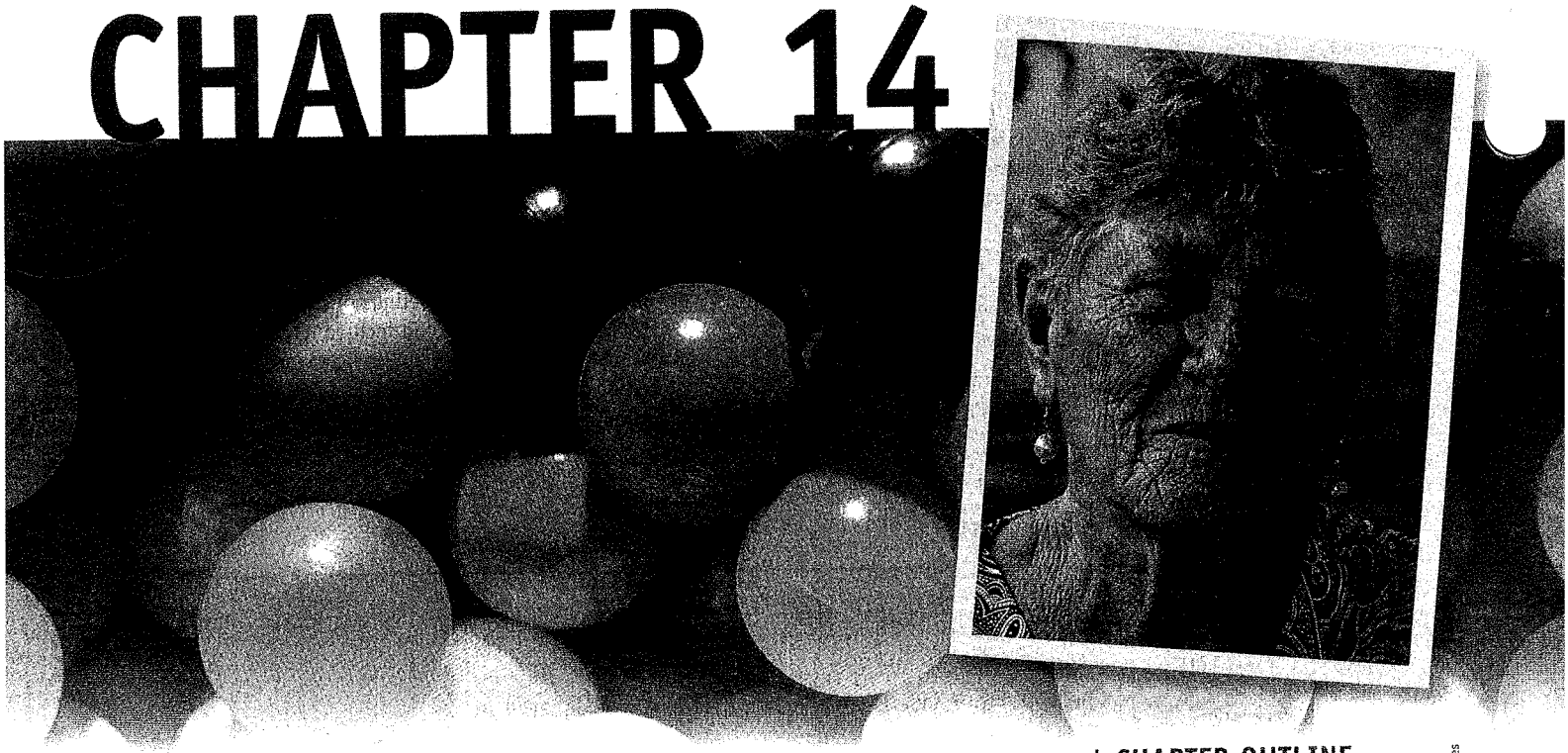
CHAPTER 14



Gerardo Ricardo López/Getty Images

The Physical Challenges of Old Age

At age 76, Susan was vigorous and fit. She walked three miles each day. As the community college's star pupil, she took classes two days a week. But Susan found it hard to hear her professors because those young students made so much noise! Her vision troubles made it scary to drive home from school during the dark winter months.

Susan's doctor worried about her atherosclerosis. But the vision and bone problems haunted Susan's thoughts. What if she fell walking to class, or had an accident on a curving highway exit ramp? When Susan almost backed into a truck on Main Street—in broad daylight!—she realized she had to quit school and consider *giving up her car.*

Four years later, at age 80, Susan was having trouble cooking and cleaning. She began to worry: "What will happen when I can't take care of myself?" Her niece, Emma, now 50 (and single), urged Susan to move in with her. "I'm buying a condo in this terrific planned community where you don't need to drive. It has no stairs; I'll put grab bars in the bathroom. I'd consider it a privilege to help care for you."

Susan politely said no. She was determined to plan for a future that did not involve burdening loved ones with her care. It was time to check out that beautiful assisted living facility at the forefront of geriatric care. But after going on the Shady Acres Web site, Susan almost had a heart attack. The average rates ($6,000 a month) were higher than at a four-star hotel! Thank the Lord for Carl's IRA and the long-term care insurance her husband urged her to buy at the impossibly young age of 63. Susan put her name on the waiting list—and none too soon. Six months later, she fell, breaking her hip, and could no longer live at home.

CHAPTER OUTLINE

Tracing Physical Aging
Can We Live to 200?
• *Experiencing the Lifespan:* Intermittent Fasting
Socioeconomic Status, Ethnicity, Aging, and Disease
Gender, Aging, and Disease
• *Interventions:* Lifespan Strategies to Extend Later-Life Health

Sensorimotor Changes
Our Windows on the World: Vision
• *Interventions:* Clarifying Sight
Our Bridge to Others: Hearing
• *Interventions:* Aiding Hearing
Motor Performances
• *Interventions:* Modifying Motor Problems
• *Trending in Developmental Science:* Later-Life Driving Issues

Neurocognitive Disorders (and Dementia)
• *Experiencing the Lifespan:* An Insider Describes His Unraveling Mind
The Dimensions
The Main Causes
Targeting the Beginnings
• *Interventions:* Dealing with These Devastating Diseases

Options and Services for Frail, Elderly People
Setting the Context
Alternatives to Institutions in the United States
Nursing Home Care
• *Experiencing the Lifespan:* Flourishing in a Nursing Home
Final Thoughts: Society and Old-Age Physical Decline

Today, Susan uses a walker. It's hard to get dressed and use the toilet. However, when I visited her, she was surprisingly upbeat. True, life at 83 can be difficult. Still, the facility is wonderful. She loves the activities. Old people can hang onto their passions, too. The lectures—covering everything from great books to politics, taught by her former community college professors—are a real joy!

What enemy is Susan battling? How does physical aging turn into disease, disability, and sometimes the need for a nursing home? This chapter offers answers to these questions and many more.

In the following pages, I'll explore problems that some gerontologists (Rowe & Kahn, 1998) label "unsuccessful aging," describing what goes physically wrong during the old-old years. By now, you should realize that equating "successful aging" with walking for miles at age 90 is wrong. Successful aging means drawing on what gives your life meaning to live fully, no matter how your body behaves. It is epitomized by 94-year-old Jules, described in Chapter 13, who — although he can barely take a step without stumbling — is sensitively providing therapy and writing books.

Aging successfully means having Jules's sense of meaning and generative mission. But successful aging also depends on whether the wider world offers older people the support they need to function at their best. The issue in later life is not so much being ill, but living fully in the face of chronic disease. The way elderly people function depends on their biological capacities (or nature) combined with nurture — having the right *person–environment fit.*

How can we engineer the best person–environment fit for older loved ones? Let's begin our search for answers by charting the aging process itself.

Tracing Physical Aging

Learning Outcomes

- Describe physical aging and how it varies by ethnicity, socioeconomic status, and gender.
- Outline tips for living healthier into old age.
- Analyze why extending the maximum lifespan is an unrealistic goal.

Susan has atherosclerosis, fatty deposits on her artery walls. Her fragile bones and vision and hearing problems are also signs of **normal aging** — body deterioration that advances gradually over years. Over time, normal aging shades into disease, then disability, and, finally — by a specific barrier age — death. Three basic principles program this inevitable process of body decay.

Principle #1: Chronic Disease Is Often Normal Aging "At The Extreme" Many physical losses, when they occur to a moderate degree, are called normal. When these changes become extreme, they have a different label: **chronic disease.** Susan's bone loss and atherosclerosis are perfect examples. These changes, as they progress, produce those familiar later-life illnesses — osteoporosis and heart disease.

The National Health Interview Survey (NHIS), an annual government poll of health conditions among the U.S. population, tells us other interesting illness facts. As you can see in Figure 14.1, arthritis is one of the top-ranking chronic illnesses in later life (Edwards & Watkins-Castillo, 2021). As we get older, our chance of having a variety of illnesses increases. Like arthritis, many age-related diseases are not fatal. They interfere with the ability to function in the world. So the outcome of chronic illness is not just death, but **activities of daily living (ADL) problems** — difficulties physically handling life.

