multiphasic rhythm pattern (day-time napping and shorter periods of sleep at night). Both Betty Tuff and David Reese find that they are awake for 2 to 3 hours in the night. David doesn't worry about it; he just reads a book until he feels sleepy again. Chapter 5 of the text notes that these sleep changes are not dangerous and that most older adults can adjust to these changes without resorting to medications. A few older adults have sleep apnea (interrupted breathing during sleep) or other serious sleep disorders that require medical attention and treatment.

**Person-Environment Interaction**

As noted on page 5 of the text, the concept of person-environment interaction “suggests that the environment is not a static backdrop but changes continually as the older person takes from it what he or she needs, controls what can be manipulated, and adjusts to conditions that cannot be changed. Adaptation thus implies a dual process in which the individual adjusts to some characteristics of the environment...and brings about changes in others...” Person-environment fit or person-environment congruence refers to having obtained a good match between an individual’s needs and his or her environment.

Many examples of person-environment interaction are provided in the text and video illustrating how older adults can manipulate the environment in order to help compensate for biological changes. Consider an older person whose vision has declined; in most cases, glasses or surgery will correct the problem. John Franggos, for example, remembers becoming very depressed when he developed cataracts. After successful cataract surgery, his vision was restored and his mental outlook improved. Ilse Darling found that after cataract surgery, her vision was actually better than it had been in her youth. For Blanche Woodbury, glasses and surgery were not enough to perfect her sight. Instead, church members have volunteered to “be her eyes” and escort her to church. Other environmental modifications or services that help compensate for declines in vision include large print books, bright lighting, computer scanning and voice reading, and seeing-eye dogs.

For David Reese, a hearing aid has helped him recover some of his hearing. Although he and his wife, Eleanor, have noticed a remarkable improvement, David needs to manipulate his environment in other ways in order to optimize the functioning of the hearing aid. For example, his hearing aid amplifies all the sounds around him so that he gets too much “noise” if he stands in the middle of a group. Instead, he stays at the edge of the group and concentrates his conversation on one or two people.

Physical changes can lead to serious deterioration in health and to complicated social problems. For example, consider an older woman who has lost some teeth. Because of chewing problems, she stopped eating a balanced diet and became weak and confused. One day she fell, broke her hip, and was hospitalized. Her family was not prepared to bring her home, and placed her in a nursing home. Along each step of this path to the nursing home, environmental modifications were possible that may have

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prevented the ultimate outcome. With good dental care, perhaps the teeth could have been saved. Once teeth were lost, the woman could have been fitted for dentures. Once chewing problems were corrected, a meals program may have restored her nutritional balance and perhaps prevented her from falling. Once hospitalized, the family could have been taught the rehabilitation exercises their mother required. This example illustrates how easily age changes can impact well-being and how early assessment and intervention can compensate for loss.

Drs. Kaplan, Theodore Koff, and Kenneth Brummel-Smith discuss ways in which homes can be designed or modified in order to compensate for losses expected in old age. Shower grab-bars help older adults compensate for declines in strength and balance. Raised toilet seats with arm rests help older adults compensate for declines in lower and upper body strength. As vision, reaction time, and coordination decline, throw rugs become tripping hazards; gerontologists recommend removing them or tacking them down.

William Narang discusses three programs at Leisure World, a retirement community in Southern California, that help residents live independently despite losses. Leisure World provides health services on the premises, assisting in early detection and treatment of disease and disability. They provide opportunities for socialization, especially important for newly widowed adults. And third, they provide a lifeline system by which residents can push a button to summon immediate assistance in case of an emergency. Marie Louise Ansak describes how On Lok, a comprehensive program of health and social services in San Francisco, helps maintain frail elders in their homes. For example, the program helped client Samuel Stephens return home after a hip fracture. Workers visited him at home to bathe and dress him, delivered three meals a day, and supervised his rehabilitative exercises. The program will continue to monitor his health status to prevent any recurrences of isolation, excessive drinking, and depression. According to Samuel Stephens, On Lok services "fit" his needs.

Hayward King describes how his environment jeopardizes health status; his neighbors have been beaten and many will only walk the streets with an escort. As a result, elderly people in his neighborhood easily become isolated. Dr. Meredith Minkler describes a program in San Francisco's Tenderloin aimed at reducing social isolation; over the years, she has seen improvements in the mental and physical well-being of formerly isolated participants.

Dr. Kaplan describes some promising technology for people with speech loss. For example, devices are being developed that would translate small eye or finger movements into yes-no responses. He also is excited about research that shows that complex environments may increase synapses in the brain and lead to improvements in the abilities of brain-injured adults.

In the context of person-environment interaction, we can compensate for many of the changes that occur with aging and disease. Even in the face of disabling conditions, environmental modifications that fit our needs can help maximize our physical potential. As Dr. Brummel-Smith says, "there are no handicapped people, there are only handicapping societies."
Effects of Gender and Ethnicity on Health Status

Rabbi Earl Grollman is concerned about a tendency to blame sick people for their illnesses, a concept known as “blaming the victim.” However, as we learned in Lesson 2, “How the Body Ages,” the rate of aging and the onset of disease are affected by more than lifestyle. Health status is also influenced by genetics and environmental exposure. Variables that may predispose an individual to a particular disease include gender, ethnicity, and socio-economic status.

In general, men have higher rates of heart disease, chronic obstructive lung disease, and cancer than women. However, above age 55, the risk of hypertension is greater for women than men. Osteoporosis and rheumatoid arthritis are more common in women than in men. Breast cancer incidence is rising; in 1992 it affected one in eight American women. Lou Glasse notes that, in the past, most federally-funded longitudinal health research has focused on men and that more studies of women’s health issues are needed.

Dr. Percil Stanford notes that African American males are dying at much younger ages than other ethnicities. In addition, Chapter 17 of the text notes that African Americans are at higher risk of developing glaucoma, hypertension, stroke, obesity, and diabetes than are Caucasians. On the other hand, African American women are less likely to develop osteoporosis than Caucasian women. Native Americans have a relatively short lifespan as well. Dr. Marta Sotomayor notes high rates of diabetes and cardiovascular disease among Hispanics, and that only one in four has health insurance.

Research also suggests that health status is related to socio-economic factors. For example, higher rates of chronic disease are found in elders with low incomes and low educational attainment. Dr. Minkler points out that these factors limit access to health care. We will revisit the issue of differential access to health and social services in Lesson 10, “Illness and Disability.”
4. LOVE, INTIMACY, AND SEXUALITY IN OLD AGE

LEARNING OBJECTIVES

1) Explain how common social beliefs and attitudes may affect the opportunity for sexual expression among older adults.

2) Describe the changes that take place in sexual functioning as males and females age.

3) Describe three avenues for affection and intimacy for older adults without spouses.

KEY POINTS

Attitudes toward Sexual Expression in Older Adults

Examples of negative and inaccurate stereotypes of sexuality in old age can be seen in the media. Dr. Barbara Payne notes that the greeting card industry treats aging as an embarrassing event that should evoke sympathy. Dr. Harvey Gochros points out that most passionate relationships on television involve young people, and that sexual feelings among older adults often are portrayed as silly or inappropriate.

Betty Tuff tells us that many older adults were raised during a time when sex was considered "nasty." Dr. Gochros feels society's attitudes stem from a belief that the sole purpose for sex is reproduction, not enjoyment or expression. Both ideas tend to discourage sexual activity in later life. Negative attitudes may lead older people to avoid discussing sexual concerns with partners and helping professionals. An older man may withdraw from social activity and relationships for fear of looking like a "dirty old man." An older woman may feel that sexual desires are inappropriate at her age.

At the same time, society offers few opportunities for sexual expression among older adults. For example, long-term care facilities rarely provide a place where couples can privately engage in sexual activities. Adult children may be embarrassed when their parents talk about their sexual needs and desires.

Society has misconceptions as well about the ability of older adults to engage in, and receive satisfaction from, sexual activity. These myths have been disproved by research, which suggests that the frequency of sexual intercourse and the level of sexual satisfaction do not necessarily decrease over the lifespan. Instead, it appears that frequency and satisfaction relate to the individual’s lifelong pattern of sexual expression and the availability of partners. Widowhood can curtail sexual desire as well as sexual activity, as noted by Louise Di Virgilio. Other psychosocial factors that influence sexual activity in the elderly are included in Table 10-2 in the text.

For helping professionals who work with older adults, Dr. Madeleine Goodman and Dr. Gochros both stress the importance of addressing the concerns older adults may have about sexual functioning. Sexual expression is a natural and exciting aspect of our humanity; it can add spice to life over its entire course.

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Physiological Changes in Sexual Functioning

Dr. Gochros reminds us that the body experiences as many changes between the ages of 45 and 60 as it does between the ages of 10 and 25. While we freely discuss adolescent changes and how they affect behavior, we rarely talk about the changes that occur in an older person's body.

The text and Dr. Goodman in the video describe the physiological changes in the sexual functioning of women in great detail. To summarize, between the ages of 40 and 60, women begin the process of menopause. The early stages are marked by a decline in ovarian function, a reduction in estrogen and progesterone levels, and an irregularity of menstrual periods. After 12 consecutive months of no menstrual flow, menopause is completed and the natural ability to reproduce is lost.

For some women, menopause can be very difficult. Some have severe hot flashes. Others, who have built their identity around the ability to have children, may become depressed during menopause. But menopause can also be positive. According to Dr. Goodman, Palestinian women are accorded greater power and authority with menopause. For Mary Franggos and Jean Jaworski menopause was just another one of life's challenges; Mary says she now feels freer sexually and Jean thinks "menopause is great."

Regardless of how menopause is perceived, the sharp decline in female sex hormones can result in physical changes such as hot flashes, genital atrophy, and urinary tract changes. For women with severe menopausal symptoms, hormone replacement therapy (HRT) may help alleviate or postpone these symptoms. In addition, HRT has been shown to lower risk of heart disease and osteoporosis in older women. However, it is also associated with increased risk of endometrial, uterine, and breast cancer. Dr. Goodman recommends that each woman weigh the risks and benefits for herself before starting HRT.

Physiological changes to the reproductive organs do not reduce a woman's ability to fully engage in sexual activity. Satisfying orgasms are still obtainable, although the orgasmic phase may take longer to reach, be of shorter duration, and be less intense in older women than in younger women. Physical discomfort during sex appears lower in older women engaging in regular and consistent sexual activity, including masturbation. Lubricants and vaginal hormone creams are useful for women with vaginal dryness.

As explained by the text and by Drs. Vincent DeFeo and Douglas Kimmel in the video, men experience less dramatic changes in sexual functioning over the lifespan. While testosterone production is reduced, it does not stop entirely and the decrease does not result in a loss of reproductive ability. Sexually, the aging process results in an increase in the time it takes to achieve an erection, a decrease in the erection's firmness, reduced intensity of orgasm, reduced force of ejaculation, and a longer refractory period. Some couples report that sex is better in old age because age changes in men decrease the likelihood of premature ejaculation.

Some older men experience impotence, which may result from a combination of physical, psychological, and social concerns. Men with impotence should work with health care professionals to identify and treat its cause. As in the case of women, normal physiological aging does not necessarily result in decreased sexual performance or enjoyment.
A summary of normal, age-related physiological changes in genital function is provided in Table 10-1 in the text. Sex education may help older adults distinguish between normal changes and unusual symptoms and may lead to increased attention to and treatment of sexual dysfunction.

Disease can have a profound affect on sexual function. Drug interactions and alcohol use can negatively affect sexual functioning, but their effects are usually reversible. In men, life-long diabetes or uncontrolled diabetes may cause impotence. Radical treatment for prostate cancer may result in impotence, but most other prostate conditions can be treated without impeding sexual performance. To treat irreversible impotence, Dr. DeFeo suggests penile implants and injections. The link between sexual function and disease underscores the importance of seeking medical attention for unusual symptoms. At the same time, Drs. Gochros and Goodman encourage helping professionals to take seriously the health and sexual concerns of older adults.

**Avenues for Affection for Older Adults Without Spouses**

The importance of affection does not appear to diminish with age. Affection and intimacy can include sexual activity, but sex is not essential for the expression of affection and intimacy.

Many older married couples, like the Franggos, the Birchanders, the Tuffs, and the Wonsons, report a deepening of regard and an increase in affection for each other over time. They tell us that sexual desire and activity are ongoing aspects of their relationships. The Wonsons also note the importance of demonstrating affection for each other in front of their children in order to show them an example of a stable, loving, caring couple in these unstable times.

But many older adults do not have spouses, and demographic patterns suggest that we will continue seeing over twice as many widows as widowers among older adults. What opportunities do non-married people have for affection and intimacy?

Dr. Gochros reports that 5% to 10% of men have homosexual feelings in early or mid-life, and suggests that 5% to 10% of older men do as well. Some older gay people have been gay their entire adult lives and others, like Oliver Francisco, affirm their homosexuality in later life. Dr. Payne suggests that the imbalance in availability of older male partners may result in increased homosexuality among women and the practice of polygamy in the future.

Many older adults strengthen their relationships with children and grandchildren, as noted by Marian Cowan and Louise Di Virgilio. Older widows, like Mollie Pier, usually increase their circle of women friends. It is usually harder for men to develop friendships outside of marriage. Leo Salazar, however, talks of his "compadre," a male friend with whom he shares secrets. Other older adults, like Elizabeth Allen, satisfy their needs for affection and intimacy through relationships with pets. Research suggests that having friends, confidants, pets, and close relationships with family members can enhance physical and mental health and extend longevity in older adults.

Dr. Gochros talks about our continued need for touch, which is accompanied by a reduced chance of being touched in old age. Betty Tuffs reminds us that touch reassures people of their humanity; she sees it as an important part of her regular visits to nursing homes.

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5. INTELLECT, PERSONALITY, AND MENTAL HEALTH

LEARNING OBJECTIVES

1) Discuss strengths and weaknesses of longitudinal and cross-sectional designs in the study of adult intellectual development.

2) Describe the major findings from research on personality development over the lifespan.

3) Identify three factors that promote or help maintain good mental health for older adults.

KEY POINTS

Studies of Adult Intelligence

Intelligence is difficult to measure, especially in later years, and it has not been proven whether or not older adults are more or less intelligent than young people. Research does suggest that older adults experience a decline in fluid intelligence (spatial orientation, abstract reasoning, and speed of perception) but not crystallized intelligence (knowledge acquired through education and experience, e.g., verbal skills and social judgment). However, as we saw with learning, memory, and speed of behavior in the previous lesson, a number of factors may influence the measurement of intelligence. For example, older adults tend to be more cautious and thoughtful than younger adults and therefore may answer questions more slowly or give multiple, situation-based answers. Increased anxiety, especially in timed test situations, may reduce performance as well.

It is important to understand research design before being able to draw conclusions from research findings. Many studies, including those of intelligence, have cross-sectional designs, i.e., they compare two or more age groups at a single point in time. Findings from cross-sectional studies suggest that older adults are less intelligent than young adults. Because our world has changed so much in the past 50 years, however, it is hard to determine if group differences are related to age or related to historical and technological changes over time. For example, a cross-sectional survey may suggest that 20-year-old adults do better on computerized tests than do 60-year-old adults. But does this represent a difference in intelligence, or just in the relative levels of exposure to computers in the two groups? In the last lesson, Mary Franggos said that many older people are afraid of computers, but found she had no trouble with her computer once she decided to learn to use it. Dr. Warner Schaie found in his research that older participants were more skilled at adding numbers than younger participants. Does this mean that we become better at addition as we age? Dr. Schaie suggests that this might be due to the widespread use of inexpensive, hand-held calculators among younger people who rarely have to add by hand or in their heads.

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Researchers are more likely to get a more accurate measure of age-related changes by conducting longitudinal studies, i.e., interviewing the same people over a number of years. The text reviews longitudinal studies conducted in Seattle (by Dr. Schaeie and Dr. Sherry Willis in the video), in Iowa, New York State, and North Carolina that examined intelligence. Longitudinal studies have limitations too, including attrition (participants dropping out over the course of the study) and terminal drop (a marked decline in cognitive function within five years of death). Ruth Dow, a participant in the Seattle Longitudinal Study since 1954, is referring to attrition when she notes that not many participants in her age group are still in the study.

Despite these limitations, research has found relatively small changes in cognitive functioning over the lifespan, especially when the investigators controlled for the physical health (e.g., heart problems and hearing loss) and educational level of the participants. As in research with learning and memory, Schaeie and Willis found evidence to suggest that adults should “use it or lose it” when it comes to intellectual function. In other words, older adults who are less intellectually active tend to experience declines at younger ages than their more active counterparts. Even if losses occur, however, Dr. Willis’ research on training suggests that intellectual declines can be reversed in some older adults when they engage in intellectually stimulating activities. Several widows talk about how they improved their spatial abilities in reading maps after their husbands died. Dr. James Birren notes that if we control illness and offer older people more opportunities for learning, we find that intellectual function changes very little with age.

Will we see changes in the intellectual functioning of older adults in the future? Dr. Willis believes so. More women are working in intellectually stimulating jobs and more older adults are exposed to interactive technology. According to the “use it or lose it” theory, we can expect this exposure to help adults maintain their intellectual skills well into late life.

Dr. Birren is excited about research underway on the 20,000 brain-specific proteins. What functions do these proteins perform? Can we manipulate them? Another research question is “why don’t neurons continue to divide?” As we discover more about the brain, we may find we can help older adults with brain damage or disease maintain or extend their intellectual functioning.

Personality Development over the Lifespan

Chapter 9 of the text reviews a number of theories of personality. In contrast to Sigmund Freud’s belief that personality achieves stability by adolescence, more recent psychological theorists emphasize developmental stages of personality. For example, Eric Erikson theorized that individuals pass through eight psychosocial stages (see Table 9-1 in the text). Older adults are likely to experience the last two stages. “Generativity vs. stagnation” is the stage in which an adult establishes a sense of concern for the well-being of future generations, looks toward the future, and does not stagnate in the past. “Ego integrity vs. despair” is the stage in which an older adult integrates life experiences and uses them to help guide members of the younger generation, rather than feeling despair or bitterness that life was wasted. Many of the older adults in the video display generativity and ego integrity. For example, Mollie Pier tells us how she continues to look forward to the future and finds satisfaction in being a role model to younger people.

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Carl Jung’s model of personality emphasizes that consciousness must develop from the self-centered focus of the child to a more worldly and less selfish view as the older adult. He also proposed that people, as they age, adopt psychological traits commonly associated with the opposite sex, i.e., men become more passive and nurturing as they age while women become more assertive and achievement-oriented. We see evidence of this in Mary Sue Wonson, Ruth Dow, and Vi Smith who feel they have become more assertive and independent, and in David Reese who says he has become more tolerant over time. Bernice Neugarten and her associates also found support for Jung’s theory in their longitudinal research in Kansas City.

Dr. Paul Costa and his colleagues propose that personality has five primary components: neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. Following adults for over 25 years through the Baltimore Longitudinal Study of Aging, they found that personality was fairly stable between the ages of 30 and 65. This doesn’t mean that older people can’t change; older adults who want to modify their personalities can do so through individual therapy and group support, say Dr. Costa and Dr. Gene Cohen.

Four personality factors are thought to help older adults maintain self-esteem in their later years. These are: accepting the aging process with its consequential limitations and opportunities; adapting goals and expectations as circumstances change; defining oneself in terms of internal qualities rather than in terms of the roles one plays (e.g., spouse, worker, volunteer); and being able to objectively review one’s life and learn from experience.

Dr. Costa feels that research will eventually help us understand more about the relationship between personality and successful aging. He would “love to ...[know] what kinds of changes or interventions we need to do for what kinds of people, when, and under what conditions that will allow them to lead the lives that they want...to reach their own goals, to self-actualize.”

Mental Health Promotion and Maintenance

Drs. Steven Zarit, Birren, and Cohen assure us that most older adults enjoy good mental health and that only a small minority experience psychological crisis in adulthood. The older adults in the video give tips for maintaining good mental health in later life. Several, like the Birchanders, say to keep busy; Mary Sue Wonson and Mollie Pier recommend a positive attitude and a sense of humor; Roger Wonson is creatively involved with photography and music; Elizabeth Allen relies on her “inner resources,” and Pat Nickerson and Oliver Francisco enjoy exploring their spiritual sides.

Do the older adults in the video represent the privileged few? On the contrary, many of them have experienced losses and changes over the life course. For example, Mollie Pier has lost her husband and, more recently, a son. Oliver Francisco’s discovery of his homosexuality led to major changes in his family relationships and now he is coping with a terminal illness. Most older adults experience a variety of life events and losses, such as retirement, loss of a spouse or child, birth of a grandchild, becoming a caregiver to a parent, and becoming ill themselves (see Table 9-3 in the text).
When a life event is viewed as a positive challenge, people usually cope with the event in a productive way. When an event is viewed as a threat, coping is usually less successful. Researchers have identified a number of coping responses used by adults when faced with a crisis (see Tables 9-6 and 9-7 in the text). How we cope with a loss or change depends on our cognitive appraisal of the event, whether or not it is anticipated, if the event is normative or off-time, past experiences with similar events, personality style, perception of how much control we have over the event (i.e., if the locus of control is perceived as internal or external), and degree of social support.

Mary Sue and Roger Wonson describe their different coping styles. Mary Sue tends to discuss stressful events with her supportive husband, Roger. He helps her reappraise the situation in a positive light or see how she can act to solve the problem. Roger, on the other hand, admits to ignoring problems that he feels he cannot change. Doris Birchander talks about a time when she was particularly stressed by providing care to her parents and in-laws. She tried to cope with her feelings by scrubbing the floor until she found a more successful approach through talking with and accepting the support of her sister-in-law.

In the video, Dr. Herbert Benson describes the relaxation response, which can be learned by individuals as a tool to cope with stress. Relaxation response techniques reduce anxiety, slow heart rate, and reduce blood pressure. Once relaxed, people are better able to modify their lifestyles (e.g., improve nutrition and increase exercise) and their perceptions to control stress.

If coping mechanisms are not successful, stress can accumulate. Dr. Benson tells us that unchecked stress can cause hypertension, decrease tolerance of pain, and increase feelings of anxiety and depression.

Psychotherapy also helps people cope with stress. Although the majority of older adults have developed successful coping strategies and are satisfied with life, Dr. Cohen states that as many as 15% of older people have symptoms of depression. It is important to identify and treat depression in older adults and to help people develop effective coping skills, as depression is the leading risk factor for suicide. More information on diseases that effect psychological functioning is provided in Program Lesson 10, "Illness and Disability."
6. LEARNING, MEMORY, AND SPEED OF BEHAVIOR

LEARNING OBJECTIVES

1) Give three examples that illustrate the concept of person-environment fit in an older adult's ability to learn.

2) Describe strategies used by older adults for storage and retrieval of information in long-term memory.

3) Describe how age changes in speed of behavior can affect physical, perceptual, and cognitive skills of older adults.

KEY POINTS

Enhancing an Older Adult's Ability to Learn

The saying, "you can't teach an old dog new tricks," reflects a common misconception that learning is impossible in old age. In fact, research suggests that healthy adults can maintain the ability to acquire new knowledge and skills well into late life. For example, Dr. James Birren tells us about findings from studies of vocabulary. While a well-educated young adult knows about 22,000 words, the same person at 65 knows about 45,000 words.

Many older adults in the video spoke of positive experiences with late-life learning. For example, Mary Franggos and Kitty Conroy are proud of having obtained college degrees in later life. Members of the Institute for Learning in Retirement express enthusiasm for their program of peer education in which "nobody is in class unless they want to learn [and] nobody is teaching unless they're fascinated with the subject...a perfect learning environment." Jane Potter advises older adults who want to return to school: start with a single class to gain study skills and confidence and don't be afraid to ask for help.

Aside from the satisfaction it affords participants, life-long learning keeps us mentally fit. For example, Dr. Gene Cohen tells us that in a mentally challenging environment, the brain continues to build extensions between brain cells, thereby improving the communication between the neurons of higher intellectual functioning. This research gives support to the adage, "use it or lose it."

Dr. Sherry Willis concurs with these findings and warns against becoming a "mental couch potato" in late life. Louise Di Virgilio illustrates this point; she keeps her mind active by reading, doing crossword puzzles, and playing Jeopardy and says she feels she is much sharper now than when she was younger.

However, even in healthy adults, learning new information can be impeded by normal aging changes. For example, declines in vision and hearing may hinder an older adult's ability to get information into sensory memory. The slowing of psychomotor processes with age slows speed of response, making timed tests difficult. Older adults also tend to respond more cautiously when they are uncertain or when risks are high.
Several things can be done to help compensate for age-related changes that can impede learning. For example, declining vision can be compensated for by reducing or eliminating glare in the classroom and on the blackboard, by using big print, and by verbally reviewing information that is presented visually. Classrooms should be well marked and accessible to older students. Declining hearing can be compensated for by improving the acoustics of the classroom, speaking clearly and slowly, and providing visual material that matches what is being said. Decline in physical response time and increased caution in responding are not barriers to learning if the learning conditions are self-paced. Instructors must remember that older adults have a lifetime of experiences and respond better in learning environments in which the teacher provides meaningful information through a mix of lecture, audio-visual aids, practical examples, and discussion of how the older students perceive and interpret the material. Finally, older adults themselves act to compensate for potential disadvantages by sitting close to the instructor and blackboard, by paying close attention to what is being said, and by taking detailed notes.

Other barriers to late-life learning are fear and anxiety. Many older people believe they are not as good at learning as young people. Yet, research indicates that learning skills can improve with age, particularly when the individual is studying an area of special interest. Mary Franggos says she was afraid of learning the computer, but once she sat down and started experimenting with it, she found it was not difficult to learn. Text anxiety can also be conquered. Kitty Conroy tells us that her nervousness kept her from passing her typing test; but she persevered and passed it on the tenth try.

Dr. Douglas Kimmel reminds us of the potential for ageism in the educational system. Ageism can be reflected in the physical facilities of a campus, for example, large distances between buildings or classes held in rooms up three flights of stairs. Age differences are apparent inside the class as well. Because older adults enjoy discussion-based learning, some may spend class time talking about the applications of the new knowledge in real life whereas some younger students may wish to focus conversation on information for the next exam. In the video, Charles Clark and Jean Jaworski express their preference for class discussion over lectures and tests.

Storage and Retrieval of Information in Long-Term Memory

Memory depends on the storage and retrieval of stored information in the brain. In general, new information is received by the senses. It is passed through our eyes and ears (sensory memory) to short-term (primary) memory. If the information in primary memory is important, it is stored in long-term (secondary) memory. Once stored, we must be able to retrieve the information from memory when we need it. A schematic representation of how we process information is shown in Figure 8-3 of the text.

Dr. Birren uses the analogy of a computer. Like a computer, the brain has short-term storage and long-term storage. We must save information from short-term storage to long-term storage if we want to remember it. Like a computer, our long-term memory can hold a tremendous amount of information. We also have a scanning mechanism to see what is in long-term storage and a way to retrieve information from long-term memory. To help organize information to make retrieval easier, we develop strategies which Dr. Birren likens to software programs.
What happens to our memories as we age? Compared to young adults, research suggests that older adults may be less efficient at moving information through sensory and short-term memories to long-term memory. They also may have more difficulty retrieving information from long-term memory. Two reasons for this change are discussed in Chapter 8 of the text. The disuse theory suggests that information in long-term (secondary) memory fades away or decays unless it is exercised, as in the adage ‘use it or lose it.’ Interference theory suggests that older people have problems retrieving information because new information interferes with the material already in storage. General slowing of the central nervous system also accounts for slower memory function in aging.

In addition, most older people are afraid of Alzheimer’s disease and tend to suspect the worst when they misplace or forget something. Studies of attention and memory, however, suggest that young people have more lapses than old people. But because young people don’t worry as much about these lapses, they do not think poorly of themselves. Old people, on the other hand, blame themselves for memory lapses; their fear of incompetence may become a self-fulfilling prophecy by leading to real cognitive declines. Two older women in the video, Elizabeth Allen and Ilse Darling, are very disappointed by their lapses in memory.

But, as in the computer analogy, we can develop software or strategies to enhance memory. Dr. Willis tells us that one of the most important memory strategies is organizing information. She uses the analogy of a filing cabinet, saying that the better we file something in long-term memory, the easier it is to retrieve it.

Both internal and external memory aids can be effective at enhancing our ability to file information in long-term memory. Internal memory aids are also called mediators. For example, it is easier to store information that is repeated several times to oneself and filed systematically. Mary Sue Wonson tells how she files people’s names in her memory by the name’s first letter, and this helps her to retrieve the name when she meets the person again. Sometimes information can best be remembered in categories. For example, it is easier to remember to eat fruits and vegetables than it is to eat apples, squash, pears, spinach, beans, peas, oranges, broccoli, peaches, lettuce, celery, and tomatoes.

Associating new information with an image is also successful. For example, Dr. Birren tells people to remember his name by thinking of a mug with “beer in” it. Association was used to improve memory in the Berlin study described by Dr. William Hoyer; participants associated new words with specific monuments and were able to recall the words by taking a mental trip from monument to monument. Context also supports memory. Dr. Hoyer gives us the example of the surgeon who is supported in his or her work by the operating room environment. Jim Tate notices that just seeing a certain Civil War monument will trigger his memory of certain details of the battle.

Another internal tool is called mnemonics. These are rhymes or phrases that contain hints about the subject to be remembered, for example, “I before E, except after C” or “Every Good Boy Does Fine.” External memory aids are also useful. For example most adults make lists and keep calendar books. Jane Potter uses a purse clip to keep from misplacing her keys.

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People of all ages can learn these techniques to improve their memory. Dr. Willis assures us that using these strategies is not "cheating;" they constitute effective tools by which we can all improve our ability to store and retrieve information from long-term memory.

Oliver Francisco describes two other strategies he uses when his memory fails him. Sometimes he feels comfortable admitting that he has forgotten something. Other times, he will try to cover a memory lapse. For example, if he can't remember people's names, he says, "Oh, you two know each other, don't you?" The two strangers will proceed to introduce themselves, saving Oliver the embarrassment of admitting he has forgotten their names.

Older adults are susceptible to a number of conditions that impair mental functioning, such as Alzheimer's disease, depression, and alcoholism. Information on these conditions and their effects on cognitive skills will be presented in Lesson 10, "Illness and Disability."

Effects of Age Changes in Speed of Behavior

Speed of behavior refers to the quickness with which one responds to a stimulus, for example, stepping on the brakes when the traffic light turns red. An individual's speed of behavior depends on how fast one perceives the stimulus, encodes it, remembers what it means, makes a decision about it, programs the appropriate movements, and then executes the movement. It also depends on muscle strength, endurance, and coordination. Research suggests that, in older adults, encoding and response selection are slower due to changes in the central nervous system, while strength, endurance, and coordination are reduced.

However, research also suggests that older adults can compensate for these decreases in a number of ways. First, speed of behavior appears to be enhanced by continued mental activity and physical fitness. Pat Nickerson agrees; she attributes the maintenance of her quick reflexes to her active lifestyle which includes gardening and walking.

Second, older adults compensate for declining reaction time by relying on experience with the task, skill, and mental strategies such as anticipation. For example, Dr. Warner Schaie describes research that found that older typists compensated for slowed response time by picking up larger chunks of information from type script than younger typists. Dr. Birren notes that older pilots purposely avoid conditions that might require split-second maneuvers, while younger pilots tend to take more risks. Older workers in manufacturing tend to seek out self-paced jobs that do not require quick reaction times. Dr. Hoyer describes how older musicians maintain playing speed and quality. Through experience with the music, they have advance knowledge of the notes and can anticipate the upcoming passages of their music.

Third, older adults may compensate by depending on other adults for clues about the environment and protection. For example, Dr. Birren noticed that older adults would surreptitiously attach themselves to a young person while crossing a busy intersection. The young person unknowingly provides the older person with information about the traffic by the speed at which he or she walks and tends to protect the older person from passing cars and pedestrians.
It appears that older adults who age successfully also have a good attitude about their own changes in learning, memory, and speed of behavior. Mary Sue Wonson admits that her speed of behavior and endurance have decreased and has prioritized her activities; she decided she wanted more time to be creative, so has cut back on house work. John Franggos feels he has become more easy going and isn’t as concerned about working at the pace he worked at 20 years ago. Mary Franggos feels a lot more peaceful about life.
7. SOCIAL ROLES AND RELATIONSHIPS IN OLD AGE

LEARNING OBJECTIVES

1) Give an example of each of the following in old age: role continuity, role development, role loss, and role gain.

2) Discuss three major social theories of aging: activity theory, disengagement theory, and continuity theory.

3) Explain why and in what ways role options are expanding for today’s older adults.

KEY POINTS

Role Continuity, Development, Loss, and Gain

The roles we play throughout our lives help define us and help form our self-concept. Some roles can be maintained throughout life. This is called role continuity. For example, Hayward King maintained his role as the artist throughout life and the Birchanders, like most parents, have maintained their roles as parents. We see continuity between past and present leisure activities in Mildred Tuttle’s pursuit of gardening and golf and in Marian Cowan’s active involvement with her church.

Roles also develop and change as we age. Ever since becoming a grandparent, Thac Do Bui has had the role of repository of Vietnamese culture. But his recent migration to the United States has forced him to further develop this role as sole representative and teacher of Vietnamese culture for his grandchildren. Msgr. Charles Fahey’s parents provide us with another example of role development. They had experience as parents, but have further developed this role as surrogate caregivers for neighborhood children whose parents work. Faye Cruse points out that although her parents, siblings, and husband are deceased, she has successfully developed a new family within her community at Leisure World. Dr. Feifel notes that, in fact, older adults demonstrate a great deal of flexibility in developing new aspects of existing roles.