Principle #2: ADL Impairments Are a Serious Risk During the Old-Old Years ADL limitations come in two categories. **Instrumental ADL problems** refer to trouble performing tasks important for living independently, such as cooking and cleaning.

normal aging Universal, often progressive signs of physical deterioration intrinsic to the aging process.

chronic disease Health disorders that do not abate but persist and often get worse over time.

activities of daily living (ADL) problems Difficulty in performing everyday tasks that are required for living independently. ADLs are classified as either *basic* or *instrumental.*

instrumental ADL problems Difficulty performing everyday household tasks, such as cooking and cleaning.

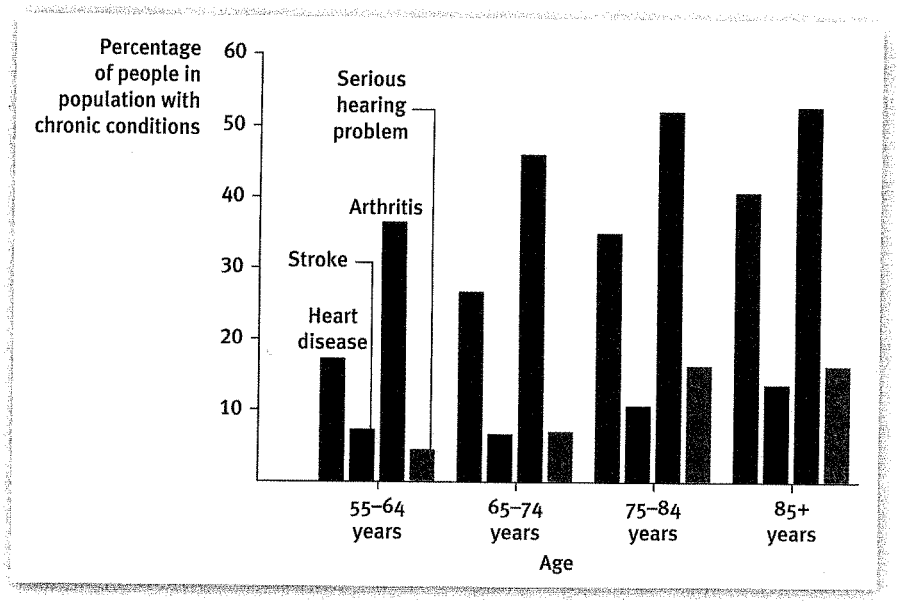


Figure 14.1: Prevalence of selected chronic health conditions among U.S. adults in middle and later life (percentages) As people travel into their seventies and eighties, chronic disease rates rise. Although every chronic illness can impair our ability to fully enjoy life, many common chronic diseases don't cause death.

Data from the National Center for Health Statistics, 2016

basic ADL limitations Difficulty performing essential self-care activities, such as rising from a chair, eating, and getting to the toilet.

Basic ADL limitations refer to problems with fundamental self-care activities, such as standing or getting to the bathroom or feeding oneself. When people have these severe disabilities, they typically need full-time caregiving help.

Although ADL limitations can happen at any age, notice from Figure 14.2 that the old-old years are when these problems really strike. Half of all U.S. adults over 85 *living in their homes* have instrumental ADL difficulties. Basic ADL limitations affect 1 in 10 people over 75 (CDC, 2017a). These statistics minimize the true rate of problems because older adults with basic ADL impairments often have to enter a nursing home.

So, yes, people can reach age 80 or 90 disability free. But as we travel further into later life, problems physically coping become a serious risk.

Principle #3: The Human Lifespan Has a Defined Limit A final fact about aging is that it has a fixed end. More people than ever are surviving past a century. But a

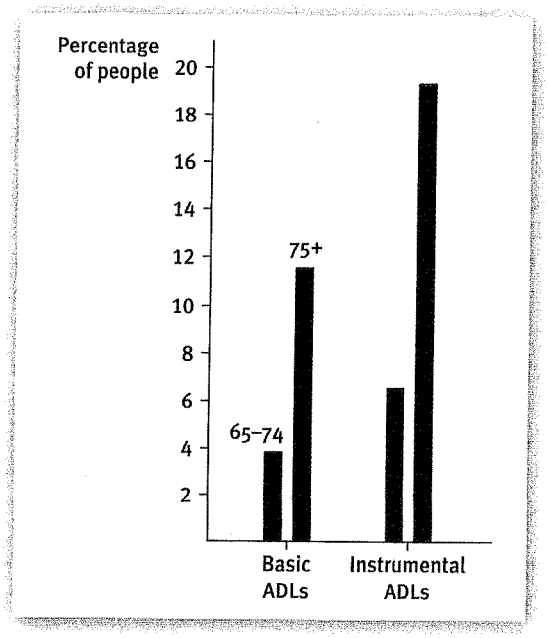
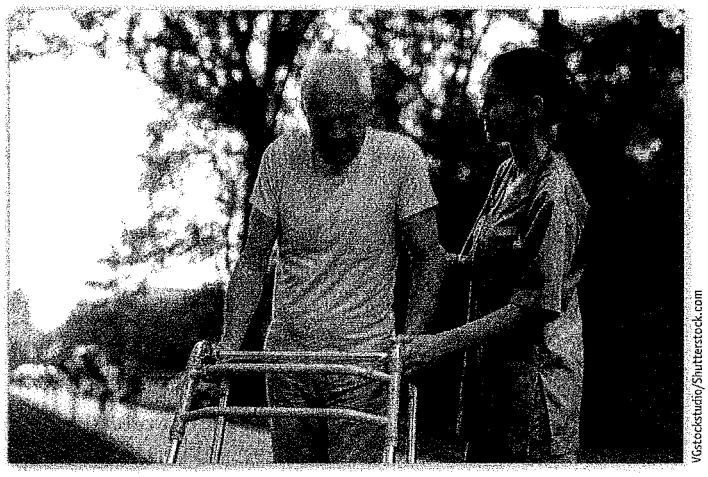


Figure 14.2: Percent of people needing assistance with instrumental ADLs and basic ADLs in the young-old years and over age 75 Although in the sixties and early seventies the fraction of people with ADL difficulties is relatively small, the risk of having these problems escalates dramatically over age 75. (Over age 85, roughly 1 in 6 people living outside of nursing homes has a basic ADL limitation.)

Data from the National Center for Health Statistics, 2018

miniscule fraction live beyond that barrier age. In September 2019 worldwide, there were roughly 35 documented "supercentenarians" — people who had lived until 112 or beyond (Aging Analytics Agency, 2020). Unless scientists can tamper with our built-in, species-specific *maximum lifespan*, soon after living a century on this planet, we are all fated to die.



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Can calorie restriction delay the onset of these kinds of ADL limitations? Advocates answer yes!

Can We Live to 200?

At this point, you might be thinking that more babies will soon make it to be supercentenarians. Due to scientific breakthroughs in extending the lifespan, we may even be poised for the arrival of 200-year-old human beings (as reported in Carnes, Olshansky, & Hayflick, 2013).

These futuristic forecasts fall on fertile ground because one life-extension strategy has been known for almost 100 years. By underfeeding rats, researchers can increase the animals' maximum lifespan by up to 60 percent. The key is what one biologist calls "undernutrition without malnutrition." The animals are restricted to less food but given a nutritionally rich diet. They are allowed few empty calories (see Sinclair & LaPlante, 2019, for a review).

Calorie restriction is an all-purpose anti-ager, enhancing everything from glucose metabolism to cardiac function (de Cabo & Mattson, 2019; see the Experiencing the Lifespan box). These findings make excellent sense because obesity, especially via its side effect of diabetes (impaired sugar metabolism), causes every organ — from our eyes, to heart, to kidneys — to prematurely break down.

Experiencing the Lifespan Intermittent Fasting: My Possible (?) New Passion

As you just saw, animal data proves calorie restriction has widespread anti-aging effects. Based on this research, a diet called intermittent fasting (IF) has become a popular fad. Listen to what Chris, a fervent advocate, had to say:

> *Two years ago, I weighed 200 pounds. Today, I've stabilized at 155. Just gazing in the mirror gives me a jolt of joy. But what's thrilling is how my body feels. After a day at work, I used to barely drag myself home. Now, most evenings, I golf, I fish, I'm a totally hands-on dad.*
>
> *Among the menu of choices (fasting every two days, abstaining every 16 hours, etc.), I follow a modified combination regime. Tuesday is my full fast. You can drink black coffee but nothing else. Friday, I follow the 16-hour route — dinner at 5 p.m., and nothing after; skip breakfast and have a light lunch around 2 p.m. By the first month, I felt my body being purified — you feel buoyant, years younger, and smarter, too. Janet, join me! I've found the fountain of youth!*

I'm skeptical (although I politely nod my head). I'm no fan of fad diets. I think (put gently) their claims are bunk. I imagine the pounding headache, my lassitude after even skipping a meal. But on a recent trip to New York, I visited Nancy, my best high school friend, and she told me she couldn't meet for dinner after 4 P.M. Her 16-hour daily fast had changed her life!