All older adults will experience role loss. For example, most of the older adults in the video are retired. Mollie Pier, Marian Cowan, and Florence Austin are widowed. Sylvia Davis has lost the role of sibling, having watched her nine brothers and sisters die before her. As a Vietnamese refugee, Thac Do Bui experienced the loss of roles that would have been available to him in his homeland. Frank Catanzaro and Dean Gotham have lost their homes and Dean Gotham has lost touch with his family. Role loss can lead to a decline in identity and self-esteem.
Roles may also be gained in later life. For example, several of the elders in the video have become grandparents. Mollie Pier found a new role for herself as "senior ambassador." Leo Salazar gained a new work role as counselor for his ophthalmologist's Hispanic patients. His wife, Lillian, who spent much of her life as caregiver to her children and parents, went back to school as an older adult and now teaches at a community college.

Organizations that help older adults gain and develop roles or cope with role loss are described in Chapter 15 of the text and in the video. Blanche Woodbury relates how her neighborhood senior center provided her with new roles and relationships after her vision declined. Mary Alice Stevenson discusses how a senior center in San Francisco's Tenderloin helps some members connect with needed health care and social services, and gives other members the opportunity to fill roles as volunteers. Volunteering is also very important to Florence Austin, a volunteer Senior Companion. Marian Cowan finds satisfying roles within her church. Leo Salazar, as a graduate senator at his university, became involved politically.

Role selection and use of leisure time in later life are both affected by gender, socioeconomic status, and health. Dr. Bengtson describes research that suggests that older women have more roles than do older men. Chapter 15 of the text notes research by Dr. Fernando Torres-Gil who found that lower class Mexican-Americans, traditionally fearful of deportation, are cautious of political involvement. Voting rates do not decline, however, among older individuals who are well educated, healthy, and active. As health declines, leisure activities usually become more home-based.

Social Theories of Aging

A social theory of aging provides a framework within which to explain role changes in late adulthood and the optimal way for older people to adapt to these changes. A social theory known as role theory forms the basis for the three most well-known social theories of aging: activity theory, disengagement theory, and continuity theory. These theories attempt to explain how older people successfully adapt to role changes with age. Five additional social theories of aging are described in Chapter 4 of the text. While none of these theories has been sufficiently tested through research, each provides a guide for understanding behavior in later life and is worthy of further inquiry.

Role theory is based on the belief that roles (student, parent, business person, homemaker) define our self-concept. People are socialized through a process of learning to perform new roles, adjusting to changing roles, and relinquishing old ones. Age norms are culturally or even legally defined expectations about the roles we can fill at various ages. For example, we expect people to retire between 62 and 65; this expectation is reflected in our Social Security laws. People who retire in their 40s or in their 80s are exceptions and violate our age norms.

Activity theory suggests that high self-esteem in old age is associated with keeping busy and staying involved in a variety of roles and with a variety of people. Several of the older adults in the video relate stories that tend to support this theory. For example, the Salazars, Florence Austin, Marian Cowan, and Mollie Pier have all expanded their roles and activities in later life and they obviously enjoy and gain a sense of purpose from their busy lives. Mr. Catanzaro's statements also support activity theory; he experienced a loss of role and activity when he became homeless and links these losses to a sense of uselessness.
In contrast to activity theory, disengagement theory links well-being in old age with successful withdrawal from public life and increased introspection. Msgr. Fahey feels that people should take the opportunity in later life to develop their interiority, i.e., to take the time to contemplate, to make sense out of lives and losses, and thus gain an increased awareness of themselves. Research shows that older people are more likely than younger people to engage in solitary and sedentary pursuits.

Unfortunately, neither activity nor disengagement theory takes into account individuals' personalities or the historical and cultural context within which they are aging. What theory explains the observation that people who have always been passive usually remain passive in old age while people who are active and outgoing usually continue being involved in activities? Dr. Atchley talks about a woman who maintained her identity as a teacher in retirement. Hayward King (artist) and Marian Cowan (church activist) both demonstrate how avocations continue throughout life. In continuity theory, individuals age successfully if they maintain their preferred roles and adaptation techniques. Researchers have found support for continuity theory in their study of volunteerism. Specifically, volunteering appears to be a pattern established early in life and recruiters are not usually successful in recruiting retirees who have never volunteered before.

How do researchers gather information upon which social theories are built? Dr. Bengtson gave an example of how multiple research methods can be used to answer social questions. He described starting to explore a social issue through observational analysis, then focusing inquiry by conducting structured interviews. A survey questionnaire can be used to gather data from a large sample of older adults. Observational, interview, and survey methods can be used by themselves or in combination, depending on the research question to be answered.

Sometimes research findings disprove the hypotheses. This was true for Dr. Atchley in his first study of social roles. From his review of research documented in the literature, he thought that retirement had negative effects on older adults. His first interviewee, however, told him of the positive aspects of retirement, forcing him to revise his hypothesis and his research questionnaire.

Expanding Roles for Older Adults

One of the difficulties in establishing social theories of aging stems from our great increase in life expectancy. More and more people are living longer, and some can expect to spend up to 40 years in retirement. Dr. Bengtson calls it a "demographic revolution."

Because this extended time of post-retirement leisure is a relatively new phenomenon, many older adults lack clear-cut age norms and role models for late life behavior. How can people so dedicated to the work ethic make a transition to 40 years of post-retirement leisure? This dilemma is sometimes referred to as the rolelessness of old age. Msgr. Fahey describes how Father X, a former professor of biology, did not find new roles for himself after retirement. Dr. Bengtson warns young people, especially young men, to "begin investing effort in a variety of roles" so that they have several role options for themselves in later life. Dr. Atchley agrees, and has suggested that "activity competence" needs to be learned by middle age.
Most of the older adults in the video have made a successful transition to retirement. Several of them are involved in roles that are not traditionally occupied by older adults. Several enjoy roles as older students. Leo Salazar developed a new work role for himself. Mollie Pier enjoys her new role as "ambassador" through a senior exchange program between the U.S. and Japan.

Dr. Torres-Gil recommends the role of political leader for retired adults, a role that older members of the tribe used to occupy. Msgr. Fahey gives us examples of this in former President Jimmy Carter, his wife Rosalyn Carter, and Maggie Kuhn, founder of the Gray Panthers. The text box in Chapter 15 on "Political Activism and Older Women" introduces Tish Sommers, founder of the Older Women's League.

Today's older adults will be pioneers in the development of brand new social roles, most notably that of the great-grandparent. Dr. Bengtson notes that in the 21st century, people will spend as long in the great-grandparent role as their own grandparents spent in the grandparent role. He finds this opportunity to define new roles very exciting. What other new roles await us in later life?
LEARNING OBJECTIVES

1) Identify the major physical and mental health problems of older people in the United States today.

2) Discuss the theory and reality of the "continuum of care" for chronically ill or disabled older adults.

3) Discuss how gender and ethnicity affect use of health services.

KEY POINTS

Physical and Mental Health Problems of Older People

The physical health problems experienced by older people are more likely to be chronic (long-term) than acute (short-term). The incidence of acute illnesses, such as influenza, infections, and colds, decreases with age and the discovery of antibiotics has greatly reduced the number of people who die from acute illnesses. But the incidence of chronic conditions increases with age and more than 80% of people over age 65 have at least one chronic disease. The top ten chronic conditions for older adults are shown in Figure 7-2 in the text and include arthritis, hypertension (high blood pressure), hearing impairments, heart disease, orthopedic impairments, sinusitis, cataracts, diabetes, visual impairments, and tinnitus (noise or ringing in the ears).

Older adults may have multiple conditions and these may interact with each other. In the video, we learn that Louise Di Virgilio had bowel cancer, which was surgically removed, and has degenerative joint disease, Addison's disease, diabetes, and chronic obstructive pulmonary disease (COPD). Her physician, Dr. Thomas Lapine, explains that the medication she takes for Addison's disease exacerbates her diabetes and mobility problems. The COPD, which restricts her ability to breathe, further complicates her health and reduces her ability to get around.
Chronic diseases are also responsible for the majority of deaths among the elderly. Common causes of mortality are shown in Table 7-1 in the text and include heart disease, cancer, cerebrovascular disease (stroke), and COPD. How do physical changes associated with these diseases differ from the changes that accompany normal aging discussed in Program Lesson 2, "How the Body Ages."

In normal aging, the heart muscle loses elasticity, lipids (fats) accumulate in the vessels leading to the heart, and the heart muscle is replaced with fat. Heart disease is a condition in which the blood supply to the heart is severely restricted, leading to angina pectoris (characterized by chest pain and shortness of breath), myocardial infarction (heart attack), or congestive heart failure (decreased pumping efficiency). In the video, Lindsey Tuff has heart disease; his coronary circulation has been improved, however, through open-heart surgery in which vessels from his leg were grafted onto his heart in order to increase coronary blood flow.

In normal aging, blood vessels throughout the body lose elasticity and accumulate lipids. If the flow of blood and oxygen to the brain is severely restricted, malfunction or death of brain cells can result. In strokes, whole portions of the brain are denied blood through the narrowing of vessels in the brain, the presence of a blood clot that restricts blood flow (cerebral thrombosis), or the rupturing of a weak spot in a blood vessel in the brain (cerebral hemorrhage). The extent of impairment from a stroke depends on the area of the brain affected and the length of time the area is denied blood.

In cancer, cell reproduction goes "out of control." Caught at an early stage, many cancers can be treated. However, cancerous cells can migrate from the organ they originate in and may eventually interfere with vital body functions, causing death. Common cancers among older adults are lung cancer, colon cancer, prostate cancer, and breast cancer. Louise Di Virgilio had cancer of the bowel but it was surgically removed.

With normal aging, breathing capacity decreases as lung muscles lose elasticity and strength. With COPD, however, lung tissue is actually damaged. COPD is a broad term for lung-damaging diseases, including chronic bronchitis, fibrosis, asthma, and emphysema. As these diseases progress, it becomes harder and harder to breathe. The least amount of physical exertion can cause shortness of breath.

Even though they don't usually cause death, other chronic illnesses can disable older adults. Diabetes, for example, results when the pancreas produces insufficient insulin for the proper metabolism of carbohydrates. Most of the time, diabetes can be managed through changes in diet and intake (either orally or by injection) of insulin. When diabetes is not under control, high blood glucose (sugar) levels can contribute to nerve damage, blindness, kidney problems, stroke, and poor circulation in the extremities (sometimes leading to gangrene and amputation). Louise Di Virgilio's diabetes appears to be under control.

Normal aging is also associated with loss of bone density, which results in loss of stature. In osteoporosis, however, the loss of bone mass is extreme and bones become brittle and more prone to collapse or fracture. Arthritis is a term that encompasses over 100 conditions that result in the degeneration or inflammation of bones and joints.

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Surprisingly, of all the health problems experienced by Louise Di Virgilio, she feels most restricted by her arthritis. More detail on the causes and treatments of the common physical health conditions in old age is provided in Chapter 7 of the text.

Sensory impairments can be very frustrating to the aged. With normal aging, the ability to see and hear diminishes. Interventions such as glasses, cataract surgery, and hearing aids can help compensate for mild and moderate losses. Information on sensory impairment was covered in Program Lesson 3, "Maximizing Physical Potential in Old Age."

The video describes three major disorders that affect cognitive functioning: depression, dementia, and substance abuse. The type of depression most common among older adults is called secondary or reactive depression, which refers to depression that results from losses (for example, the loss of a spouse or of a family home). Symptoms may include sadness, weight loss, inability to concentrate, sleeplessness, and suicidal thoughts (see Table 11-1 in the text). Premature death, by suicide or accident, can also result. In the video, Lindsey Tuff, Betty Tuff, Oliver Francisco, and Allen Tateishi talk about their experiences with depression. Some practitioners erroneously believe that depression is a not worth treating in older adults. Research suggests, however, that treatment is usually effective in older people and can improve their quality of life. Types of treatment include individual therapy, antidepressant drugs, talking to a friend or spouse, or participating in a support group.

Dementia is a broad term for disorders that cause a progressive deterioration of intellectual functioning, learning, and memory. In most cases, dementias have physical causes and are not "mental illnesses." However, because they affect cognitive functioning, many books, including the text, discuss them under mental disorders. Some dementias may be reversible, like those caused by brain tumors, substance abuse, nutritional deficiencies, or depression. People with hearing loss may also appear to have mental or cognitive impairments. If these conditions are treated successfully, however, the associated dementia should disappear. Non-reversible dementias include those caused by Alzheimer's disease, mini-strokes (multi-infarct dementia), and Huntington's Chorea (see Table 11-2 in the text). Mrs. Tateishi, in the video, has Alzheimer's disease, for which there is yet no cure. Her son, Allen, tells of Mrs. Tateishi's progressive loss of cognitive skills.

Substance abuse can also impair mental functioning. Alcoholism is the most common form of substance abuse among the aged. However, it is important to consider the effects of polypharmacy (the interaction of multiple medications) when assessing mental status in older adults. Some medications compound or cancel out the effects of other medications. In addition, with normal aging the kidneys become less efficient at purifying toxins and drugs from the blood. Medication levels can build-up and actually begin to poison an older person and may cause changes in mental function. More detail on the causes and treatments of conditions affecting mental health and cognitive functioning in old age is provided in Chapter 11 of the text.

Especially important to older people is the effect that health problems have on their ability to function independently. As Dr. Theodore Koff explains in the video, we measure the impact of illness by how it limits Activities of Daily Living (ADLs), which
include bathing, dressing, grooming, eating, toileting, and walking. Another measure of independent functioning is known as Instrumental Activities of Daily Living (IADLs). IADLs include cooking, cleaning, doing laundry, running errands, using the telephone, and managing money. It is true that having an acute illness can limit one's activities temporarily. But chronic conditions can limit one's ability to function independently altogether. For example, a stroke can limit mobility and make it difficult to shop, cook, and clean the house. Severe arthritis makes it difficult to dress and feed oneself. A person with Alzheimer's disease will eventually need help with all IADLs and ADLs, even toileting.

Even the potential loss of ADL and IADL functioning can motivate older adults to make changes in their lifestyles and living arrangements. For example, Marian Cowan is planning to move into a more sheltered living environment before she becomes dependent. Ruth Dow knows that the stairs in her home will eventually become a barrier that will either force her to move or will make her homebound.

It is important for older adults and their health professionals to learn to distinguish the effects of illness from the effects of normal aging. The video and text warn that many people tend to regard physical and mental complaints in later life as the inevitable result of "just getting old." According to Dr. Steven Zarit, some health professionals feel that older people won't benefit from examination or treatment; he refers to this as an example of age prejudice.

As we have learned, the normal aging process is accompanied by physical and sensory decline. Even older people who watch what they eat and continue to exercise find that they move less quickly and have less strength than they did in their younger years. Even older people with strong social networks and positive attitudes can become depressed as they face the multiple losses that accompany aging. However, acute and chronic illness will compound the declines of normal aging. An older person should review his or her health condition regularly with a health professional who understands the aging process and can prescribe treatment for any reversible loss of function.

Despite the fact that physical functioning declines with age, Dr. Meredith Minkler tells us that over 80% of older adults rate their health as good or excellent. Reasons for this may be that people measure health by how well they can function and people tend to compare themselves with their peers. For example, Louise Di Virgilio says she is not depressed about her health because she can still "get around" and she sees people who are "worse off" than she.

Coping is improved by social support. For example, Betty Tuff reduces her anxiety by talking things over with her husband Lindsey. Allen Tateishi improves his coping abilities by sharing his concerns and feelings with a support group for adults caring for loved ones with dementia. Dr. Minkler reminds us that people who have high levels of social support have lower rates of death and illness than people with low levels of social support.

What will happen to the Baby Boomers as they age? Will we see growing numbers of disabled elders in the future? Will the current focus on healthy lifestyles and advances in medical science reduce the incidence of chronic disease and disability in the next century? Dr. Minkler feels that both will happen. Today's older adults are varied, and there's a good chance that we will see even more diversity in the years ahead. As Dr. Minkler says, "we need to plan for both."
The "Continuum of Care"

The figure on page 78 lists the variety of services that can meet the needs of older adults and their families. Different services are appropriate for different older adults, depending on how much assistance an older adult requires with ADLs and IADLs and whether the service is provided in the home, in the community, or in an institution.

### Continuum of Care: Location and Target Group of Services

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<thead>
<tr>
<th>Appropriate for</th>
<th>In the Home</th>
<th>In the Community</th>
<th>In Institutions</th>
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<tbody>
<tr>
<td>Older Adults of all Functional Levels</td>
<td>Support Groups (e.g., for illness or bereavement)</td>
<td>Outpatient Clinics</td>
<td>Hospital</td>
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<td>Advocacy Services</td>
<td>Mental Health Clinics</td>
<td>Hospital</td>
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<td></td>
<td>Private Physicians</td>
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<td>Hospital</td>
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<tr>
<td>Older Adults who are Functionally Independent</td>
<td>Senior Centers</td>
<td>Senior Centers</td>
<td>Nursing Homes</td>
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<td>Meal Sites</td>
<td>Adult Day Care</td>
<td>Nursing Homes</td>
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<td>Older Adults who Need Some Help with IADLs</td>
<td>Chore Services</td>
<td>Case Management</td>
<td>Hospital</td>
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<td>Housekeeping</td>
<td>Group Respite Care</td>
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<td>Escort</td>
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<td>Emergency Alarms</td>
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<td>Telephone Reassurance</td>
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<td>Hospital</td>
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<td>Older Adults who Need Some Help with ADLs and</td>
<td>All of the above, plus:</td>
<td>Adult Day Care</td>
<td>Hospital</td>
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<td>IADLs</td>
<td>Personal Care Services</td>
<td>Adult Day Health</td>
<td>Hospital</td>
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<td>Home Health Aides</td>
<td>Foster Family Care</td>
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<td>Older Adults who Need Help with Most IADLs and</td>
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In theory, the “continuum of care” refers to a seamless system of services that can be used by older adults as they move from being totally independent in functioning to being totally dependent on others for care. In reality, few communities have all these services. Even when services exist, they may be difficult to access because of their varying funding mechanisms, eligibility requirements, and waiting lists.