What is the physiological key? In a comprehensive review, scientists explain that IF depends on ketones — a chemical that the body sets off when triglyceride levels get so depleted that they cannot be stored as fat. Ketones begin to accumulate after about 10 hours of food deprivation, then act as an accelerator, increasing the efficiency of our metabolic machine (de Cabo & Mattson, 2019).

In humans, we now know IF improves blood pressure and heart rate. Best yet, this draconian diet has no long-term negative effects. But, for me, the clincher relates to cognition. In one careful clinical trial lasting two years, calorie restriction improved working memory in older adults (Liu, Liu, & Heilbronn, 2020). If it can *really* boost my mental capacities, I've decided to give Nancy's 16-hour fast a try — beginning (of course) next week!

Without denying that it's important to watch our diet, however, restricting your intake *just* to live to age 200 is a mistake. The life extension findings have mainly been carried out with rats. Although intermittent fasting can slow many risk factors for chronic disease (as you just saw in the Experiencing the Lifespan box), it's unclear if this regimen can push back the *biological limit* of human life.

Listen to some experts in the biology of aging explain why extending the maximum lifespan in the near future is an unrealistic dream (Carnes, Olshansky, & Hayflick, 2013; Olshansky, 2018):

- The body breakdown that causes aging has complex causes, from multiple genetic timers to random insults that happen as cells do their metabolic work. There can't be a single magic-bullet intervention that stops aging and extends life. Even if a breakthrough technology such as stem-cell research fulfills its promise to regenerate cells lost to Parkinson's disease, a few years later some other illness, like cancer, is going to crop up. The best analogy to our aging bodies is an old car. Replacing each defective part only puts off the day when so much goes wrong that the system reaches its expiration date and everything stops.

- Our body's evolutionary expiration date is naturally set well below a century, because natural selection promotes, at best, living through grandparenthood. Therefore, even in the most affluent nations, the probability of a twenty-first-century newborn living to 100 remains low. (It's about 4.5 percent in Japan.) So let's celebrate our remarkable progress at allowing many newborns to survive close to our expiration date. But let's also realize that extending the maximum lifespan is far harder than the breakthroughs that allowed us to reach later life.

At this point, many readers may feel relieved because — in addition to producing overpopulation — life extension has ethical problems: Will these strategies be available only to the wealthy? If so, imagine being financially sentenced to die at a normal age. And what if you chose to live a normal lifespan rather than extend your life (see Davis, 2016)? As socioemotional selectivity theory beautifully points out, knowing our life is near its end motivates us to savor every moment. Wouldn't being locked into living produce boredom, making *surviving* less sweet?

Religious young people, researchers find, reject life extension on spiritual grounds: "Only God can give and take away life" (see Ballinger and others, 2017). And would you vote to live longer if the price was suffering for decades from the ADL impairments that make it hard to walk or get to the toilet on your own?

Who makes it close to our *current* maximum lifespan, and what are our odds of living with ADL impairments as we approach the end of life? Answers come from examining those familiar markers that shape development at every age: socioeconomic status, ethnicity, and gender.

Socioeconomic Status, Ethnicity, Aging, and Disease

The fact that socioeconomic status predicts how long we live comes from scanning the huge life expectancy gaps around the world: Babies born in the Central African Republic can expect, on average, to survive to age 53 (Roser, Ortiz-Ospina, & Ritchie, 2019). Infants lucky to emerge from the womb in Monaco have a 50/50 chance of living almost 40 years longer — to age 89.5 (Central Intelligence Agency [CIA] World Factbook, 2018)!


Tatyana Tomsickova Photography/Moment Open/Getty Images


André Durieux/Alamy

Babies born in the affluent kingdom of Monaco statistically outsurvive infants in the Central African Republic by over 35 years, showing just how dramatically our life expectancy depends on *where* we are born.

This mammoth global difference is mirrored by a **socioeconomic health gap**. In every nation, affluent and well-educated people live healthier and survive for a longer time. In the United States, in 2014, this gap between the most impoverished (lowest 5 percent) and richest (top 5 percent) of adults was a decade for women. For men, it was almost 15 years (Chetty and others, 2017)!

socioeconomic health gap The worldwide disparity between the health of rich people and poor people.

Did this split widen as twenty-first-century income inequalities increased (see Chapter 1)? Raj Chetty's meticulous research (described in Chapter 7) shows the unfortunate answer is yes. Between 2001 and 2014, life expectancy rose by close to three years for the richest 5 percent of Americans, while barely budging for the bottom 5 percent (Chetty and others, 2017). And the news gets worse. From 2015 to 2018, for the first time in U.S. history, life expectancy at birth declined.

Interestingly, life expectancy did rise slightly in 2019, but then dipped again in the first half of 2020 when the coronavirus hit. In a testament to the power of this devastating illness, during that brief six-month period, U.S. citizens — both male and female — lost an *entire year* of expected life (Arias, Tejada-Vera, & Ahmad, 2021).

By the time you are reading this page, the virus should be in the rearview mirror, and U.S. longevity will probably dramatically rebound. But what produced the upsetting uptick in death rates during this past decade? Experts blame this dismal statistic on "diseases of despair" — drug overdoses, homicides, and accidents. These higher-than-expected deaths, they find, disproportionately occur during middle age and involve mainly men (Acciai & Firebaugh, 2017). When it's difficult to find decent jobs, everyone suffers — but men bear the brunt of this life-destroying barrier to constructing a competent middle-class life.

This brings up the fact that social-class differences in health appear well before old age. Notice how, by the late thirties, people show clear differences in aging rates — developing weathered skin, perhaps having more trouble moving around. Although there are many exceptions, notice also that low-income adults are apt to look physically older than their wealthy counterparts. In fact, for disadvantaged adults, so-called old-age limitations often appear in midlife (Rahman, Kahn, & Hafford-Letchfield, 2016).

How far back can we trace this accelerated aging path? Based on the *fetal programming* hypothesis, its roots emerge in the womb. As I mentioned in Chapter 2, *low birth weight* — which is linked to poverty and race — is *epigenetically* associated with premature heart disease and earlier death.

These gloomy findings bring up the ethnic component of aging and illness, a reality starkly showcased by scanning the COVID statistics in Figure 14.3. Notice that, in 2020, Native Americans, Hispanic Americans, and African Americans were nearly twice as likely to contract this disease; their COVID hospitalization rates were *four times higher* than White Americans. From being less able to socially distance (because they may be low-wage, essential workers) to living in low-efficacy neighborhoods, from lack of access to healthful foods to not having the luxury to spend hours searching online for scanty vaccines, the

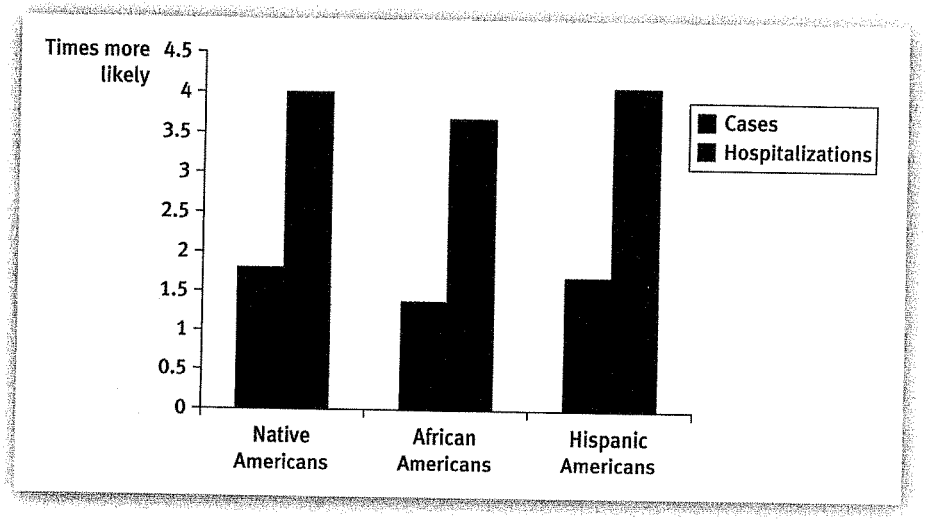


Figure 14.3: Likelihood of COVID-19 cases and hospitalizations in disadvantaged ethnic minority groups compared to White Americans The COVID crisis was an important lesson in racial differences in health—showcasing the unique vulnerability to illness among disadvantaged ethnic minority groups* in the United States.

*The figures for Asian Americans are comparable to White Americans.

Data from Centers for Disease Control and Prevention, 2020b

Hispanic paradox The fact that, although generally less affluent, Hispanic Americans statistically outlive White Americans.

pandemic uncovered this basic fact: People of color travel through life less healthy. Therefore, they are prone to prematurely develop and die from most diseases.