The primary service provider encountered by older adults is the physician. Geriatrics is a relatively new field, and few physicians are certified in this specialty. But many physicians have learned to understand and treat the multiple, interactive problems experienced in later life. Louise Di Virgilio and Oliver Francisco say they appreciate physicians who take a good history, who listen to them, who are responsive to their concerns, and who show their human side. Physicians and hospital staff can benefit from continuing education about aging. Pat Nickerson describes a training program in her hospital that explained the aging process to staff. She found that this increased the staff’s understanding of aging and their empathy for older patients.

Older adults who do not see private physicians can visit health professionals through outpatient and mental health clinics, often funded by state and local governments. Treatment for mental health concerns can include counseling and/or medications. Support groups play an important role in mental health promotion as they provide adults with opportunities to share their feelings with people in similar situations. Oliver Francisco belongs to two men’s support groups and tells us he enjoys the sharing that goes on within the groups.

Older adults who are socially isolated can benefit from outreach services. Jane Potter describes an outreach service in which volunteers go to the homes of older people for a friendly visit; while there, the volunteer can assess the living situation and help the older person obtain additional services if needed. Independent older residents at Leisure World, a retirement community near Los Angeles, benefit from the presence of building captains who watch out for residents and intervene if something looks amiss. Some residents of Leisure World also have emergency alarms that they can activate when they need emergency assistance in their homes. Older adults who are relatively independent in functioning can attend senior centers and meal sites, which offer opportunities for activity, exercise, nutrition, and companionship.

The majority of older adults depend on family members to help them compensate for the losses that accompany aging and illness. For example, Betty Tuff depends on her husband Lindsey to vacuum; she can’t do it because of her bad back. Louise Di Virgilio relies on her daughter to take her shopping. Lillian Salazar’s father receives most of his care from Lillian and her family. In fact, Dr. Minkler notes that “Americans go to great lengths to keep our elderly family members at home.” It may be necessary to modify the home in order to maintain disabled adults at home. Common modifications include raising toilet seats, installing grab bars in the bath, and building wheelchair ramps.

Sometimes, family members cannot meet all the needs of a disabled older person living at home and may benefit from home and community-based services. For example, Louise Di Virgilio has a chore worker help clean her house and do her grocery shopping. Lillian Salazar hired a home care worker to help her father groom, dress, eat,

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and walk. Allen Tateishi's mother participates in a group respite program, where she engages in exercise, crafts, and outings supervised by staff and volunteers who understand the needs of dementia patients. At the same time, Allen gets a needed break and uses the time to go shopping or be with his children. According to Allen, the respite and support group services provided by the Alzheimer's Association helped save his marriage.

In some cases, home and community-based services may not be appropriate, for example when an older adult is socially isolated and homebound, has no family support, or needs more help than can be provided in the current living environment. For them, a range of institutional services are available. Nursing homes provide 24-hour nursing care and supervision to extremely disabled adults (see the text box in Chapter 13, "Guidelines for Selecting a Nursing Home"). Care homes, boarding homes, and geriatric foster homes also provide 24-hour supervision, but less intensive levels of nursing care than do nursing homes. Relatively independent adults may consider a retirement community like Leisure World or congregate housing.

Mrs. Ogawa provides us an example of an older person whose disabilities and care needs have changed over time. For many years after being widowed, she lived alone. We met her in a previous video when, after an injury, she had moved in with one of her children. Home care workers visited regularly to help with bathing, grooming, and exercise, and to check her health status. She also attended an adult day care program in the neighborhood. In this video we learn that, after breaking her hip, she needed 24-hour care and her physician recommended nursing home care. Her daughter, Helen Sunahara, says the family felt guilty about placing her in a nursing home, but the 24-hour care was too much for them to handle. Mrs. Ogawa says she does not like being dependent on others and is looking forward to her death. She hopes her children are lucky enough to live long, healthy lives and die suddenly before they become dependent.

When selecting services, it is important to remember the concepts of "person-environment fit" and "least restrictive environment." Consider the older person and his or her environment. What does the older person want and need? What can be done to meet these needs while keeping the older adult in an environment that provides as much independence as possible? What modifications can enhance the current environment? What services will help strengthen current supports? Because of the vast array of services, each with its own rules for eligibility and payment, families often benefit from the services of a case manager, someone who can arrange the most appropriate services at the least cost and the least amount of confinement for a disabled older adult.

The readings in Chapters 19 and 20 of the text provide more information on the common social and health services and their funding mechanisms. The video and text admit that services for disabled older adults are not comprehensive or universally available in the United States. Characteristics of a better system of long-term care services and funding are described in Chapter 20 of the text.
Affects of Gender and Ethnicity on Use of Health Services

Older people are more likely to visit their physicians and to be hospitalized than young people. However, we see differences in the use of health services among older adults depending on their gender, ethnicity, income, and country of residence.

Dr. Minkler tells us that women outlive men by eight years but, as Dr. Kenneth Brummel-Smith notes, women have a higher level of disability than men. Women are also more likely than men to seek medical care. The major causes of morbidity among men include heart disease, stroke, and emphysema. Among women, they include arthritis, osteoporosis, and sensory impairments.

Ethnic differences in use of health services are seen as well. In research in Los Angeles, Dr. Brummel-Smith found that Hispanic Americans had two to three times more disability than did Caucasian Americans, but that their use of health services, especially mental health services, was much lower. The text notes that African Americans have lower survival rates than do Caucasian Americans for several types of cancer, in part because they access health services less often and their cancers are diagnosed at a later, more dangerous, stage.

Ethnic differences may really reflect differences in socio-economic status, a concept that describes how “well off” someone is as determined by their income and occupation. Dr. Minkler points out that poor health among older African Americans may reflect an earlier life lived under serious segregation and discrimination. These conditions limited their opportunities for education and jobs, which limited their earnings, which limited the amount of money they could spend on housing, food, children, recreational activities, personal health, and so forth.

Similarities exist among ethnic groups, as well. In his research in Los Angeles, Dr. Vern Bengtson found that African Americans, Caucasian Americans, and Hispanic Americans all identified that their top concerns were personal health, income, and being a burden to their children.

It may surprise many Americans that access to health services is affected most by one’s country of residence. Drs. Minkler and Brummel-Smith both refer to the institutional and surgical biases in the U.S. health care system. Dr. Brummel-Smith notes that it is much easier and cheaper for an older person to get cataract surgery than to get a new pair of glasses. Both experts suggest that most other developed countries have some form of national health service and that this helps them address the service needs of older adults. As Dr. Minkler says, in “Sweden or Canada or Great Britain, if you’re an older person and you need home delivered meals, there’s no question about whether you qualify...it’s just understood that older people may need these services and that the government provides them.”

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9. DYING, DEATH, AND BEREAVEMENT

LEARNING OBJECTIVES

1) Discuss reactions and coping mechanisms in older adults experiencing bereavement.

2) Describe two services designed to help older adults cope with dying, death, and bereavement.

3) Describe two tools people can use to plan for their own deaths.

4) Discuss two ethical dilemmas posed by our technological ability to keep alive increasing numbers of older people.

KEY POINTS

Reactions and Coping Mechanisms in Bereavement

The longer we live, the more likely we are to lose a loved one and experience bereavement. Individuals show wide variations in their reactions to the death of a loved one. In general, research suggests that grieving involves three stages: initial shock and sorrow, a searching or questioning stage, and recovery. Loss of a spouse is often accompanied by prolonged feelings of loss. For example, although Florence Austin's husband died in the attack on Pearl Harbor in 1941, her love for him is still strong. She moved to Hawai'i after his death and wants her ashes scattered at Pearl Harbor when she dies. Marian Cowan still dreams of her deceased husband two years after his death. She feels his presence in the house that they shared and is reluctant to leave it although her children want her to move closer to them. Jane Potter says she talks to her husband's ghost.

The loss of a child may be especially traumatic because it is "off-time." While losing a loved one is always difficult, it is easier to rationalize the death of a grandparent or parent who has lived a long, productive life than it is to accept the death of a child. In the video, the Salazars and Mollie Pier describe the difficult emotions they encountered with the death of their respective sons.

Research suggests that individuals are more vulnerable during the year following the death of a loved one. In some cases this is due to a lowered resistance during the grieving process. In other cases, this is due to loss of social support once provided by the person who has died. For example, Dr. Meredith Minkler tells us that widowers have higher death rates within the first two years of widowhood than do non-widowed men. These men are sad to lose their wife and friend, but may also be unable to cook for themselves, forget to take medications, and lose touch with friends and family. Women tend to have more social support than men in widowhood. Jane Potter describes how she was befriended by other widows and how this has helped her through her grieving process.

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Speed of recovery after the death of a loved one also may be assisted by a feeling of completeness of the relationship. Having years to anticipate the death, for example when a loved one has a prolonged illness, may help prepare one for the actual death. However, this may not reduce the grief felt after the actual death, as we learn from the older adults in the video. For example, although Lillian Salazar feels that she did a lot of anticipatory grieving for her chronically ill son during his lifetime, tears fill her eyes when she reviews his death with us. After 2 years, Marian Cowan wishes she were recovering more quickly from the loss of her husband.

Lillian Salazar and Sylvia Davis were with their loved ones when they died. They both gave the person “permission” to die, i.e., they told them they could let go of life if they desired and not worry about the people left behind. This practice may have helped the survivors face death, but we can see that they still grieve deeply for their losses. Sylvia Davis reports that watching her brother die was the hardest thing she ever had to do.

Dr. Herman Feifel assures us that grieving represents a deep human psychological need and that we shouldn’t be afraid to feel and express our sorrow. Dr. Edwin Shneidman tells us not to expect a quick recovery for he feels that individuals never entirely “get over” the death of a loved one.

Dr. Elisabeth Kubler-Ross is well known as an early advocate for dying people. Dr. Ted Koff describes how Dr. Kubler-Ross would help dying mothers see their children even though children were not allowed in the hospital. Through her interviews with dying people, she identified five stages experienced by people facing their own death: denial, anger, bargaining, depression, and acceptance. Subsequent research, however, suggests that reactions to one’s impending death are also very individual, influenced by personality and the specifics of the timing, type, and place of death. We see Hayward King, who recently learned he has inoperable cancer, simultaneously express denial and depression about his imminent death. Oliver Francisco, now in the acceptance stage, is using his remaining time to resolve past conflicts. He tells us about a reconciliation with one of his sons, in which they discussed their fears and regrets, forgave each other for past behaviors, and expressed their love for each other.

Dr. Feifel believes that we have distanced ourselves from the experience of death. In his youth, he remembers being involved in the death of his uncle and remembers when more people believed in life after death. These experiences led to a greater acceptance of death. Today, he say, we have “professionalized” death and view it as a finality, rather than as a door to another level of being. He sees some disadvantages with being a death-avoiding society. Melinda Grooms agrees. In her work as a hospice coordinator, she sees that “death is happening in everybody's neighborhood...[but] not everybody is dealing with it real well.”

On the other hand, Mildred Tuttle reports that the residents of her retirement community have become very philosophical about death. She says they talk about death all the time and feels that this helps to reduce the intensity and duration of the grieving period following the death of a fellow resident.
Services for Dying and Bereaved People

Culture helps individuals and society cope with death by providing guidelines about the entire death process, e.g., our expectations about age and place of death, style of burial, behavior and dress of survivors, length of time spent in mourning, and so forth. In many cultures, religious groups and churches provide a broad spectrum of services to assist individuals with death and bereavement. Msgr. Charles Fahey describes the way a particular pastor conducts funeral services and how this helps survivors cope with death.

Support groups are also important. Although she did not discuss it in the video, Marian Cowan participated in a bereavement group following the death of her husband. Materials on death and dying illustrated for her the feelings she might experience, such as numbness. Although she expresses concern that she “continued to just float” for longer than expected, her behavior and language suggests that the group helped her better understand and cope with bereavement. Widowhood support groups also provide information on bereavement, give widows an avenue for expressing grief, and can provide a new social network.

For people who have terminal illnesses, hospice care is an important service. As described by Dr. Koff, its goals are to ease pain and assist the terminally ill patient gain an understanding of death and a sense of completing an important lifetime. Melinda Grooms coordinates hospice care to Bert Higert and his wife Suzanne, and, as a nurse, monitors his health status and medications. She talks to Bert and Suzanne about their feelings and does her best to see that they are coping well with Bert’s impending death. Other professionals on the hospice team include a social worker who helps Suzanne plan for future contingencies, a home health aid who helps with personal care, and other workers who can help with housework or run errands for the Higerts.

Planning for Death

People are becoming increasingly concerned with planning their own deaths. People see that it is easy to artificially prolong life and want to prevent being kept alive in a permanent, vegetative state. Many older adults, like Mollie Pier, do not want to become a burden to their children or to society. Planning for death can help adults gain some control over their final years.

Advance directives are legal documents that can provide individuals some control. The most commonly used advance directives are the living will and the durable power of attorney for health care decisions. In contrast to a will, a living will outlines instructions to withhold life-prolonging treatment in the event of an irreversible terminal illness (a sample is included in Chapter 16 in the text). A durable power of attorney for health care decisions empowers a trusted friend or family member to make decisions about health care when you are incapacitated for any reason. The specific definitions and authority of these documents vary from state to state, however, a federal law, called the Patient Self-Determination Act, requires that hospitals inform patients of their rights in deciding how they want to live or die.
Several of the older adults in the video have thought about their own deaths. Mollie Pier has an advance directive that states she would like to enter a nursing home if she becomes incapacitated. Florence Austin wants her ashes scattered over Pearl Harbor. Leo Salazar is planning his memorial service, including the particular songs he wants played. Lawrence Collins wants his ashes mixed with his wife’s ashes and scattered on a favorite hill top. Hayward King is just beginning to think about how he will divide the things he’s collected and how he can visit Paris one last time before his death.

Ethical Issues Concerning Dying

Average lifespan has greatly increased since the turn of the century, from 47 years in 1900 to 75 years in 1990. This change is due to several factors: decreased infant mortality; improvements to diet, sanitation and public health; and the control of many infectious diseases through antibiotics. As Dr. Feifel tells us, “In the old days, when you got old and sick, you usually didn’t last very long. You died of T.B., gastritis...Today, however, because of this ability to keep people alive for longer periods of time, we die of chronic degenerative diseases like heart [disease], stroke, cancer. And so what it’s done is really elongated the time in which it takes us to die.”

Advances in medical care also allow us to prolong life artificially, often without increasing its quality and often at great cost. This situation poses questions about the sanctity of life, an individual’s right to die, and society’s responsibility to both protect life and utilize resources for the common good. “Right to Life” proponents argue that all life should be protected, regardless of individual wishes or societal costs. They warn that having the power to end life may lead to systematic killing of people deemed useless by society. On the other hand, “Right to Die” proponents remind us that the United States was founded on individual rights, and that people should be able to take their own lives if desired.

Some individuals with degenerative and disabling diseases consider suicide. Tanya Blume’s father, for example, felt that the quality of his life was so low that suicide was an appropriate option for him. In his suicide note, he hopes his children will have access to legal euthanasia. Bob Brown, who has Parkinson’s disease, has told his family that he will want help with dying when the time comes. His daughter, Bev Ickes, respects his wishes although the thought of his death clearly distresses her. Janet Adkins, who had Alzheimer’s disease, expressly wanted to die before becoming mentally incapacitated. She was able to find assistance from Dr. Jack Kevorkian who loaned her a device that allowed her to inject herself with a lethal drug. A text box in Chapter 16, “Issues Raised by the Right to Die,” tells of a couple who committed suicide in the face of illness. Euthanasia is most openly practiced in The Netherlands when certain criteria are met: repeated, enduring requests for euthanasia by the patient; unbearable physical or psychological suffering; opinions from at least two physicians that the patient is terminally ill; and the exhaustion of all acceptable medical treatments.

Rationing of health care to the frail elderly is another issue of public concern, as noted by Msgr. Fahey. On the one hand, we shouldn’t deprive people access to health care simply because they are old. On the other hand, we shouldn’t prolong life in very old people because this takes resources away from care and services for younger generations.
Msgr. Fahey feels we should avoid the extremes. He suggests that we respect individual rights, but not take away a person's life just because he or she is not productive. The young medical students discuss their experiences with death, and try to reconcile a patient's right to die with a professional mandate to heal and keep people alive. Dr. Susan Tolle, however, seems to have resolved this dichotomy in her mind as she treats June Troxell, a patient with ALS. June has said she wants nothing done to prolong her life. Dr. Tolle has agreed to respect June's wishes by helping prevent suffering but not artificially prolonging life.