So far, I've spelled out a dismal scenario. But there are interesting qualifications. Recall from Chapter 1 that, despite having lower median incomes, Hispanic Americans outlive White Americans by almost three years (Arias & Xu, 2019). The main reason for this **Hispanic paradox** may be that Latinos often live embedded in nurturing multigenerational families. And study after study shows close relationships outweigh even good health practices in predicting how long we survive (Berkman & Breslow, 1983; Seals, Justice, & LaRocca, 2016)!

Masterfile

The fact that Latino grandchildren have such intense contact with their grandparents offers one reason for the "Hispanic paradox"—the statistic that, in spite of being less affluent, Latino-heritage adults tend to live a surprisingly long time. The lesson: As a caring, involved grandchild of *any* cultural background, you might be "working" to help extend a beloved elderly family member's (and your own!) life!

There is another positive influence relating to our social life. According to Chetty's research, if low-income people live in economically diverse neighborhoods, particularly communities boasting a higher fraction of college graduates, they live longer than we might expect. Again, these places are apt to be higher in collective efficacy, with residents who demand access to gyms and high-quality food. When your neighbors are well-educated, a norm also develops that beams out the message: "You should exercise and take care of your health."

Interestingly, our level of education *in itself* predicts how quickly we age (Rahman, Kahn, & Hafford-Letchfield, 2016) and die (Todd, Shkolnikov, & Goldman, 2016). Fascinating evidence involves telomeres, DNA sequences at the end of our chromosomes. Telomere shortening is an overall benchmark of body aging, as it shows that a cell has reached senescence and can no longer divide (Preston, Reynolds, & Pearson, 2018). Among a huge group of U.S. older adults, researchers found that high school graduates had shorter telomeres than people who attended college, a difference that was particularly striking among Black men (Adler and others, 2013). Therefore, in addition to (or due to) its other benefits, going to college predicts having a longer life!

RawpixeL.com/Shutterstock

Just seeing runners pass by may inspire people to be fit—and there are more runners passing by where more college graduates live.

Gender, Aging, and Disease

Their wider web of social connections may partly explain the fact that, worldwide, women outlive men, sometimes by an incredible decade or more (see Chapter 1). Still, the main reason for this

superior survival is biological. Having an extra X chromosome makes females physically hardier at every stage of life.

During adulthood, the main reason for this gap can be summed up in one phrase: fewer early heart attacks. Illnesses of the cardiovascular system (the arteries and their pump, the heart) are the top-ranking killers for both women and men. In the United States, heart disease and stroke account for roughly 1 in 3 deaths (American Heart Association, 2021). Unlike our stereotypes, *just* as many women as men die of this number-one threat to life. But because heart disease strikes males at younger ages, men are roughly twice as likely as women to die of heart attacks in midlife (Centers for Disease Control & Prevention, 2020g). Their susceptibility to premature heart attacks means that men tend to "die quicker and sooner." For women, the pattern is "surviving longer but living frailer" (Roser, Ortz-Ospina, & Ritchie, 2019).

It makes sense that disability is the price of traveling to the lifespan train's final stops. However, the phrase "living sicker" applies to women *throughout* adult life. During their twenties, thirties, and forties, only women experience the physical ailments related to pregnancy and menstruation. As they age, females have higher rates of arthritis, vision impairments, and obesity — illnesses that produce ADL problems but (except in the case of obesity) don't lead to death.

This male/female distinction brings me to the **health span** — the age at which we can expect to survive without ADL limitations. Since physical disabilities are often the price of living to our late 70s, rather than focusing on how long we live, we need to extend our *healthy* years.

health span The number of years people can expect to live without ADL problems.

What can we do to live healthy longer? The familiar answers are to exercise and eat right. But my discussion suggests we need to adopt a broader lifespan approach.

Lifespan Strategies to Extend Later-Life Health

Specifically, let's:

- **Focus on children.** As I've been stressing throughout this book, it's important to prevent premature births and to make inroads in child poverty, as the seeds of poor health emerge during our earliest years. Now we understand that encouraging teens to enroll in and finish college can also have health benefits in middle and later life!
- **Focus on constructing caring communities.** The fact that Hispanic Americans outlive White Americans illustrates the impact that nurturing relationships have on health. Chetty's research underlines the health benefits efficacious communities produce. So let's encourage people to reach out and get to know their neighbors down the hall or down the street. As I've highlighted throughout this book, close attachments are the glue that has allowed our species to survive (and thrive).

But let's also appreciate the realities. In the United States, people today can expect to spend *more than a decade* living with a condition that somewhat impairs their health (Roser, Ortiz-Ospina, & Ritchie, 2019). Given that running for miles at age 90 is unrealistic, and we are decades from tampering with our genetic code, let's use our ingenuity to make the world user-friendly for normally aging people marching into later life. With this goal in mind, it's time to confront the main conditions causing ADL problems in the flesh — sensorimotor declines and neurocognitive disorders. ■

Tying It All Together

1. Thiri has osteoporosis and heart disease. Her problems are *chronic diseases/normal aging changes*, which have *developed suddenly/over a period of time*. (Select the correct options.)
2. Serena has instrumental ADLs. Serena has (*choose two*):
   a. trouble cleaning the house.
   b. trouble getting out of bed.
   c. trouble going to the toilet.
   d. trouble shopping.
3. Make the case that extending the lifespan past age 115 is an unrealistic dream.
4. If you are a woman, statistically speaking, all are true, *except:*
   a. You are more likely to develop diseases that produce ADL impairments, such as osteoporosis.
   b. You are likely to have more illnesses during adult life.
   c. You are more likely to succumb to diseases of despair (such as drug overdoses).
   d. You are more likely to be embedded in a network of close relationships.
5. Marco has a long *health span*. Based on this chapter, you can predict that Marco:
   a. has long telomeres.
   b. is highly educated.
   c. lives in an upper-middle-class community.
   d. All of the above

Answers to the Tying It All Together questions can be found at the end of this chapter.

Learning Outcomes

- List changes in vision, hearing, and motor abilities that occur with age.
- Identify strategies for minimizing sensorimotor losses.
- Critique age-related driving issues.

Sensorimotor Changes

What happens to vision, hearing, and motor abilities as we grow old, and how can we minimize sensorimotor declines?

Our Windows on the World: Vision

One way aging affects our sight becomes evident during midlife. By the late forties and fifties, people have trouble seeing close objects. The year I turned 50, this change struck like clockwork, and I had to buy reading glasses.

presbyopia Age-related midlife difficulty with near vision, caused by the inability of the lens to bend.

Presbyopia, the term for age-related difficulties with seeing close objects, is a classic tip-off, like gray hair, that people are no longer young. When I squint to make out sentences, the fact of my age crosses my consciousness. I imagine students had this same thought ("Dr. Belsky is getting older") when they saw me struggle with this challenge in class.

Other age-related changes in vision progress gradually. Older people have particular trouble seeing in dim light. They are more bothered by glare, a direct beam of light hitting the eye. They cannot distinguish certain colors as clearly or see visual stimuli as distinctly as before.

What is it like to have undergone this progression? It can be annoying to ask the server what the impossibly faint restaurant bill comes to or to fumble your way past a neighbor's seat in a darkened movie theater. For me, the most hair-raising experiences related to driving at night. I'll never forget when a curve of the highway exit ramp loomed out of the dark and I was inches from death. But apart from worries about night driving, these problems have little effect on my life.

Unfortunately, this may not be true a few years from now. As Figure 14.4 illustrates, seeing in glare-filled environments such as a lighted medicine cabinet, or even making out the print on a white page, can be a real challenge during the old-old years.

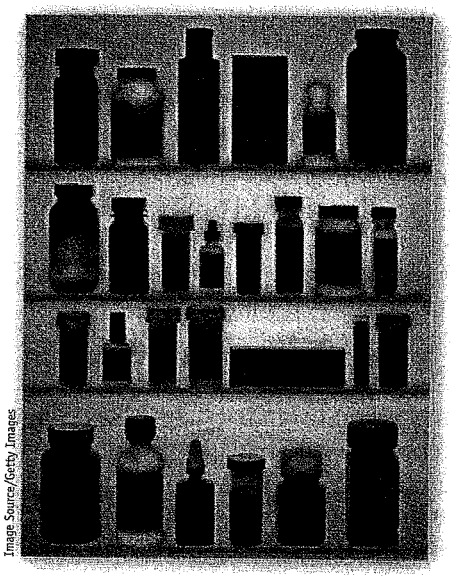


Figure 14.4: How an 85-year-old might see the world Age-related visual losses, such as sensitivity to glare, make the world look fuzzier at age 80 or 85. So, as these images show, everything from finding a bottle of pills in the medicine cabinet to reading the print in books such as this text can be a difficult task.