Dr. Feifel provides the following insight. On both the personal level and societal level, we need to find a balance between our fight to survive and an acceptance, or appreciation, of death. For, he says, it is important to remember that "death enhances the meaning and the value of life," making life all the more precious.
10. THE FUTURE OF AGING

LEARNING OBJECTIVES

1) Describe how demographic, health, sociological, and technological changes will impact families and society in the future.

2) Describe how older people and younger people can join together to create the best possible future.

KEY POINTS

The Impact of Demographic, Health, and Social Changes

As we have seen throughout the course, the dramatic growth in the number and proportion of older adults will continue to impact families and society. What will the future look like? Dr. James Dator and Robert Harootyan remind us that no one can predict the future. At best, we can project alternative futures based on demographic trends and policy decisions. The questions to ask are: “What will the future look like if today’s trends continue?” and “What could it look like if trends change or different policy decisions are made?”

The video and text put forward a number of interesting scenarios about the future. We are reminded that by 2030, about 25% of the U.S. population will be over age 65 and that, for the first time in history, old people will outnumber children. The population over age 85, currently at about 3 million, is projected to grow most rapidly. Dr. Richard Suzman illustrates the difficulty in projecting exactly how many people will be over age 85 in the year 2040. If we follow today’s trends, we may have 18 million citizens over age 85. If we assume that tomorrow’s adults will be more health conscious than today’s adults, we may have 40 million citizens over age 85 by the year 2040!

A large percentage of the 85-plus age group now experiences physical and mental disabilities and requires long-term care. What will happen in 2040 if we need 12 times the amount of long-term care services we need now? Will we ration health care to the very old? Will we allow people with terminal illness to voluntarily end their lives?

Robert Harootyan is optimistic about the future. He believes that three health trends may result in more people living long, healthy lives. The first area is health promotion. Already we see mass media campaigns about healthy lifestyles along with legislation aimed at discouraging smoking and mandating seat belt use. The second area is medical technology, which is increasing our ability to diagnose and treat disorders at very early stages and prevent or reverse disability. Third, genetic engineering may allow us to correct defects at the genetic level so that individuals are better able to avoid the diseases to which they are genetically susceptible. We may be able to use growth hormones to promote health as well.

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The most optimistic projection of these trends would suggest two things: 1) a dramatic decline in disease and disability for all age groups and 2) continued extension of life expectancy. Dr. James Birren feels that we will soon view any death before age 80 as premature. Dr. Dator even wonders if someday we will look at death as a curable disease, meaning that we will not have to die at all.

Several experts take a middle ground. Dr. Leonard Hayflick, for example, thinks it will take several generations before we are able to manipulate human aging. This delay will give us time, he says, to work out the ethical, social, and economic dilemmas that would be created if the most optimistic projection comes true. Dr. H. Asuman Kiyak believes that older adults will become more diverse in every way, including their health status. She suggests we plan for both healthy and frail adults in this age group.

To care for frail elders, will we continue to depend on families, especially women, to provide needed support? Will men take more responsibility for caregiving? Dr. Nancy Hooyman believes so, but that families will need more services to help them maintain elders at home, especially day care and respite services. Will government programs be expanded to help families provide care? If so, will we have enough young people in the work force to pay taxes to support programs for older adults? Will we see a rise in the incidence of elder abuse and neglect if families are not supported in their caregiving efforts?

Women continue to outlive men and the number of ethnic elderly is also growing rapidly. Lou Glasse notes that women of today have more opportunities and independence than their mothers and grandmothers. Unfortunately, current day inequities in education, employment, and economic status suggest that we will still see pockets of poverty in future cohorts of elderly women and minorities. Will we allow these inequities to continue? Will we develop programs that will keep low-income elders from poverty? How can we correct inequities so that increasing portions of old people can support themselves?

Aging is a worldwide phenomenon. Msgr. Charles Fahey tells us that some European countries already are feeling that they don't have enough young people to produce the goods and services needed by their society. In Japan, Dr. Linda Martin tells us, the aging of the labor force is forcing the country to rely more and more on women workers. If women are working outside of the home, who cares for their growing number of older people? Dr. Suzman reminds us that China's one-child policy helped China get control over its burgeoning population of young people. But when single children marry, the couple becomes responsible for four parents and eight grandparents. Can they provide that care? Dr. Martin also notes that the elderly population is growing in developing countries as well. How will developing countries care for their growing number of elders?
And what about sociological changes? Will we continue to see a trend toward early retirement? Will we raise the retirement age? Samuel Simmons believes older adults should have more options for work and retirement. While it is important to be flexible, Robert Harootyan wonders if we can afford to have adults out of the work force for half of their lives. Can the U.S. survive if 25% of the population is on Social Security? Dr. Robert Atchley feels that we will need to think of creative ways to retain older workers and postpone the age of retirement. Dr. Jeanette Takamura suggests programs that allow people to pursue several careers throughout life.

Dr. Dator believes that advances in robotization and artificial intelligence will provide us more options in the future. Technology can help us hurry through our chores or allow us to work at home rather than in an office. If people have more leisure time in the future, what new roles will they take on? Technology can also help individuals compensate for disabilities and age-related changes, increasing the "fit" between people and their environments so they can remain productive and independent. Dr. Takamura reminds us that most of the infrastructure of today was designed at a time when fewer older people participated in the economy. How can we design future buildings and transportation systems so that they are age-sensitive?

How do today’s older adults view the future? Leo Salazar says he has lots of plans for his future, between his art, his counseling work, his political activity, and his family commitments; he tells us quite adamantly that he’s "not ready to go yet." Mildred Tuttle expects to live to be at least 90 years old. Robert Shaw wants to continue helping other people as long as he can. Thac Do Bui wants to live a long life so he has time to teach his grandchildren about their Vietnamese heritage. They all seem quite optimistic about the future.

Intergenerational Alliances for a Better Future

In the United States, the proportion of the population over 65 years of age will make a dramatic jump starting in 2010 when the first Baby Boomers become senior citizens. Some experts, including Dr. Kiyak, feel that the Baby Boomers, who have always been a vocal bunch, will continue to win freedoms for the cohort as older adults.

But, as vocal as the Baby Boomers may be, no single generation can make it on its own. Generations acting alone are likely to lose sight of the needs of society as a whole and may engage in “age wars” as they compete for scarce resources. The video and text call for the development of intergenerational alliances to address issues of concern to all citizens. Msgr. Fahey feels that older people need to be the memory for society and act as our conscious.

A few intergenerational alliances already exist. Dr. Torres-Gil talks about Generations United, a coalition sponsored by the National Council on Aging and the Children's Defense Fund. They joined together to support legislation that would benefit both groups. In another example, Lou Glasse tells us that the Older Women’s League has been working to unite old and young women around women’s health issues, for example, pregnancy, menopause, and aging. By presenting a united front to policy makers, they are more likely to get the funding for research and programs needed to address these concerns.
What other kinds of issues can be addressed by intergenerational coalitions? Dr. Dator reminds us of environmental crises that may face us in the future. What if the greenhouse effect increases global temperatures and the sea level rises? What if crowded conditions lead to the spread of new diseases? Dr. Hooyman believes that intergenerational groups working on environmental issues could have a very powerful effect on policy.

Dr. Hooyman reminds us that eldercare and child care programs shouldn't have to compete with each other for funds. They are just two ends of a continuum of services that help families care for their dependents. Intergenerational coalitions may be successful in establishing better support for family care.

Dr. Torres-Gil notes that seniors and minorities share a desperate need for better health care coverage and, if they came together, could develop a political alliance that would be very difficult to defeat. Long-term care is another good issue for intergenerational work, says Dr. Stone. Even today, about 9 to 11 million persons have long-term care needs and a third of this group is under age 65.

Former Representative Thomas Downey wants us to think of programs like Medicare and Social Security as family programs; without them, children would find themselves increasingly responsible for their parents' housing, food, and medical needs. In this context, all generations benefit when family care, health, and income issues are addressed.

Not all intergenerational work has to be political. Programs open to multiple generations have benefits as well. We saw several examples in the video. Mollie Pier talks about a project in Los Angeles in which older volunteers worked with city schools on courses that increased awareness of the negative effects of ageism and racism. Ruth Sifton talks about intergenerational programming at her adult day care center, located next to a preschool. The two groups have become well acquainted and share holiday programs with each other. Older adults help watch out for the children and, in one case, the children helped "find" an older gentleman with dementia who had wandered away from the program.

On a more individual level, older people are a resource that can be tapped by members of younger generations. Former Representative Downey would like to see retired mathematicians and scientists involved in the school system. Dr. Dator feels that older adults would be excellent counselors; they have lived through the challenges of childhood and adulthood and can help younger generations who are facing these challenges for the first time.

The video and text suggest that increased intergenerational interactions can help us build a better future. Without cooperation, we may find generations competing with each other. When we work together across generations, we work for a minimum level of dignity and comfort for all. The questions become: "How can we insure that all people, young and old, receive equitable treatment?" and "How can we make it together?" Dr. Dator reminds us that the future is not written yet; the future is an arena of possibilities and hope.

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GLOSSARY OF IMPORTANT TERMS AND CONCEPTS

Unless otherwise noted, glossary definitions are taken from the third edition of the text, *Social Gerontology: A Multidisciplinary Perspective*, by Hooyman and Kiyak.

**ALS (video)**—Amyotrophic Lateral Sclerosis, or Lou Gehrig's disease; a rare condition that affects the motor-neurons, which are the nerve cells that run from the brain to the muscles and control the muscles movements. The affected muscles cannot be stimulated and the muscles waste away from disuse.

**Access Services**—Programs and services for older adults that provide information, referrals to other programs, case management, and transportation.

**Accessibility**—Absence of barriers that impede an individual's ability to use or receive services.

**Active Life Expectancy**—The number of years individuals can expect to live independently, i.e., without needing help from others with activities of daily living.

**Activities of Daily Living (ADL)**—Personal care tasks such as bathing, dressing, grooming, using the toilet, eating, and getting in and out of bed.

**Activity Competence**—The feeling of having the skill, physical strength, knowledge, and "youth" to undertake activities, especially new activities.

**Activity Theory**—A social theory of aging based on the belief that: 1) active older people are more satisfied and better adjusted than those who are not active and 2) an older person's self-concept is validated through participation in roles characteristic of middle age and older people should therefore replace lost roles with new roles to maintain their integration with society.

**Acute Illness**—An illness that is short-term, and one that usually allows a full recovery, for example a common cold.

**Adaptation**—The adjustments that people make in response to changes in themselves and their environments in order become congruent with (or fit themselves into) the new conditions.

**Addison's Disease (video)**—A disease caused by failure of the adrenal cortex to function, marked by a bronze-like skin pigmentation, anemia, and prostration.

**Adult Day Programs**—Group programs offering therapeutic exercise, socialization, activities, and meals to older adults who need stimulation and supervision. Day Care programs are for elderly people who need stimulation and supervision, but little medical attention and rehabilitation. Day Health or Day Hospital programs are for elderly people who need medical attention and rehabilitation in addition to stimulation and supervision.

**Advance Directives**—Documents such as wills, living wills, and durable power of attorney for health care decisions that outline actions to be taken for you by others when
you cannot give directions yourself, for example in the event of death, incapacitation, or irreversible, terminal illness.

**Aerobic Exercise**—Exercise that increases the heart rate and increases oxygen consumption.

**Age-Based Programs**—Programs only available to people of a certain age.

**Age Changes**—Ways in which people normally change over time.

**Age Differences**—Ways in which one generation differs from another.

**Age Discrimination in Employment Act**—A federal law that protects workers age 45 and over from denial of employment strictly because of age.

**Age Entitlement Program**—Programs only available to people of a certain age.

**Age-Heterogeneous**—Including people of different ages.

**Age-Homogeneous**—Comprised of people of similar age.

**Age Norm**—A set of behaviors and roles normally associated with a specific age group.

**Age-Segregated**—Limiting membership to a certain age group.

**Age Spots**—Concentrations of skin pigmentation.

**Age Stratification Theory**—A theory based on the assumption that age is a universal criterion by which people's roles, rights, and privileges are distributed as they move from one stratum to the next. Successful aging depends on being able to move smoothly into and out of a succession of age-related roles as we age.

**Age Wars**—A term describing intergenerational conflict over resources.

**Ageism**—Stereotypes and discrimination based on age.

**Aging in Place**—Growing old in one's home and neighborhood, rather than relocating. For people who "age in place," home modifications are usually required to help an older person compensate for any physical declines that accompany aging.

**Aging Network**—The system of social services for older adults funded by the Older Americans Act and other sources.

**Alcoholic's Anonymous**—A national organization that sponsors support groups to help persons addicted to alcohol become and stay sober.

**Alzheimer's Association**—A national organization that advocates for and supports dementia research and services, including family support groups.

**American Association of Retired Persons (AARP)**—National organization open to all adults 50 and above, offering a wide range of informational materials, discounted services and products, and a powerful lobby. AARP currently has over 33 million members.

**Americans for Generational Equity (AGE)**—A group that questions age-entitlement programs for older people as they reduce the amount of money available to address the needs of other generations.
American Society on Aging—An association of practitioners and researchers interested in gerontology. ASA sponsors a number of activities including conferences, publications, and task forces on current issues.

Angina Pectoris—Shortness of breath and pain in the heart area due to reduced blood flow from atherosclerosis.

Anticipatory Grief—Grief for a loved one prior to his or her death, usually occurring during the time the loved one has a terminal illness.

AntilInflammatory Agents—Drugs that reduce swelling and pain.

Antioxidant—A nutrient or metabolite that can absorb the unpaired electron on free radicals and, it is speculated, delay aging. The body’s naturally-occurring antioxidants can be supplemented with vitamins A, C, and E and the mineral selenium.

Aphasia—The inability to speak or understand speech that occurs with strokes.

Appropriate Death—A death of a person that occurs the way he or she would wish it to occur, i.e., in concert with past personality patterns.

Archetype—A term coined by Carl Jung to represent the feminine side of a man’s personality (the anima) and the masculine side of a woman’s personality (the animus).

Arcus Senilis—A fatty, yellow ring that forms around the cornea in some older people. It has no impact on vision.

Area Agencies on Aging (AAA)—Offices on aging at the regional and local level that develop and administer service plans to meet the needs of older adults within that locale. Established and partially funded through the Older Americans Act, about 700 AAAs operate across the U.S.

Assets—An individual’s savings, home equity, and personal property.

Arteriosclerosis—The loss of elasticity of the arterial walls.

Arthritis—A general term to describe the 100 different conditions of inflammation and degenerative changes in bones and joints.

Atherosclerosis—The narrowing of the passageway of the large arteries due to the development and accumulation of plaques (fatty deposits).

Attrition—Decline in the numbers of subjects in a research study due to dropout.

Autonomous—Able to and allowed to independently make decisions about health care, lifestyle, and other personal issues.

Autonomy—Self-determination

Autopsy—An examination of the body after death, usually done to identify or validate the cause of death.

B=f(P,E)—An equation developed by psychologist Kurt Lewin that represents the statement “behavior is a function of personal and environmental characteristics.”

Baby Boomers—The nickname for the large group of individuals born between 1946 and 1964.
**Baltimore Longitudinal Study of Aging**—A study funded by the federal government in which a large group of healthy middle-aged and older individuals living in the community are being assessed on a regular basis in order to describe normal changes that occur with aging. When the study began in 1958, it was limited to male participants; women were included in the sample in 1978.

**Bereavement**—The state of suffering and deprivation after the loss of a loved one.

**Bereavement Overload**—An experience of older adults who are exposed to the increased frequency of family and friends’ deaths and become desensitized to the impact of death.

**Biological Aging**—The physical changes that occur with age, including the reduced efficiency of organ systems.

**Biomarker of Aging**—A scientific measure that allows us to judge the rate at which an individual is aging.

**Birth Cohort**—People born within the same period of time.

**Blaming the Victim**—Believing that an individual is responsible for his or her own misfortunes.

**Blended Families**—Families whose membership is comprised of blood and non-blood relations through adoption, divorce, remarriage, etc.

**Boarding and Care Homes**—Shelters that provide room, board, assistance with Instrumental Activities of Daily Living and sometimes Activities of Daily Living to adults with varying levels of disability. As a rule, these facilities provide less intensive care than do nursing homes.

**Body Composition**—The proportions of lean muscle, water, and fat in the body. Humans tend to experience an increase in fat and decreases in water and lean muscle as they age.

**Cancer**—Abnormal, excessive growth of cells and their spread to distant organs which often interfere with vital organ functions.

**Cardiopulmonary Resuscitation (CPR)**—A life-saving procedure of clearing the airway, massaging the heart, and using drugs to restore normal breathing after cardiac arrest.

**Cardiovascular Diseases**—Diseases, mostly chronic, of the heart and circulatory system.

**Care Homes**—see Board and Care Homes.

**Caregiver, Family**—A family member who assists an elderly family member with personal care, household and financial chores, and transportation, usually without compensation.

**Caregiver, Professional**—A trained person who assists an unrelated elder with nursing, personal care, and household tasks, usually for compensation.

**Caregiver Burden**—The personal energy, time restrictions, financial commitments, and/or psychological frustrations associated with assisting disabled persons.
Caregiving—The act of assisting people with personal care, household chores, transportation, and other tasks associated with daily living.

Case Management—Obtaining and orchestrating services for disabled older adults. Such services are usually offered by a number of different agencies with different eligibility criteria.

Cataract—A severe clouding, or opacification, of the lens of the eye which impairs vision.

Centenarian (video)—Someone 100 years of age or older.

Cerebral Hemorrhage—A cause of stroke, by which a weak spot in a blood vessel of the brain bursts.

Cerebral Thrombosis—A cause of stroke, by which a blood clot either diminishes or closes off the blood flow in an artery of the brain or neck.

Cerebrovascular Accident (CVA)—Also called a stroke. It occurs when a portion of the brain is completely denied blood.

Cerebrovascular Disease—Impaired circulation of brain tissue due to arteriosclerotic and atherosclerotic changes in blood vessels serving the brain.

Choice in Dying—A national organization supporting passive euthanasia and providing information on advance directives.

Chronic Disease—An illness that lasts more than 3 months, is often permanent, and leaves a residual disability that may require long-term management rather than cure. Examples of chronic disease include arthritis, emphysema, hypertension, some cancers, and diabetes.

Chronic Obstructive Pulmonary Disease (COPD)—A general term for diseases that damage lung tissue, such as chronic bronchitis, fibrosis, asthma, and emphysema.

Circadian Rhythms—An individual's cycle of sleeping and waking within a 24-hour period.

Classic Aging Pattern—A consistent pattern of scores on the WAIS which suggests that, as we age, decline in fluid intelligence (spatial orientation, abstract reasoning, and perceptual speed) precedes decline in crystallized intelligence (verbal skills and social judgment).

Climacteric—In women, the decline in estrogen production and the loss of reproductive ability (see Menopause). In men, the decline in testosterone (see Male Menopause).

Cognitive Appraisal—An individual's perception of an encounter with a life event or other stressor which can minimize or magnify the extent of one's response to the stressor.

Cognitive Functioning—Intelligence, learning, memory, perception, creativity, and wisdom.

Cohabitation—Unmarried couples living together.
Cohort—A group of individuals of the same generation; people sharing a statistical trait such as age, socioeconomic status, or ethnicity; companions or colleagues.

Cohort Effect—In studies of age differences among generations, a cohort effect refers to differences not necessarily due to age but due to the particular cultural or historical conditions that shaped the different age groups.

Collagen—Connective tissue found in most organ systems that helps maintain elasticity.

Compadre—A close male friend and confidant for whom you have great trust and mutual regard.

Compressed Morbidity—The phenomenon where the number of years individuals spend in sickness or disability is compressed into a small time period at the end of life.

Compression of Morbidity—Delaying the age at which chronic illness and infirmity begin. Since 80% of chronic diseases that cause disability are related to lifestyle, improvements in lifestyle could reduce the incidence of chronic disease and disability.

Congestive Heart Failure—A set of symptoms related to decreased efficiency of the pumping of the heart. Symptoms include shortness of breath, reduced blood flow to vital body parts, and edema.

Congregate Housing—Living arrangements in which communal services (such as meal preparation, social services, and/or health care) are provided to residents.

Congregate Living Facilities (video)—Group living facilities in which older people have their own rooms but share living and dining areas. Meals and transportation are provided by the facility.

Congregate Meals—see Meal Sites.

Continuity Theory—A social theory based on the belief that central personality characteristics become more pronounced with age or are retained as "life threads" with little change. People age successfully if they maintain their preferred roles and adaptation techniques throughout life.

Continuum of Care—The array of health services that should be available to meet the needs of older adults, including services provided in the home, community settings, and institutions to adults with all levels of health, illness, and disability.

Contractures—The freezing of joints into rigid positions due to the loss of flexibility in muscles and tendons surrounding immobilized areas.

Contributory Program—Programs to which people contribute a portion of their income and receive an amount corresponding to their contribution. An example of a contributory program is Social Security.

Convergent Validity (video)—The supporting of a theory by several independent research efforts which produce findings that suggest a similar conclusion.

Coping Responses—The conscious strategies one uses to reduce or manage stress, and subsequent discomfort, from life events and chronic daily hassles. Coping can be
assisted by external situations (intimate friendships, financial well-being) and one’s individual values, hopes, and fears.

Cost of Living Adjustment—An increase in salary or benefit to make up for an increase in the cost of living.

Creativity—The ability to apply unique and feasible solutions to new situations; the ability to produce original ideas or products.

Cross-Sectional Design—Research in which different age groups are surveyed at a single point in time. The major drawback of this design is that differences found among age groups may be due to historical and cohort factors, rather than to aging.

Crystallized Intelligence—Knowledge and abilities that individuals acquire through education and lifelong experiences, e.g., verbal skills and social judgment.

Cyclical Life Plan—A life in which activities are not dictated by age. For example, in a linear life plan, individuals complete school in their youth, the raise children and have careers, then retire. In a cyclical life plan, individuals may participate in the work force, be a caregiver, and go to school at any age, in any order, and as often as they like.

Cystitis—An acute inflammation of the bladder, accompanied by pain and irritation.

Death Crisis—In the dying trajectory, an unanticipated change in the amount of time remaining to live.

Death System—The people, places, objects, times, and symbols associated with death shared by a culture to help people deal with the problems created by death.

Death with Dignity—Dying when one still has some independence and control over decisions about life. People concerned about dying with dignity want to be able to end their lives when they feel that their pain, suffering, and dependency outweigh the benefits of living.

Defense Mechanisms—Unconscious reactions adopted by a person to defend or protect against impulses, emotions, and memories that threaten his or her identity. Primitive defense mechanisms including denying or blaming others for the problem. Mature defense mechanisms are those in which primitive instincts are expressed in socially acceptable ways.

Dementia—Measurable deterioration in cognitive function. Dementia can be a symptom of any number of underlying physical and psychopathologic conditions, some of which can be treated so that the dementia symptoms disappear.

Demography—The statistical study of human populations.

Dependency Ratio—In a society, the number of people who are dependent compared to the number who are employed. The ratio is calculated by dividing the number of dependents (people under age 18 plus people over age 65) by the number of workers (people between age 18 and 65). Separate ratios representing childhood dependency and elderly dependency can also be calculated.

Dependent Life Expectancy—The number of years individuals can expect to live during which time they are dependent on other people to perform activities of daily living.

Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
**Depression**—Psychopathology marked by depressed mood, diminished interest in activities, poor concentration, weight loss, and sleep disturbances.

**Dermis**—The second layer of skin, between the epidermis and the subcutaneous layers.

**Developing Nations**—Countries in which a large portion of the economy is agricultural; these countries tend to have higher proportions of children and lower proportions of old people than do developed nations (which tend to be more urbanized and more industrial).

**Diabetes Mellitus**—Above-normal amounts of sugar (glucose) in the blood and urine, resulting from insufficient insulin to process carbohydrates.

**Diagnostic Related Groupings (DRG)**—The system of Medicare reimbursement where hospitals are paid a fixed amount for a patient based on the diagnosis or procedure. Hospitals that spend more than that amount on the patient lose money while hospitals that spend less than that on the patient make money.

**Dialectical Models of Adult Personality**—Models of personality based on confrontation between changing personal needs and environmental demands. In these models, growth is defined as the resolution of these conflicts and subsequent movement to the next stage.

**Differential Disengagement**—In contrast to disengagement theory, this concept suggests that older people disengage at different rates and in different aspects of behavior, and that differences in environmental opportunities produce different patterns of engagement and disengagement among the aged.

**Disability**—An impairment that affects one's ability to function within normal ranges.

**Discharge Planning**—The arrangement of a package of home-based and community-based services required by a patient who will soon be discharged from a hospital or nursing home.

**Discrimination**—Judging someone a certain way based on age, gender, ethnicity, or sexual orientation, rather than on individual characteristics.

**Disengagement Theory**—A social theory of aging based on the belief that older people, because of their inevitable decline with age, become decreasingly active with the outer world and increasingly preoccupied with their inner lives. This theory suggests that disengagement is useful for society because it facilitates an orderly transfer of power from older people to younger people.

**Displaced Homemakers**—Women who do not have a paid work history (usually because they depended on a husband's income while raising a family) and do not qualify for credit or personal retirement benefits.

**Disuse Theory**—A theory suggesting that information in long-term (secondary) memory can fade away or decay unless it is exercised, as in the adage "use it or lose it."

**Diverticulitis**—A condition in which pouches or sacs in the intestines (which result from weakness of the intestinal wall) become inflamed and infected.

Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
Diverticulosis—Pouches or sacs in the intestines, a common condition which often occurs without symptoms.

Double Jeopardy Hypothesis—A supposition that older women are discriminated against both for being old and for being female.

Dowager’s Hump—A stooped look, sometimes with an outward curving of the spine between the shoulders, that results from the collapsing and compressing of vertebrae (kyphosis).

Durable Power of Attorney for Health Care Decisions—A legal document that empowers a trusted friend or family member to make decisions about the kind of health care you receive in the event of your incapacitation.

Dying Process—As defined by Elisabeth Kubler-Ross, dying persons experience five stages in reaction to their death: 1) denial and isolation, 2) anger and resentment, 3) bargaining, 4) depression, and 5) acceptance.

Dying Trajectory—A perceived course of dying and expected time of death.

Earnings—Money received in payment for a job.

Econlc Memory—Auditory memory; remembering what you hear as opposed to what you see or read.

Economic Marginality—Living on an income that impoverishes, or threatens to impoverish, an individual.

Edema—Swelling, caused by the accumulation of water or blood in body tissues.

Edentulousness—Loss of teeth.

Ejaculation—the release of semen and sperm from the penis.

Elder Abuse—Maltreatment of older adults, including physical abuse (assault), sexual abuse (rape), psychological abuse (verbal assault, threat, or isolation), exploitation (theft or misuse of money or property), and medical abuse (withholding or improper administration of medications; withholding of assistive devices such as false teeth, eye glasses, hearing aids, canes, etc.).

Elder Neglect—Deprivation of care and attention necessary to maintain physical and mental health by those trusted to provide care (neglect by others) or by the elderly person him or herself (self-neglect).

Eldercare—Services and support provided to older adults with dependencies.

Elderhostel—A program in which older adults enjoy inexpensive, short-term academic programs at colleges and universities around the world.

Elderly Cottage Housing—Self-contained units built for an elderly parent on one’s house lot; also known as granny flats.

Elderly Support Ratio—In a society, the number of older people compared to the number who are employed. The ratio is calculated by dividing the number of people over age 65 by the number of people between age 18 and 65. The method to calculate
this ratio may have to change in the future as more people over age 65 join or remain in the work force.

**Elective Death**—Choosing death over life by taking action to deliberately cause one’s own death (e.g., overdosing on sleeping pills or refusing treatment and/or nourishment).

**Electroencephalogram (EEG)**—A reading of brain wave activity.

**Electroshock or Electroconvulsive Therapy (ECT)**—Treatment using electric current to “shock” persons with major depression, especially those who do not respond to medications, have a high risk of suicide, have vegetative symptoms, or severe feelings of agitation or hopelessness.

**Eligibility Criteria**—Rules that govern who can participate in a program, e.g., age is often an eligibility criteria, meaning that only people of a certain age can participate.

**Emphysema**—see Chronic Obstructive Lung Disease.

**Empty Nest Syndrome**—Feelings of loneliness and depression that may occur if a parent cannot adjust to one’s children leaving home.

**Encoding**—Transferring information from short-term (primary) memory to long-term (secondary) memory.

**Entitlement Programs**—Programs available to all people with a certain characteristic, for example, age-entitlement programs serve people of the certain age while need-entitlement programs serve low-income people.

**Environmental Press**—Within the concept of person-environment interaction, environmental press refers to the demands that social and physical environments make on the individual to adapt, respond, or change.

**Epidermis**—The outer most layer of skin.

**Erection**—The swelling of the penis or clitoris in sexual excitement.

**Erikson’s Stages of Psychosocial Development**—In contrast to Sigmund Freud, Eric Erikson believed that individuals continue to develop through the life cycle. He proposed eight stages of development; each stage presents a major crisis and one’s subsequent development is influenced by the outcome of each crisis. See Table 9-1 in the text.

**Errors of Commission**—Wrong answers.

**Errors of Omission**—Errors made by neglecting to do something, e.g., answer a question.

**Estrogen**—A female sex hormone produced by the ovaries and the adrenal glands.

**Estrogen Replacement Therapy**—see Hormone Replacement Therapy.

**Ethics Committee**—In hospitals, a group of professionals and lay people that discusses and makes recommendations about issues for which no clear legal or medical standards exist, such as, whether or not treatment should be continued in hopeless cases and the right to decline or discontinue treatment.
Ethnic Minority—A small group of people of a particular ethnicity or culture residing within a community dominated by a different culture.

Euthanasia—The act or practice of killing (active euthanasia) or permitting the death of (passive euthanasia) hopelessly sick or injured individuals in a relatively painless way for reasons of mercy.

External Memory Aids—Things that help people remember things, for example, calendars, alarms, and lists.

Familial Piety (video)—Devotion and reverence to parents and family.

Feminization of Poverty—A growing number of women in poverty. Among the elderly, this is because women make less than men when they work, spend fewer years in the work force because they take on child and elder care duties, and live longer than men.

Fluid Intelligence—Popularly termed "native intelligence," fluid intelligence relates to the brain's organization of neurons in areas responsible for memory and associations and to the speed of processing information. Measures of fluid intelligence include spatial orientation, abstract reasoning, and perceptual speed.

Foster Care—Live-in support of an elderly person by an unrelated family, usually compensated and supervised by public or private agencies.

Foster Grandparent Program—A volunteer program pairing seniors with disabled children.

Free Radicals—Highly reactive chemical compounds with an unpaired electron.

Freud's Stages of Psychosexual Development—A framework for understanding human behavior proposed by Sigmund Freud which suggests that one's personality achieves stability by adolescence and that little change in personality is seen subsequently in the lifespan.

Gap Group—People who are neither rich enough to pay privately for services they need nor poor enough to qualify for government assistance. Also known as "tweeners."

Gatekeepers—People in service positions who, because of regular interactions with older adults, can watch for signs indicating a need for assistance or attention.

Gay—Homosexual.

Genetic Engineering—Manipulation of genes at the somatic level to correct deficiencies or to slow the aging process.

Genetic Replacement Therapy—A treatment by which defective genes are replaced, thus prolonging the quality of life and perhaps lifespan.

Genital Atrophy—A reduction in the elasticity and lubricating abilities of the vagina approximately 5 years after menopause.

Genome Project—A research program to identify the location and function of every gene on every chromosome.

Geriatrics—A field of medicine that focuses on how to prevent and manage the diseases of aging.

Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
Germ Cell—Cells at the egg and sperm level.

Geronticide—The deliberate destruction of aged community members. In many societies that existed close to the edge of subsistence, this practice made sense and was often performed with great reverence or ceremony.

Gerontological Society of Aging—An association of researchers and practitioners interested in gerontology and geriatrics. GSA sponsors a number of activities including conferences, publications, task forces on current issues, and Congressional lobbying.

Gerontology—The study of the biological, psychological, and sociological aspects of aging.

Glaucoma—A disease of the eye in which there is excessive production of or inefficient drainage of the aqueous humour.

Gliding Out—Phased retirement that permits a gradual shift to a part-time schedule.

Grandparent’s Rights—Legal rights of grandparents to interact with grandchildren following divorce of the grandchild’s parents; liabilities of grandparents and step-grandparents as custodians of grandchildren in the absence of responsible parents.

Granny Flats—see Elderly Cottage Housing.

Gray Panthers—A national organization, founded by Maggie Kuhn, which encourages work on social issues through intergenerational, grass roots alliances.

Graying of Society—A trend toward more older people (supposedly with gray hair) in society.

Graying of the Suburbs—A trend toward more older people living in the suburbs, primarily because they are “aging in place” there.

Graying of the University—A trend toward more older people going to school.

Grief Process—Similar to Elisabeth Kubler-Ross’s death process, grief may be experienced in three stages: shock and sorrow, questioning or searching, and recovery.

Grief Reaction—A state of shock, disbelief, and depression experienced following the death of a loved one.

Group Therapy—A psychotherapeutic approach conducted with a group, rather than with an individual, providing participants the opportunity for peer support, social interaction, and role modeling.

Hassles—In contrast to life events, day-to-day activities and feelings that are chronic (long-term), for example, regrets over past decisions and concerns about one’s current situations.

Health—According to the World Health Organization, health is more than the absence of disease or infirmity; it is a state of complete physical, mental, and social well-being.

Health Care Financing Administration (HCFA)—The federal agency that administers the Medicare and Medicaid programs.
Health Maintenance Organizations (HMO)—Health care organizations that provide a comprehensive package of care for a predetermined, monthly fee. Participants pay minimal out-of-pocket expenses. The Kaiser health care system is an example of an HMO.

Health Promotion Guidelines—Specifications for good nutrition, exercise, stress control, injury prevention, and disease screening aimed at maximizing health and reducing the incidence of chronic disease.

Health Status—An individual’s summary of amount of disease, degree of disability, and self-perceptions of physical and mental status.