These signs of normal aging — presbyopia, problems seeing in the dark, and increased sensitivity to glare — are mainly caused by changes in a structure toward the front of the eye called the **lens** (see Figure 14.5). The disk-shaped lens allows us to see close objects by curving outward. As people reach midlife, the transparent lens thickens, develops impurities, and can no longer bend. This clouding and thickening not only produces presbyopia but limits vision in dimly lit places where people need as much light as possible to see.

lens A transparent, disk-shaped structure in the eye that bends to allow us to see close objects.

These changes also make older adults more sensitive to glare. Notice how, when sunlight hits a dirty window, the rays scatter and it becomes impossible to see out. Because older people view the world through a cloudier lens, they see far less well when a beam of light shines in their eye. When this normal, age-related lens clouding becomes so pronounced that the person's vision is seriously impaired, the outcome is that familiar late-life chronic condition — a cataract.

The good news is that cataracts are curable. The physician removes the defective lens and inserts a contact lens. (And yes, as I can happily report, my cataract surgery last year changed my life!) The bad news is that the other three top-ranking old-age vision conditions — macular degeneration (deterioration of the receptors promoting central vision), glaucoma (a buildup of pressure that can damage the visual receptors), and diabetic retinopathy (a leakage from the blood vessels of the retina into the body of the eye) — may be much more difficult to treat.

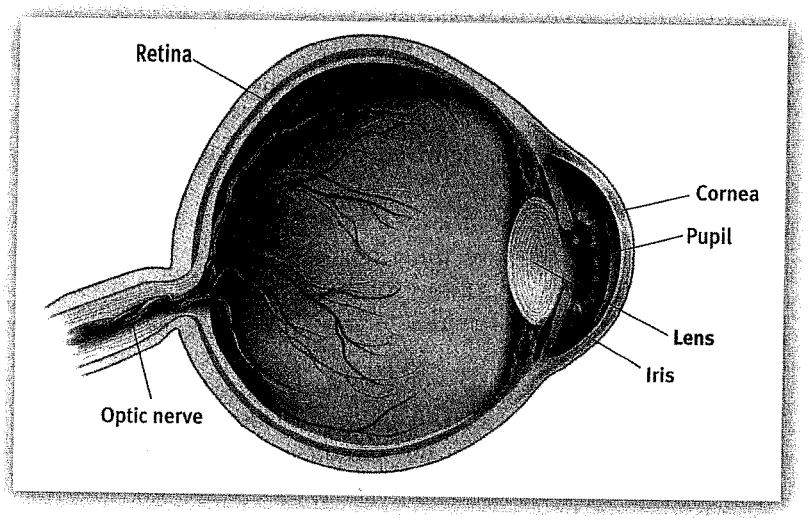


Figure 14.5: The human eye Deterioration in many structures of the eye contribute to older adults' poor vision. However, changes in the lens, shown here, are responsible for presbyopia and also contribute greatly to impaired dark vision and sensitivity to glare — the classic signs of "aging vision."

Clarifying Sight

To lessen the impact of the typical vision losses basic to getting old, again, the key is to modify the wider world. People should have well-lit homes but should avoid overhead light fixtures, especially fluorescent bulbs, shining down directly on a bare floor, as these produce glare. They should buy appliances with non-reflective materials and adjustable lighting. Putting enlarged letters and numbers on appliances will make stoves and computer keyboards easier to use.

Vision problems are a prime cause of ADL impairments because they make everything, from working to walking, a challenging task (Wahl and others, 2013). Poor vision is a risk factor for falling, which, as you will see later, is a frightening event in later life.

This brings up the emotional consequences of seriously limited sight: not leaving the house because you are afraid of falling; suffering the pain of depending on loved ones for jobs you used to do — "I feel so embarrassed . . . ," said one man, "I can't even change a fuse, and it's embarrassing, belittling" (quoted in Girdler, Packer, & Boldy, 2008, p. 113); being "overprotected" (meaning infantilized) by well-meaning friends and family; getting depressed because you are blocked from engaging in flow-inducing passions you love (Cosh and others, 2019).

Given these dangers, how can loved ones help? Encourage the person to visit a low-vision center for rehabilitation, because these programs work (Smallfield, Clem, & Myers, 2013). Consider Jim Vlock, a retired executive whose eyes were literally opened when he (reluctantly) visited a center for the visually impaired. After an evaluation, Mr. Vlock emerged laden with devices, from a talking watch, to specialized glasses for different tasks, to a computer with an enlarged screen that can "read for him." As one center director put it, "Too often we get patients who . . . have lost their jobs, their wives, their home. . . . Our philosophy is to get patients to do things for themselves so they can feel fulfilled" (see Brody, 2010). ■

Actually, offering these aids is vital, because impaired vision — more than poor hearing and having trouble getting around — limits life satisfaction in the very old (Liu and others, 2016). Even at age 60, vision impairments combined with hearing difficulties are a toxic double whammy that cause people to become depressed (Cosh and others, 2019). How *specifically* do hearing problems affect daily life?

Our Bridge to Others: Hearing

It's natural to worry most about losing our sight in old age. But hearing problems can also wreak havoc on well-being. Hearing loss is associated with physical (Goman & Lin, 2018) and cognitive decline (Okely and others, 2019). It can provoke depression, too (Cosh and others, 2019; Jayakody and others, 2018). The reason is simple: Poor hearing robs us of understanding language, our bridge to other minds. So it is the human world we are deprived from fully entering when we lose the ability to hear.

Unfortunately, hearing difficulties are common in later life. In international surveys, most people over 60 have some hearing loss (Gong and others, 2018). The figures are particularly alarming for men. Around the world, males are several times more likely than females to develop hearing problems in midlife (Belsky, 1999).

The main reason is that age-related hearing loss has an environmental cause: exposure to noise. Men are more likely to be construction workers, ride motorcycles, and play in metal bands. Actually, any person — male or female — who spends decades working in noisy milieus is virtually destined to have hearing impairments after age 65 (Hong, Chin, & Kerr, 2015). U.S. government regulations mandate

hearing protection devices in high-noise jobs. Still, from exposing ourselves to the roar of rock concerts to embedding airpods in our ears, these statistics are apt to stay stubbornly high as today's emerging adults travel into later life.

Presbycusis — the characteristic age-related hearing loss — is caused by the atrophy or loss of the hearing receptors, located in the inner ear (see Figure 14.6). This irreversible change, compounded by the neural declines discussed in Chapter 13, affect people's ability to quickly process speech. The receptors coding high-pitched tones are most vulnerable. This means older people have special difficulty hearing consonants — for instance, mistaking the word *time* for *dime*, because these sounds are delivered at a higher pitch.

JimmyFam/E+/Getty Images

The pandemic taught people of every age a lesson in the frustration of not hearing what a conversational partner says. How often did you feel annoyed when you needed to continually ask a masked person, "I don't understand; could you please repeat that?"

Imagine having presbycusis. Because of your speech-decoding difficulties, listening to conversations feels like hearing a radio filled with static. (That's why older people complain: "I can hear you, but I can't understand you.") Because your impairment has been progressing gradually, you may not be sure you *have* a problem, thinking, "Other people talk too softly." After all, you can hear fairly well in quiet situations. It's only when it gets noisy that you can't hear at all.

Think of the pitch of the background noises surrounding you now: the hum of a computer, the sound of a car motor starting up. These sounds are lower in pitch than speech. This explains why people with hearing problems complain about "all that noise." Background sounds overpower the higher-pitched conversations they need to understand.

Imagine having a conversation with a relative who cannot hear well — having to repeat your sentences, needing to shout to make yourself understood. Although you love your grandpa dearly, you automatically cringe when he enters the room. Now, put yourself in the place of a hearing-impaired person who must continually say, "Please repeat that," and you will understand why this ailment can provoke loneliness (Sung and others, 2016). Hearing losses, as I just suggested, impair our ability to lovingly connect.

presbycusis Age-related difficulty in hearing, particularly high-pitched tones, caused by the atrophy of the hearing receptors located in the inner ear.