Hemianopsia—Blindness in half of a stroke victim’s visual field.

Hemiplegia—Paralysis of one side of the body that can result from a stroke.

Hemlock Society—a national organization that promotes the right to die for terminally ill persons, calls for legalizing assistance to people who decide to take their own lives, and publishes information on nonviolent, painless methods to commit suicide.

Heterogeneous—Different in character, not all the same.

Heterosexuality—Sexual orientation toward the opposite gender.

Home Delivered Meals—Meals, usually prepared by a church or voluntary agency, delivered to the home of an ill or disabled person.

Home Equity Conversion Mortgages—Mortgages provided by banks to older people whose house is of value but who have little cash or income; the bank provides a monthly annuity to the home owner and, upon the home owner’s death and the home’s sale, receives a refund on the loan as well as a portion of the home’s appreciated value.

Home Sharing Programs—Programs that assist older persons who own homes to identify live-in companions (of any age) who may pay rent, share household chores, and/or provide services (such as shopping or personal care) to the elderly home owner; the success of the program depends on the “match” between home owners and companions in terms of their individual values, habits, needs, and abilities.

Homebound—Unable to leave the house because of illness, disability, or social isolation.

Homeostasis—A relatively stable state of equilibrium.

Homosexuality—Sexual orientation toward the same gender.

Hormone Replacement Therapy (HRT)—In women, the prescription of hormones (primarily estrogen and progesterone) to supplement decreasing hormone levels during and/or after menopause.

Hospice—An approach to caring for the terminally ill in which the forthcoming death is accepted and palliative care is administered in the patient’s home or in a home-like facility in concert with spiritual and/or psychosocial therapies.

Hot Flashes—A sudden sensation of heat in the upper body caused by vasomotor instability as nerves over-respond to decreases in hormone levels during menopause.

Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
House Select Committee on Aging—In the House of Representatives, U.S. Congress, the committee charged with investigating and recommending policy on issues concerning older adults.

Human Growth Hormone—The hormone that stimulates growth and may help reverse aging.

Hypertension—High blood pressure, a disease associated with increased risk of heart attack, stroke, kidney problems, and premature death.

Hypoglycemia—Low blood sugar.

Hypotension—Abnormally low blood pressure, characterized by dizziness and faintness from exertion after a period of inactivity, e.g., when getting out of bed quickly.

Hypothesis—In research, an assumption or proposition that is then tested through observation or experimentation.

Hysterectomy—Surgical removal of the uterus.

Iatrogenic—A disease or condition inadvertently caused by a physician or medical treatment.

Iconic Memory—Visual memory, i.e., words, faces, and landscapes that we experience through our eyes.

Impotence—The inability to have or maintain an erection.

Incontinence—Inability to control urine and/or feces.

Indian Health Service—A federal program that provides health care for Native Americans and Alaskans of all ages through hospitals and community clinics.

Inelastic Ego (video)—Being "set in one's ways" and unable to change one's personality.

Infarct—An area of tissue that dies because an obstruction has restricted or stopped blood from reaching the area.

Informal Support—see Social Support.

Instrumental Activities of Daily Living (IADL)—Tasks such as managing money, shopping, preparing meals, keeping the house clean, doing laundry, using the telephone, and taking medications.

Instrumental Coping Strategies—Strategies that help solve the problem being confronted.

Intelligence—Range of abilities to acquire and comprehend new information, to adapt to new situations, to appreciate and create new ideas.

Interactionist Perspectives—Social theories of aging that emphasize the dynamic interaction between older individuals and their social world, e.g., person-environment, symbolic interaction, labeling, and social breakdown theories.

Interdependence of Generations Framework—In contrast to the intergenerational inequity framework, an outlook based on the belief that the needs and contributions of
different generations are so intertwined that programs benefiting one age group directly or indirectly benefit other age groups.

Interference Theory—A theory which purports that older people may have problems retrieving information from secondary memory because new information interferes with material that has been stored over a period of many years.

Intergenerational Assistance: See Intergenerational Exchange.

Intergenerational Exchange—Support provided among members of different age groups within a family, for example, a niece sends money to her aunt, a grandparent baby-sits a grandchild.

Intergenerational Inequity—Inequitable distribution of scarce resources between generations.

Intergenerational Inequity Framework—In contrast to the interdependence of generations framework, an outlook based on the belief that age-entitlement programs for older adults benefit the elderly at the expense of younger age groups.

Intergenerational Living—Families living in the same household spanning two or more generations.

Intergenerational Programming—Services and programs that facilitate the interaction of people of diverse age groups, for example, the Foster Grandparent Program.

Intergenerational Transfer of Knowledge—Exchange of ideas and information among family members of different generations, e.g., older members teaching younger members about family history, younger members teaching older members how to use computers.

Intergenerational Transfer of Resources—Exchange of property and finances among family members of different generations, for example: 1) older adults giving their property and finances to children and grandchildren and 2) younger members pooling money to support an older member in times of illness or inadequate income.

Interindividual Differences—The great variations that are observed among individuals, even among those within the same age group.

Interiority (video)—Increasing self-awareness and appreciation for life through self-examination, life review, and/or spiritual reflection.

Intimacy—Feelings of deep mutual regard, affection, and trust, usually developed through long association.

Intimacy at a Distance—Strong emotional ties among family members even though family members do not live near each other.

Intraindividual Changes—Changes that occur within an individual, for example the graying of one's hair over the lifespan.

Jung's Model of Personality—A model that emphasizes lifespan development of consciousness and the ego from the narrow focus of the child to the other-worldliness of the older person. He also proposed that people, as they age, adopt psychological traits
commonly associated with the opposite sex, i.e., men become more passive and nurturing as they age while women become more assertive and achievement-oriented.

Kohlberg's Model of Moral Development—Rather than explain the growth of the ego, Kohlberg focused on the development of the conscience through the acquisition of moral values.

Kyphosis—The collapsing and compressing of vertebrae in people with osteoporosis.

Learning—The acquisition of a new skills or information through practice or experience.

Least Restrictive Environment—An environment that provides needed support with the most amount of freedom, enabling a disabled person to be as independent, and least confined, as possible.

Leisure—Free time to pursue one's favorite activities.

Leisure World—A retirement community in Southern California that provides a number of services for residents, including health services, opportunities for socialization, and lifeline systems in the homes.

Lesbian—Homosexual woman.

Levinson's Model of Personality Development—A model outlining four "seasons" of life: preadulthood, early adulthood, middle adulthood, and late adulthood. Each era has specific conflicts that demand confrontation and resolution, and these conflicts stem from the individual's life structures at a particular time. See Table 9-2 in the text.

Life Events and Life Experiences—Internal and external stimuli (both positive and negative) that cause change in an individual's daily life, e.g., marriage, childbirth, divorce, change in financial status, and caregiving.

Life Expectancy—The average length of time one can expect to live.

Life Planning—A term sometimes used to describe the process of reviewing one's health, financial resources, and support systems and of filing advanced directives in preparation for future disability, incapacitation, and/or death.

Life Review Therapy—A psychotherapeutic approach that encourages introspection through active reminiscence of past achievements and failures. This therapy can help reestablish ego integrity in depressed older persons.

Lifecare Communities—Retirement communities or congregate facilities that offer different intensities of services with the goal of caring for residents until the end of their lives.

Lifecare Contract—An agreement, usually with a housing project or lifecare community, for living space and services until death in exchange for an initial entry fee and fixed monthly payments.

Lifeline System—An emergency alarm system used by vulnerable older adults during periods of isolation. When activated, the alarm signals an emergency operator to send someone to check on and assist the individual.

Lifespan—The actual number of years one lives.
Lipids—Fats.

Lipofuscin—An age pigment composed of fat and protein. As concentrations of lipofuscin increase (for example in muscle fibers or in the brain), elasticity is decreased.

Liver Spots—Age spots.

Living Will—A legal document outlining one’s desire that medical treatment be withheld or withdrawn if it will not provide a cure and merely prolongs the dying process.

Locus of Control—The place from which an individual feels his or her life is being controlled, externally (by fate or powerful others) or internally (by themselves).

Long-Term Care—Medical, nursing, and social services provided to people with chronic illnesses who need assistance on a daily basis either in their home or in an institution.

Long-Term Care Insurance—Private insurance designed to cover the costs of institutional, and sometimes, home-based services for chronically disabled people in need of daily assistance.

Longevity—The number of years individuals live.

Longitudinal Research Design—Studies in which the same people are surveyed at specified intervals over a period of months or years to measure individual changes that occur over time.

Love—Strong affection for another arising out of kinship, personal ties, common interests, and/or sexual attraction.

Lymphocyte—Cells that include the cellular mediators of immunity.

Macular Degeneration—A disease of the eye in which the macula receives less oxygen than it needs, resulting in destruction of the existing nerve endings in this region and a loss of the central visual field.

Major Depression—Depression accompanied by vegetative signs, suicidal thoughts, weight loss, and sudden mood changes.

Male Menopause—A term which suggests a significant change experienced by men as their production of testosterone decreases in later life. Although male fertility is maintained, some older men experience testicular atrophy, prostate enlargement, and associated psychological doubts. Most endocrinologists feel that hormonal changes experienced by aging men are not as dramatic or abrupt as the menopausal changes experienced by women, which include complete loss of fertility and depletion of estrogen.

Mandatory Retirement—A requirement to retire at a certain age.

Masked Depression—Depression that is denied or hidden by its manifestation as physical discomfort or memory loss rather than mood change.

Mastectomy—Surgical removal of one or both breasts, usually in treatment of breast cancer.
Mastery—Referring to gaining control. A person with a passive mastery style does not feel powerful enough to directly influence his or her fate. A person with an active mastery style tends to rely more on personal abilities and less on others.

Masturbation—Erotic stimulation of the genital organs achieved by manual contact exclusive of sexual intercourse.

Maximum Lifespan—The maximum number of years a given species could expect to live if environmental hazards were eliminated, about 115 to 120 years for humans.

Meal Sites—Centers at which group meals are provided to older adults.

Median Age—The age that divides a population into two groups; half the members are younger than that age and half the members are older than that age.

Mediators—Internal memory aids, both visual and mnemonic, that help file new information in long-term memory or help associate it with information that is already there.

Medicaid—A program jointly financed by federal and state government that provides coverage for health care costs of low-income people regardless of age. States have some flexibility in how Medicaid funds are spent, but most states cover hospital care, physician services, outpatient services, skilled nursing home care, and intermediate (custodial) nursing home care. Figure 20-3 in the text shows how Medicaid dollars are spent.

Medicaid Waiver—Exceptions to the Medicaid rules that allow states to use Medicaid dollars (usually restricted to pay for nursing home care) to pay for selected home-based long-term care services.

Medicare—A federal health insurance program that provides partial coverage (80% of allowable charges) for medical care costs of people 65 years of age and older. Part A provides partial coverage of hospital care and very limited skilled nursing home and home care. Part B provides partial coverage of physician services, outpatient services, diagnostic x-ray and laboratory services. Figure 20-2 in the text shows how Medicare dollars are spent.

Medicare Catastrophic Health Care Act—A federal law passed in 1988 that imposed an additional tax on upper-income elders so that the Medicare program could limit out-of-pocket expenses by the elderly, provide protection against spousal impoverishment, and increase coverage for skilled nursing home and home care in the event of a severe illness. It did not provide protection against costs of extended long-term care. A huge grassroots protest by older adults led to the legislation’s repeal in 1989.

Medigap Insurance—Insurance that can be purchased to cover a large portion of health care expenses not covered by Medicare.

Melanin—Dark skin pigmentation produced by the body to protect it from ultraviolet rays.

Memory—The three types of memory are sensory memory, primary (or short-term) memory, and secondary (or long-term) memory. Remembering is the retrieval of information stored in primary and secondary memory.
Menopause—In women, the process of the cessation of menstruation, complete after 12 months of no menstrual flow.

Mental Health Centers—Centers providing ambulatory treatment for psychological and psychiatric disorders.

Mystery Killing—Deliberate actions taken by others to end the life of a terminally ill or chronically disabled individual without his or her permission.

Millenium Therapy—A psychotherapeutic approach conducted by providing a good, therapeutic environment that enhances a person's independence and feelings of control.

Mnemonics—Verbal riddles, rhymes, and codes associated with new information, for example, 'i' before 'e' except after 'c.'

Mobile Society—A society in which relocating from place to place is the norm, putting distance between family members; this practice limits access of older people to family caregivers.

Modernization Theory—A theory that suggests that older people lose political and social power as the society places increasing value on technology, mass education, and nuclear, rather than extended, families.

Monogamy—Having a single sexual partner.

Morbidity—Sickness or disability.

Mortality—Death.

Mourning—Culturally patterned expressions of grief.

Multigenerational Family—A family with 3 or more generations living at the same time.

Multilevel Facilities—Housing projects that offer a range from independent living to congregate living arrangements and nursing home care.

Mutuality—A sharing of sentiments.

Myocardial Infarction—A heart attack in which the heart is deprived of blood for so long that a portion of it is permanently damaged.

Myopia—Near-sightedness.

National Association of Retired Federal Employees—A national organization of adults retired from the federal government, primarily involved in political and social issues.

National Caucus for the Black Aged—A national organization of professionals concerned with increasing the responsiveness of aging programs to African Americans.

National Council of Senior Citizens—A mass membership organization involved in political action for older adults.

National Council on Aging—A national organization of over 2,000 social welfare agencies concerned with aging, primarily serving as technical consultant to groups working to address problems facing older adults.
National Health Care—A nationally-sponsored system of providing adequate health care to all citizens regardless of their ability to pay. The U.S. and South Africa are the only developed countries in the world that do not provide their citizens with a form of national health care.

National Indian Council on Aging—a national group concerned with increasing the responsiveness of aging programs to Native Americans.

National Interfaith Coalition—A national group concerned with motivating church and synagogue to take more leadership in improving the quality of life for older adults.

National Voluntary Organizations for Independent Living for the Aging—A national organization concerned with coordinating services that enhance the ability of older people to remain in their homes.

Natural Death Acts—Laws that provide for the rights of patients and/or their families to refuse treatment in the final stages of terminal illness.

Natural Helpers—People who assist others because of their concern, interest, and innate understanding.

Need-Based Programs—Programs available to individuals based on need, like low income. An example of a need-based program is Supplemental Security Income.

Need Entitlement Programs—Programs available to people based on need (e.g., low income and/or disability).

Neighborhood—A geographic area with distinguishing physical characteristics and inhabitants who share characteristics and contact with each other.

Neugarten's Personality Types—Based on longitudinal research, Bernice Neugarten proposed four major personality types in older adults: the integrated type, the armored-defensive type, the passive-dependent type, and the disorganized type.

Neurons—Nerve cells.

New Ageism—Rather than recognizing the diversity of older adults, focusing on the least able and most powerless elderly and encouraging the development of services that do not enhance older people's independence.

Nocturnal Penile Tumescence—In men, sleep-related erections.

Non-Events—Life events that are expected but fail to materialize.

Nontraditional Families—New family structures derived through gay and lesbian partnerships, communal living, cohabitation, informal adoption, etc.

Normative Events—Events that happen on-time, i.e., at the expected time in one's life. Non-normative events happen off-time, i.e., at an unexpected time in life given one's age.

Nursing Homes—Residential facilities in which nursing staff provide 24-hour care to people with chronic illnesses who need assistance with ADL and IADL.

Nutrition Services—Programs that deliver meals to homebound older adults or provide meals in congregate settings such as senior centers.

Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
Observational Analysis (video)—A method of research in which the researcher simply watches the subject(s) in order to describe and develop hypotheses about the observed interactions.

Older American Volunteer Program—A federally-sponsored volunteer program which recruits older people to work with disadvantaged groups.

Older Americans Act (OAA)—A federal law, administered by the Administration on Aging (AoA), that established and funds state and local offices to plan, coordinate, provide, and contract services for older adults.

Older Women’s League (OWL)—A national organization concerned about issues affecting older women, especially health care and finances.

Oldest-Old—The age group comprised of people 85 and older.

Olfactory Sense—Sense of smell.

On Lok—A comprehensive program of health and social services provided to very, frail adults residing in certain neighborhoods of San Francisco with a goal of preventing or delaying institutionalization by safely maintaining these adults in their homes.

Orgasm—Climax of sexual excitement.

Osteoarthritis—Gradual degeneration of the joints most subject to stress, i.e., hands, knees, hips, and shoulders.

Osteoporosis—Loss of bone that results in decreased bone strength, diminished height, and increased bone brittleness.

Ovariectomy—Surgical removal of both ovaries.

Palliative Coping Strategies—Dealing with the emotions created by the problem but not acting to solve the underlying problem.

Palliative Treatment—Treatment designed to relieve pain provided to a person with a terminal illness for whom death is imminent.

Patient Self-Determination Act—A federal law requiring that health care facilities inform their patients about their rights to decide how they want to live or die, for example by providing them information on refusing treatment and on filing advance directives.

Paranoia—Irrational suspiciousness of other people.

Paraphrenia—Late onset schizophrenia with paranoid features.

Partnerships in Aging Programs—Programs that stimulate collaboration between the private sector and government in order to benefit older adults.

Passive Coping Strategies—Withdrawal, denial, and anxiety.

Pathological Aging—Compared to normal aging, aging that has been accelerated due to disease.

Peers—Friends and confidants selected because of similarities in age, sex, marital status, psycho-economic status, or other characteristics.

Institute for Gerontechnology, Eindhoven University of Technology, the Netherlands
Penile Implant—Devices surgically implanted in the penis to reverse impotence and allow an erection.

Pensions—Retirement plans sponsored by government or business. Many older adults receive income from pensions as well as from Social Security.

Perception—The function in which the information received through the senses is processed in the brain.

Period Effect—In studies of age differences among generations, a period effect refers to differences not necessarily due to age but due to the particular historical conditions that shaped the different age groups.

Periodontitis—Gum disease.

Peritonitis (video)—Inflammation of the membrane that lines the cavity of the abdomen.

Person—Environment Interaction—A dynamic process in which an individual's needs change over time and in which the individual constantly interacts with, adapts to, and changes the environment to meet these needs.

Person—Environment Fit or Person—Environment Congruence—A concept that describes a good match between an individual's needs and the environment.

Personal Care Aide—A caregiver specially trained to assist disabled adults with bathing, dressing, and grooming.

Personal Support Services—Programs that provide workers who can clean the home, assist with ADL and IADL, and phone or visit on a regular basis.

Personality—A set of innate and learned traits that influence the manner in which each person responds and interacts with his environment.

Planned Housing—Housing projects developed using religious or government funds, either as subsidized housing for low-income elderly or age-segregated housing for middle-income and upper-income elderly.

Political Economy of Aging—A theory based on the belief that social class is a structural barrier to older people's access to resources and that dominant groups within society try to sustain their own interests by perpetuating class inequities.

Politics of Entitlement—In contrast to the politics of productivity, a philosophy that casts older adults as a group deserving of public support regardless of need.

Politics of Productivity—In contrast to the politics of entitlement, a philosophy that sees older adults as increasingly diverse and contributing to society to the extent of their abilities.

Population Pyramid—A graphic representation of the proportions of young and old persons in a population (sees Figure 1-5 and 1-10 in the text).

Post-Mortem Depression—Depression that occurs after the death of a loved one, associated with a higher risk of death for the bereaved.

Postmenopause—In women, referring to the period of life after menopause.
Poverty Level—A fixed dollar amount of income determined by the federal government; if a household makes less than this dollar amount, it is deemed poor.

Premenopause—In middle-aged women, the period between reproduction and nonreproduction marked by a decline in ovarian function, estrogen, and regularity of the menstrual flow.

Preorgasmic Plateau Phase—In men and women, the phase of love making prior to orgasm in which sexual tension is at its height.

Presbycusis—Age-related hearing loss.

Presbyopia—Age-related loss of elasticity of the lens of the eye which results in an inability to read or focus on close items.

Primary Memory—The temporary holding and organizing of information in short-term memory, which has limited capacity. This capacity does not change with age.

Progeria—A rare condition in which aging is accelerated and death may occur by age 15 or 20.

Progesterone—A female sex hormone produced by the ovaries.

Prostate, Enlargement of—Growth of the prostate, due to changes in prostatic cells with age, which can result in pain and difficulties urinating.

Pseudo-Dementia—A term used to describe depression in older adults that manifests itself as loss of memory and problem-solving skills rather than mood changes.

Psychodynamic Group Therapy—Using psychoanalytic concepts such as insight, transference, and the unconscious to review symptoms of depression and to prevent its recurrence by understanding why the individual behaves in self-defeating ways.

Psychological Aging—Changes that occur in perceptual processes, mental functioning, personality, and coping.

Psychopathology—Personality disorders, psychiatric disorders, and cognitive impairment.

Psychotherapy—Treatment for psychological or psychiatric disorders.

Radical Perineal Prostatectomy—The surgical removal of the prostate, usually in treatment for prostate cancer.

Range-of-Motion Exercises—Exercises that help stretch and keep limber the arms, legs, hands, and other parts of the body through their full range of movement.

Rational Suicide—The option of ending one's life for good and valid reasons.

Rationing Health Care—Restricting access to health care in order to save money.

Reactive Depression—Depression in response to specific distress such as illness or the death of a spouse.

Reality Orientation—A psychotherapeutic approach in which confused and disoriented persons are reminded of person, place, and time.
Recall—The process of searching through and retrieving information from the vast store of information in secondary memory. Essay exams test our recall abilities.

Reciprocal Relationships—The sharing of resources and privileges among people; mutual dependence and support.

Recognition—The process of matching information in secondary memory with stimulus information. Multiple-choice exams test our recognition abilities.

Recognition Threshold—The intensity of a stimulus needed in order for an individual to identify or recognize it.

Rectangularization of the Survival Curve—The survival of all individuals to their maximum life span (see Figure 1-2 in the text).

Refractory Period—In men, the time between ejaculation and another erection.

Regressive Intervention—The process whereby professional support is withdrawn after it is decided that a person's illness cannot be reversed. Palliative treatments may still be given.

Relocation—Moving from one living situation to another.

Remotivation Therapy—A psychotherapeutic approach in which groups of people who have withdrawn from social activities are guided through group discussion by encouraging each participant to share his/her feelings or experiences with the subject matter.

Respite Care—Care provided to temporarily relieve family caregivers of their duties so that they can rest or run errands. Respite care can be provided at home, in the community, or in institutions for anywhere from a few hours to a few months.

Retired Senior Volunteer Program (RSVP)—A federally-sponsored program in which older adults volunteer in schools, hospitals, and other social agencies.

Retirement—The period of life, usually starting at age 65, during which an individual stops working in the paid labor force.

Retirement Communities—Communities in which older adults live in their own houses or apartments but share recreational, social, and/or health facilities.

Reverse Mortgages—see Home Equity Conversion Mortgages.

Rheumatoid Arthritis—Chronic inflammation of the membranes lining joints and tendons.

Right to Die—The right of an individual to hasten or cause his or her own death.

Right to Know—The right of an individual to understand his or her diagnosis and prognosis in order to make decisions about further care.

Role—Behavior expected of a person who occupies a particular position, for example in society, in the family, at work, etc.

Role Change—A change in the set of behaviors performed by a person.
Role Continuity—The idea that role behaviors learned early in life remain useful at later stages of life, even though exact roles may change. For example, a teacher can continue using teaching skills as a volunteer.

Role Development (video)—Evolution or changes within existing roles over time, for example, within a marriage or as a parent.

Role Dilemma—Conflicts or confusion associated with gaining, losing, competing for, or changing roles.

Role Discontinuity—Behaviors learned early in life may become useless or conflicting at a later stage of life. For example, people who have worked long hours throughout their lives may be uncomfortable with the expectation to relax after retirement.

Role Gain—The addition of a function or position, for example, the role of grandparent is gained when one’s children have children.

Role Loss—The loss of a function or position, for example, a widow loses the role of spouse, a retiree loses the role of employee.

Role Model—A clear guide to the behaviors of a certain role, usually in the form of a person who has distinguished himself or herself in the role.

Role Theory—A social theory based on the belief that roles (student, parent, business person, homemaker) define us and our self-concept. Age is associated with the types of roles people are expected to fill and the manner in which they play these roles.

Roleless—Being without a specified set of standards to guide behavior.

Rural Elderly Enhancement Program (video)—A program in Alabama that helps keep people in their own homes and improves their nutritional status through the use of home visitors who shop and help prepare meals.

Safety Net—A minimum level of support provided by the government to citizens that keeps them from poverty. While the U.S. government sponsors many programs for low-income citizens, evidence exists that these programs, in fact, do not provide a safety net and that many subgroups of Americans do live in poverty.

Samurai (video)—A Japanese warrior, known for his stoicism.

Sandwich Generation—Referring to middle aged people most likely to have caregiving demands from aged parents as well as from spouses and children.

Schizophrenia—Psychotic disorder characterized by lack of contact with reality and disintegration of personality.

Sebaceous Glands—Glands that produce oil, for example in the skin.

Secondary Memory—Long-term memory, which has an unlimited capacity that does not change with age.

Selective Dropout—People who drop out of a longitudinal study due to poor health or another characteristic (other than participation) that distinguishes them from people who continue in a study.
Self-Concept—One's cognitive image of self and identity. As this is often dependent on an individual's roles (child, parent, teacher, volunteer), successful aging includes being able to satisfactorily redefine self-concept in the face of role change.

Self-Esteem—One's emotional assessment of self. As with self-concept, older people who successfully maintain self-esteem are able to satisfactorily redefine the meaning of self, accept the aging process, objectively review life and learn from it, and refocus goals and expectations.

Self-Fulfilling Prophecy—Performance that is influenced by pre-performance expectations, for example, people who are told that their age may keep them from performing well often perform poorly.

Self-Paced Tests—Exams in which the subject can control the amount of time spent on each item.

Senate Special Committee on Aging—In the Senate of the U.S. Congress, the committee charged with investigating and recommending policy on issues concerning older adults.

Senecide—The deliberate destruction of aged community members. In many societies that existed close to the edge of subsistence, this practice made sense and was often performed with great reverence or ceremony.

Senescence—The normal process of changes over time in the body and its components.

Senior Boom—The large number and proportion of older adults expected early in the 21st century when the Baby Boomers pass age 65.

Senior Citizen—A nickname used for individuals 65 years of age and older.

Senior Companion Program—A volunteer program in which able-bodied seniors help disabled older people.

Senior Employment Programs—Programs sponsored by government or business that encourage the employment of older workers.

Senior Learning Programs (assignment)—Academic programs specially designed for older adults, or programs of tuition waivers that allow older adults to take college courses at no cost.

Sensation—The process of taking in information through the sense organs.

Sensory Discrimination—The minimum difference necessary between two or more stimuli in order for a person to distinguish between them.

Sensory Memory—The reception of information through the sense organs, stored for a few tenths of a second, after which it is passed on to primary and secondary memory or forgotten.

Sensory Threshold—The minimum intensity of a stimulus that a person requires in order to detect the stimulus.
Sequential Design—Studies that concurrently employ cross-sectional and longitudinal methods.

Serial Monogamy—Being engaged in monogamous relationships, one following another.

Serial Retirement (video)—A term to describe individuals who move in and out of the work force, perhaps retiring at age 50 from a first career, retiring again at age 65 from a second career, and perhaps retiring from a third career at age 80.

Service Corps of Retired Executives—A program that links retired executives as technical and financial consultants with companies in the United States and abroad asking for assistance.

Sex—in its most narrow sense, a biological function involving genital intercourse or orgasm. In a broader sense, expressing oneself's in an intimate way through a wide ranging language of love and pleasure in relationships.

Sexuality—Feelings of sexual desire, sexual expression, sexual activity.

Shared Housing—Two or more unrelated people living in the same house; usually each has a private bedroom but all use the same kitchen and living areas.

Silver-Haired Legislatures—Organizations modeled after state legislatures in which seniors are elected to “office” and learn lobbying and policy making skills.

Sleep Apnea—A five to ten second cessation of breathing during sleep.

Smart Houses—Houses containing technological gadgets and computers that make living easier and/or help compensate for physical limitations. An example is a house with voice-activated computers that can write letters and turn off the lights upon command.

Social Aging—Changes in social roles and relationships over the life course.

Social Gerontology—An area of gerontology concerned with the impact of social and sociocultural conditions on the process of aging and with the social consequences of this process.

Social Exchange Theory—A theory based in the belief that an elder’s status is defined by the balance between their contributions to society, which are determined by their control of resources, and the cost of supporting them.

Social Expectations—Behaviors and actions that society expects people in a certain role or certain group to perform.

Social Policy—Principles that govern actions about a social concern.

Social Program—Programs that address specific social concerns.

Social Security—A federal program into which workers contribute a portion of their income during adulthood and then, beginning sometime between age 62 to 65, receive a monthly check based on the amount they earned.
Social Services Block Grant—A block of federal money provided to states to pay for services to low-income citizens of any age. Under the Block Grant system, states decide which programs to fund and which citizens are eligible for them.

Social Support—Interactions among family, friends, neighbors, and programs which sustain, maintain, and inspire us on a daily basis and especially during hard times.

Social Support, Formal—Programs and services that assist older adults.

Social Support, Informal—Family, friends, and neighbors who assist older adults.

Social Theories—Plausible, general principles that provide frameworks within which to understand human behavior. In gerontology, social theories try to explain how people age socially, how they adapt to role changes, and why some people age more successfully than others.

Socialization—A lifelong process by which individuals learn how to perform new roles, adjust to changing roles, relinquish old ones, and thereby become integrated into society.

Socio-Economic Status (SES)—A measure of how “well off” someone is, based on income and occupation.

Somatic Cells—Cells that compose tissue and organs.

Somesthetic—Sensitivity of touch.

Spatial Memory—The ability to recall where objects are in relationship to each other in space.

Spending-Down—Spending one’s savings until they are low enough to meet the low-income criteria for assistance from Medicaid.

Spousal Impoverishment Plan—An amendment to the Medicaid program that allows the spouse of an institutionalized person supported by Medicaid to retain a relatively generous amount of income and assets, rather than spend-down to poverty as previously required.

Squaring the Life Expectancy Course—A trend toward a square-shaped curve describing a population in which each person lives a long, healthy life and then dies suddenly.

State Units on Aging (SUA)—State offices that engage in statewide planning and advocacy on behalf of older adults in the state. SUAs were established and are partially funded through the Older Americans Act.

Stereotypes—A standardized mental picture that is held in common by members of a group and represents an oversimplified opinion, affective attitude, or uncritical judgment.

Stress—Physical, social, and psychological stimuli that can have positive or negative effects on health and behavior. Some forms of stress positively increase productivity. Too much stress can increase anxiety or even produce physiological responses, such as increased heart rate, muscle tension and rapid breathing.
Stress Responses—Physiological or psychological adaptations made in response to internal or external stimuli that cause a state of imbalance. Stress responses can be produced by major life events, role change, chronic daily “hassles,” and so forth.

Stressors—Stimuli that cause stress.

Subculture Theory—A theory based in the belief that older people maintain their self-concepts and social identities through their membership in a subculture.

Subcutaneous—The deepest layers of skin, under the dermis and epidermis.

Suicide—The taking of one’s own life.

Superwoman Squeeze—Increasing demands on women to perform well in the work force and complete household chores while providing good care to dependent children and parents.

Supplemental Security Income—A federal program established in 1974 to provide a minimal income for elderly living on the margin of poverty.

Synapse—The junction between any two neurons.

Terminal Drop—A rapid decline in cognitive function within five years of death.

Terminal Illness—A disease that will lead to death within a short period of time, usually less than a year.

Test Anxiety—Nervousness about taking an exam which may result in poor performance.

Testosterone—Male sex hormone.

Third Age (video)—A term representing the last third of life, starting from about age 55 or 60.

Tinnitus—Noise or ringing in the ears, which can be due to a build-up of wax, a punctured tympanic membrane, or excessive exposure to noise in the environment.

Title XX—A provision of the Social Security Act that funds social services to low-income citizens regardless of age. Examples of services for older adults funded by Title XX include homemaker and chore services, home-delivered meals, adult protective services, adult day care, foster care, and residential care.

Top Heavy Families—Families in which the number of adults (parents, grandparents, and great-grandparents) is disproportionately greater than the number of children.

Tweeners—People who are neither rich enough to pay privately for services they need nor poor enough to qualify for government assistance. Also known as the gap group.

Two-Stage Orgasm—Experienced by younger males, the sense of ejaculation inevitably followed by actual semen expulsion.

Two-Tier System of Health Care—Two levels of care, depending on ability to pay. For example, some health care providers refuse to treat Medicaid and/or poorer Medicare patients because the reimbursement is too low. Thus, poor people have fewer options.
for care or may not have access to care at all. If a person has Medigap insurance or can pay out-of-pocket, they can go to any health care provider for care.

**Unemployment Rate**—The number of people without jobs compared to the total population within a specific age group.

**Veterans Administration (VA)**—A government program that provides health care for war veterans through over 170 VA hospitals, over 100 VA nursing homes, and contracts with community facilities.

**Vital Capacity**—The maximum amount of oxygen that can be brought into the lungs with a deep breath.

**Wechsler Adult Intelligence Scale (WAIS)**—An instrument used to measure adult intelligence which consists of eleven subtests: six Verbal Scales measuring mostly crystallized intelligence and five Performance Scales measuring mostly fluid intelligence.

**White House Conference on Aging**—A large conference sponsored by the U.S. President in 1961, 1971, and 1981 to examine policy issues affecting older adults. The Conference scheduled for 1991 was postponed.

**Widow(er) Syndrome**—A term coined by Masters and Johnson describing sexual dysfunction following a long period of abstinence due to a spouse’s illness and/or death.

**Wisdom**—The integration of experience, introspection, reflection, intuition, empathy, intelligence and memory into matured vision and matured interaction with the environment.

**Women in the Middle**—Women who have competing demands from aged parents, spouses, children, and employment.

**Workaholic**—An individual who works compulsively and has few interests outside of work.

**Work Ethic**—A feeling that work is valuable and that nonproductive use of time is wasteful and suspect.