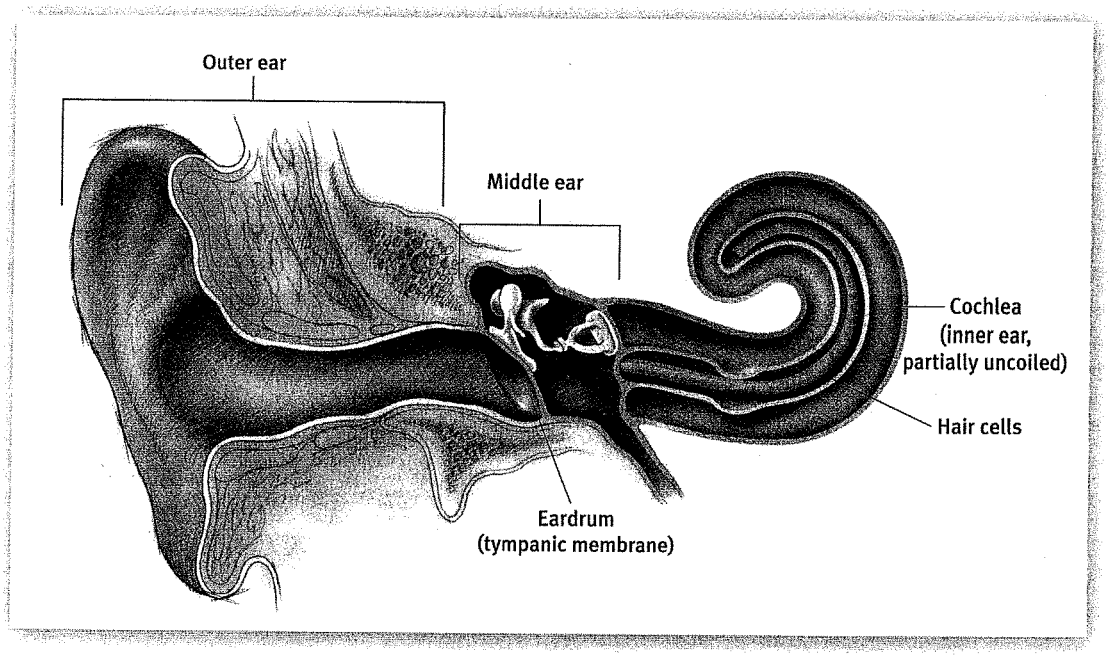


Figure 14.6: The human ear Presbycusis is caused by the selective loss of the hearing receptors in the inner ear, called hair cells, that allow us to hear high-pitched tones. Unfortunately, because we cannot grow new hair cells, these changes are permanent.

INTERVENTION: Aiding Hearing

Because background noise limits how well older people hear, one solution is to choose your social settings with care. Don't go to a noisy restaurant. Avoid places with low ceilings or bare floors, as they magnify sound. Install wall-to-wall carpeting in a house to help absorb background noise. Get rid of noisy appliances, such as a rattling air conditioner or fan. Perhaps invest in assistive devices, such as a phone flasher that lights up to signal an incoming call.

When talking to a hearing-impaired older adult, speak clearly and slowly. Face the person. Use gestures so the person can take advantage of multiple sensory cues (Diederich, Colonius, & Schomburg, 2008). But avoid *elderspeak*, the tendency to talk more in exaggerated tones ("HOW *ARE* YOU, *DARLING*? WHAT IS FOR *DINNER* TODAY?").

elderspeak Communication style used when an older person looks frail and impaired, involving talking loudly and slowly, as if to a baby.

Elderspeak — a communication style we tend to naturally fall into when an older person looks physically, and therefore apparently, mentally impaired — has unfortunate similarities to *infant-directed speech*. We use simpler phrases and grammar and employ infantile "loving" words, such as *darling*, that we would never adopt when addressing a "real" adult (Kemper & Mitzner, 2001). I'll never forget going out to dinner with a friend in his late eighties who needed to use a walker, and wincing when the 18-year-old server treated this intellectual man like a 2-year-old!

Johner Images/Getty Images

Even if an older woman is a Shakespeare scholar, a young person might be tempted to automatically adopt elderspeak. Have you ever used this patronizing talking style with someone in her eighties just because she *looked* impaired?

For your own future hearing, the message rings loud and clear: *Avoid high-noise environments and cover your ears when you pass by noisy places.* Why do we hear so much about the need to exercise, but there is a deafening silence about protecting our hearing? How many of you religiously work out to prevent health problems like heart attacks but attend earsplitting concerts without a second thought? Think of the noise level at your fitness center. Could the same place where you are going to improve your health be causing this common age-related disease?

Ironically, the same noisy places that contribute to hearing losses offer solutions for the hearing impaired. Assistive devices may be available in some public venues — such as trains, buses, and subway stations — that "deliver" loudspeaker announcements directly to a user's hearing aid. This microphone-attached product, called the hearing loop, makes speech crystal-clear by bypassing the cacophony of background noise (see Hearing Loss Association of America, 2018). Because so many older arts-lovers have hearing impairments, notice how subtitled messages may sometimes be posted on mammoth screens when you attend a big-city lecture or play.

Stuart Monk/Alamy Stock Photo

The huge domed ceilings are awe-inspiring, but, combined with bare floors and the clatter of commuters, they make New York City's Grand Central Station an acoustic nightmare. However, thanks to the miracle of the hearing loop, people can now bypass that background noise via loudspeaker train announcements beamed directly to their hearing aids.

Still, none of these external aids can supplant that simple device, the hearing aid. So why do only about 1 in 6 U.S. people with hearing impairments buy a hearing aid (Goman & Lin, 2018; Manchaiah, Ratinaud, & Beukes, 2019)?

As someone in that category, let me be honest. First, there is foot-dragging — I know my hearing is worse, but it isn't *that* bad. All I need to do is avoid noisy restaurants. I'm fine having people over for dinner at my house. If I get a hearing aid, won't it be cumbersome and difficult to adjust? Then there is the expense. Hearing aids require a medical evaluation. The best ones cost thousands of dollars (Goman & Lin, 2018). And won't I look old and ugly with this thing dangling from my ear (David, Zoizner, & Werner, 2018)?

Actually, I'm out of date. Technology has eliminated the old-style bulky boxes I recall from my youth. Hearing aids now selectively screen out background noise; these invisible objects can be easily worn right above the ear. And soon, I may not even confront the hassle and expense of visiting an audiologist to be fitted for a hearing aid. In 2019, the U.S. Food and Drug Administration finally approved a special category of over-the-counter hearing aid. As I do now with reading glasses, I could simply visit my local pharmacy to select a device that might dramatically improve my daily life — and it's about time! ■

Is there anything I can do about that other change — the fact that as I've gotten older, I'm far, far slower than before?

Motor Performances

Being slow naturally puts older people out of sync with the physical world. It can make driving or getting across the street a challenging feat. It causes missteps in relationships, too. When we find ourselves behind an elderly person at the supermarket checkout counter or an older driver going 40 in a 65-mile-per-hour zone, we naturally get annoyed. Therefore, age-related slowing alone may help explain why our time-oriented society has such negative prejudices against older adults.

The slowness that is emblematic of aging is mainly caused by the loss in information-processing speed that starts decades earlier, in young adulthood (described in Chapters 12 and 13). This slowed **reaction time** — or decline in the ability to respond quickly to sensory input — affects every action, from accelerating when the traffic light turns green, to focusing on what a friend is saying, to performing well on a fluid IQ test.

reaction time The speed at which a person can respond to a stimulus.

Age changes in the skeletal structures propelling action compound the slowness: With osteoarthritis, the joint cartilage wears away, making everything from opening a jar to running for the bus an endurance test. With **osteoporosis,** the bones become porous, brittle, and fragile and are prone to break. Although men can also develop osteoporosis, women, as is well known, are more susceptible to this disease. The main reason is that females — particularly slender women — have frailer, smaller bones. With this illness, the fragile bones break at the slightest pressure and cannot knit themselves back together. Hip fractures are a special danger. They are a primary reason for needing to enter a nursing home (Jette and others, 1998).

osteoporosis An age-related chronic disease in which the bones become porous, fragile, and more likely to break. Osteoporosis is most prevalent in thin women, and so most common in females of European and Asian descent.

Because of its devastating consequences, falling is a fear that older adults share worldwide (Smith and others, 2017; Wu & Ouyang, 2017). And, not unexpectedly, the risk of that health-shattering event multiplies when people have several chronic physical conditions, use canes and walkers, and need help with instrumental ADLs (Choi and others, 2019). The cost of fall-related injuries in hospitalizations and nursing home placement is enough to knock society off its feet — roughly $50 billion in annual health-care expenditures in the United States (Centers for Disease Control and Prevention, 2020a)!

Modifying Motor Problems

The main risk factor for falling, as I suggested above, is frailty — having trouble competently walking around. Although typically we can effortlessly walk while talking or checking our phones or chewing gum, when people have problems with this automatic function, every step must be consciously planned. Falls can easily occur in situations demanding *divided attention*, such as when people are crossing the street and their phone rings (Liebherr and others, 2016).

One solution is to modify the person's home: Use high-quality indirect lighting (as I mentioned earlier) and low-pile, wall-to-wall carpeting to prevent tripping. Put grab bars in places such as in the bathtub, where falls are likely to occur. Install cabinet doors that open to the touch, and place shelves within easy reach. If a relative is worried about living independently, urge her to check out body sensors that alert health-care providers if she falls.

Actually, lower-body impairments — because they limit mobility — are the number-one barrier to living independently in later life (Pressler & Ferraro, 2010). Suppose you needed help standing, and getting to the toilet was a scary balancing act? But I know a man who cannot walk — and for that reason might have landed in a nursing home — whose life was transformed by that simple assistive device: the medical scooter. The scooter has permitted him to stay in his own home (with a lot of loving family support) and given him wheels to travel. It has also kept him active and fully enjoying life!

Table 14.1 summarizes the main points of this sensorimotor section, with special emphasis on what older adults and their loved ones can do to produce the right person–environment fit at home.

Table 14.1: Age-Related Sensorimotor Changes and Interventions: A Summary

Changes	Interventions
Vision	
Problems with seeing in dimly lit places, sensitivity to glare	• Use strong, indirect light and avoid using fluorescent bulbs. • Buy appliances with large letters, nonreflective surfaces, and adjustable lighting. • Consider giving up driving at night and in the rain.
Hearing	
Loss of hearing for high-pitched tones	• Reduce background noise. • Speak distinctly while facing the person, but avoid elderspeak. • Install wall-to-wall carpeting and double-paned windows in a home. • Don't be hesitant about buying hearing aids. They work far better and are more user-friendly and affordable than you think.
Motor Abilities	
Slower reaction time	• Be careful in speed-oriented situations.
Osteoporosis and osteoarthritis, gait problems	• Install low-pile carpeting to prevent tripping, grab bars to prevent falling, and other assistive devices at home. (The lighting interventions suggested above will also help prevent falls.)

And my image of wheels to travel brings up that activity *essential* to independence at any age — driving.

Trending in Developmental Science: Later-Life Driving Issues

Imagine that your vision issues or lower-body impairments are making driving dangerous. As was true of Susan in the chapter-opening vignette, you are well aware of your problems (Thorslund and others, 2019). So you stop driving during rush hour and on highways. For years, you have been uncomfortable driving at night and in the rain. But, if you are like many older adults, you cannot imagine giving up your car. Abandoning driving means confronting the loss of independent selfhood that you first gained when you got your license as a teen. One survey suggested that giving up a car can provoke the same grief reaction as losing a spouse (Sanford and others, 2019)!

Jose Luis Pelaez Inc/Getty Images

Vision problems, hearing difficulties, and especially slowed reaction time may all combine to make driving dangerous for 80-year-olds. But if we rob people of their cars, how will this affect their mental health?

Actually, driving in later life is especially difficult because it involves *many* sensory and motor skills. In addition to demanding adequate vision, driving is affected by hearing losses because we become alert to the location of other cars partly by their sound (Jemaa and others, 2017). To drive well demands having the muscle strength to push down the pedals and the joint flexibility to turn the wheel. And, as anyone behind an older driver when the light turns green knows, driving is especially sensitive to slowed reaction times (Salvia and others, 2016).

Therefore, contrary to our stereotypes, as Figure 14.7 shows, *older drivers*—not teenagers—are the age group most vulnerable to dying in crashes. So yes, we can legitimately be very anxious when we see our beloved grandpa barreling down a local street!

The scariest situation is when an older person has cognitive impairments. Can people with serious memory problems accurately assess their behavior on the road? The answer is "a bit." In one simulator study, drivers with a condition called mild cognitive impairment (to be discussed soon) were fairly good at predicting their abilities in urban settings, but less so in rural environments (Fragkiadaki and others, 2018). However, another U.S. poll showed that a shocking fraction (40 percent) of people with *already diagnosed* Alzheimer's disease continues to drive (Kurzthaler and others, 2017)!

Given these alarming findings, what should society do? Our first thought would be to require yearly road tests, accompanied by cognitive screenings for every person over age 75. But in some U.S. states, people can renew their licenses by mail at *any* age.

Figure 14.7: Fatal crashes by age, per 1,000 drivers
According to this alarming chart, the age group most likely to die in accidents are older drivers—not teens!

Data from Insurance Institute for Highway Safety, Highway Loss Data Institute, 2021

Because laws are so lax (or nonexistent), we mainly rely on relatives or the medical system to report impaired drivers. But would you have the courage to rob your uncle of his identity by taking away his keys? Wouldn't you worry that preventing your relative from driving would accelerate his cognitive decline? What *exactly* happens when people suffer from devastating late-life cognitive loss?

Tying It All Together

1. Karen, who is 55, is having trouble seeing in the dark and in glare-filled environments. Karen's problems are due to the clouding of her _____. If Karen's condition has progressed to the point where she can't see at all, she will have _____.
2. Your cousin has hearing problems at age 50. All of the following are true *except:*
   a. Your cousin has almost certainly bought a hearing aid.
   b. Your cousin has probably been exposed to high levels of noise.
   c. Your cousin is at risk of becoming depressed.
   d. Your cousin has special trouble hearing high-pitched tones.
3. Your 80-year-old grandmother asks for advice about how to remodel her home. Which change should you *not* suggest?
   a. Install low-pile carpeting, and put grab bars in the bathroom.
   b. Put fluorescent lights in the ceilings.
   c. Buy appliances with larger numerals and non-reflective surfaces.
   d. Get rid of noisy air conditioners and fans.
4. Giving up driving is *not such an important/a very important* issue in later life, and U.S. states *still permit/don't permit* people with cognitive impairments to operate cars.

Answers to the Tying It All Together questions can be found at the end of this chapter.

SOMETHING TO CONSIDER: The Physical Challenges of Old Age: Understanding Sensorimotor Changes Achieve

Learning Outcomes

- List the major causes of neurocognitive disorders (and dementia).
- Describe the characteristics of Alzheimer's disease.
- Critique Alzheimer's research and interventions.
- Discuss the challenges facing Alzheimer's caregivers.

Neurocognitive Disorders (and Dementia)

Major neurocognitive disorder (and **dementia**) is the umbrella term for a host of illnesses that produce serious, progressive cognitive losses. (While *dementia* is still the label used around the world, the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition [DSM-5], introduced the term *neurocognitive disorders* in an effort to relabel these conditions in a less disparaging, terrifying way). The DSM-5 distinguishes between a minor and major neurocognitive disorder; with the minor form, thinking problems, though significant, don't prevent living independently.

major neurocognitive disorder (and dementia) General terms for any illness involving serious, progressive cognitive decline that interferes with a person's ability to live independently. (A *minor neurocognitive disorder* is the label for a less severe impairment in memory, reasoning, and thinking that does not compromise independent living.)

These diseases aptly evoke terror because they involve the total erosion of our personhood, the complete unraveling of the self. Younger people can also develop these conditions if they have a brain injury or an illness. However, as you will see later, these symptoms are typically produced by two specific illnesses that strike in later life.

What is this cognitive decline like? As you can poignantly see in the Experiencing the Lifespan box, in the earlier stages, people forget basic *semantic information.* They cannot recall core facts about their lives, such as the name of their town or how to get home. Impairments in *executive functions* are prominent. A conscientious person behaves erratically. An extravert withdraws from the world.

Experiencing the Lifespan An Insider Describes His Unraveling Mind

Hal is handsome and elegant, a young-looking 69. He warmly welcomes me into his apartment at the assisted-living facility. Copies of *National Geographic* and *Scientific American* are laid out in stacks. Index cards list his daughters' names and phone numbers, and provide reminders about the city and the state where he lives. Hal taught university chemistry for years. When his mind began to unravel, he learned that he had the illness whose symptoms he graciously describes:

I first noticed that I had a problem giving short speeches. You have a blank and like . . . what do I put in there. . . . I can speak. You are listening to me and you don't hear any pauses, but if you get me into something. . . . I just had one of these little pauses. I knew what I wanted to say and I couldn't get into it, so I think a little bit and wait and try to get around to it. I know it's there . . . but where do I use it? . . . It's ups and downs; and then one day you are in a deep valley. You can't get tied up in the hills and valleys because they just lead you around and it makes you more frustrated than ever. . . . If I can't get things, I just give up and then try to calm down and come back to it. Like, when I read, I get confused; but then I just stop and try again a month later. Or the people here: I know them by face, by sight, but I cannot get that focus down to memorize any names. I remember things from when I was 5. It's what's happening now that doesn't make a lot of sense.

As we walk to my car after this interview, Hal's daughter fills me in:

My father seems a lot happier now that he is here. The problem is the frustration, when he tries to explain things and I can't understand and neither of us connects. Then he gets angry, and I get angry. My father has always been an intellectual person, so feeling out of control is overwhelming for him. . . . He has days where he gets paranoid, decides that there is a conspiracy out for him. It's tiny things. A letter came to the wrong place and he went down and exploded at the people at the desk. For me the worst thing is remembering how my father was. You expect a certain response from him and you get this strange response. It's like there's a different person inside.

As the symptoms progress, every aspect of thinking is affected. Abstract reasoning becomes difficult. People cannot think through options when making decisions. Language abilities are compromised. People are unable to name common objects, such as a shoe or a bed. Judgment is gone. Older adults may act inappropriately — undressing in public, running out in traffic. They may wander aimlessly and behave recklessly, unaware that they are endangering their lives.

When these diseases reach their later stages, people may be unable to speak or move. Ultimately, they are bedridden, unable to remember how to eat or swallow. At this point, infectious diseases such as pneumonia or coronavirus often lead to death.

The Dimensions

How long does this devastating decline take? As I will describe soon, there is a precursor period between experiencing memory problems and having full-blown symptoms. The brain changes often set in years before the person shows palpable signs of mental loss (Alzheimer's Association, 2019). So it can be difficult to clearly define when the illness begins.

The deterioration progresses at different rates from person to person and varies depending on the specific disease. But in general, these illnesses deserve the label *chronic disease*. People survive an average of 4 to 8 years after being diagnosed with these conditions; but the time from diagnosis to death can be as long as 20 years (Alzheimer's Association, 2019).

The good news is that these impairments are typically illnesses of *advanced* old age. In the sixties, their prevalence is in the single digits. Over age 85, 1 in 3 people is destined to develop memory problems this severe (see Figure 14.8). The very good news is that, since 1988, a person's risk of getting this diagnosis at any given age declined a remarkable 13 percent per decade in Europe and the United States (Wolters and others, 2020)! But

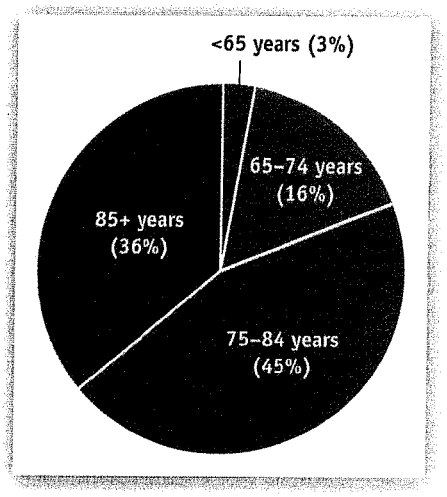


Figure 14.8: Ages that people are first diagnosed with major neurocognitive disorder (and dementia) The good news is that your chances of getting a neurocognitive disorder under age 65 are miniscule. The bad news is that by the upper 70s — especially for females — the risk dramatically accelerates. Most people suffering from these devastating diseases, as the chart shows, are over age 75.

Data from the Alzheimer's Association, 2019

because more of us are living longer, and the huge baby boom cohort has flooded into later life, the *number* of people with these severe problems is destined to sharply increase. In 2019, neurocognitive disorders (and dementia) cost the United States $290 billion. By 2050, the projected cost is apt to be $1 trillion or more (Alzheimer's Association, 2019).

The Main Causes

What conditions produce these terrible symptoms? Although there are a host of rarer late-life diseases, typically an older person will be diagnosed with *Alzheimer's disease, vascular neurocognitive disorder,* or some combination of those two illnesses.

vascular neurocognitive disorder (vascular dementia) A type of age-related cognitive disorder caused by multiple small strokes.

Alzheimer's disease A type of age-related neurocognitive disorder characterized by neural atrophy and abnormal brain structures, such as senile plaques and neurofibrillary tangles.

neurofibrillary tangles Long, wavy filaments that replace normal neurons and are characteristic of Alzheimer's disease.

senile plaques Thick, bullet-like amyloid-laden structures that replace normal neurons and are characteristic of Alzheimer's disease.

Vascular neurocognitive disorder (also called **vascular dementia**) involves impairments in the vascular (blood) system, or network of arteries feeding the brain. Here, the person's cognitive problems are caused by multiple small strokes.

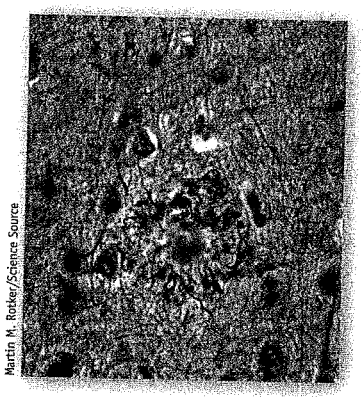
Alzheimer's disease directly attacks the core structure of human consciousness, our neurons. With this illness, the neurons wither away and are replaced by strange wavy structures called **neurofibrillary tangles** and, as you can see in the photo, thick, bullet-shaped bodies of protein called **senile plaques**.

Vascular problems — because they limit the brain's blood supply — promote this neural loss (Strand and others, 2013). In fact, at autopsy, most people with Alzheimer's show the brain changes characteristic of another neurocognitive disorder, too (Alzheimer's Association, 2019).

As you just saw, the number-one risk factor for developing these conditions is being old-old (Alzheimer's Association, 2019). But several genetic markers raise the chances of getting Alzheimer's at a younger age. The most important is having two copies of the APOE-4 genetic marker. Instead of getting ill in the late eighties, adults with this unfortunate configuration have a 50/50 chance of getting full-blown symptoms by age 68! (See Bue, 2018.)

Suppose your parent developed Alzheimer's at this tragically young age. You feel as though you are living under a genetic cloud. Would you want to be tested for the APOE marker and other Alzheimer's genes? One reason not to be tested is that some people in their sixties and seventies at high risk don't develop the illness at any age (Hohman and others, 2017).

Now imagine you decide to be tested and find out you harbor this genetic time bomb. Can you ward off the blow? Where *are* we in terms of preventing Alzheimer's disease?



Martin M. Rotker/Science Source

This magnified slice of the brain showing senile plaques (dark circles) provides a disturbing window into the ravages of Alzheimer's disease.

Targeting the Beginnings: The Quest to Nip Alzheimer's in the Bud

The main front in the war to prevent Alzheimer's centers on a protein called *amyloid*, a fatty substance that is the basic constituent of the senile plaques. Most scientists believe the accumulation of a toxic form of amyloid produces a compound called *tau (p-tau)* that internally sets off the tangles and neural decay (Alzheimer's Association, 2019). Efforts to dissolve the amyloid plaques in Alzheimer's patients have not worked. The challenge is to limit this buildup while people are healthy but on the path to developing the disease.

This means it's vital to find biomarkers (or precursors) of Alzheimer's. The effort has been remarkably successful. Measuring amyloid and tau levels in the cerebrospinal fluid of cognitively typical older people predicts future symptoms (Dubois and others, 2016; Kolata, 2019; Reus and others, 2020). MRIs add to the accuracy of a subsequent diagnosis (Dyrba, Pallath, & Teipei, 2020). Having other ADL problems plus moderate memory loss strongly raises the chance of soon progressing to full-fledged disease. Actually, since today a formal diagnosis of

Alzheimer's requires having a series of family interviews and neuropsychological tests (Alzheimer's Association, 2019), it would be great to have a *simple* blood test, like the one for diabetes, that would foreshadow the disease.

Adults diagnosed with *subjective cognitive decline* and *mild cognitive impairment* are centrally important in this effort. These people either believe they have suffered dramatic memory changes or, in mild cognitive impairment, show significant learning problems on neuropsychological tests (Alzheimer's Association, 2019). Not everyone classified with these early-stage diagnoses makes the transition to Alzheimer's. However, more than half of all people diagnosed with mild cognitive impairment develop Alzheimer's within the next five years (Alzheimer's Association, 2019).

Is there anything you and I can do to slow this path? We already know that the only *proven strategy* for stimulating neural growth is putting rats on running wheels. Could exercise be an antidote to Alzheimer's?

This tantalizing idea is hard to test experimentally because it's difficult to ask a random group of people to exercise for years and then compare them to control groups (Machado and others, 2017). Still, most researchers believe that the number-one candidate for an anti-Alzheimer's strategy is exercise (Alzheimer's Association, 2019). Even if it doesn't help us construct new brain cells, at a minimum, going to the gym or walking will help with the vascular component of this illness (and help prevent the lower-body problems that are such a threat to independent living in later life).

These 70-something dancers are not only likely to feel young, but their favorite activity may help prevent Alzheimer's disease.

Thomas Barwick/Getty Images

INTERVENTIONS Dealing with These Devastating Diseases

What about those Alzheimer's drugs we see advertised on TV? Unfortunately, their effects are minor (see Bressler and others, 2017). With a major neurocognitive disorder, at the time of diagnosis, the person already has alarming symptoms. There is not much *medically* that can be done.

For Health-Care Workers: Delivering the Diagnosis This reality changes the diagnostic landscape. With other incurable illnesses, such as late-stage cancer or end-stage heart disease, doctors are often upfront. You don't sugarcoat the situation. You let the individual direct her own care (see Chapter 15). But, in one comprehensive poll, while physicians did routinely tell families, most doctors used euphemistic phrases such as "memory problems" when talking to patients themselves (Low and others, 2019).

Moreover, because Alzheimer's implies incapacity, after being diagnosed, decision making is typically transferred to families (Donnelly, Begley, & O'Brien, 2019). Suddenly, the disease has magically erased a sentient, autonomous human being.

Imagine being a caring doctor. You may agonize: "Does my patient want to know?" But experts emphasize that it is best to give the illness its real name and provide hope, not so much about medical interventions, but about things people can do (Bailey, Dooley, & McCabe, 2019). Honesty balanced with optimism is imperative because, with early-stage Alzheimer's, people can *still* direct their lives.

For the Patient: Dealing with Devastating Mental Loss How do people react when they realize they have an illness that is robbing their mind? Let's read these poignant accounts from men and women who shared their feelings in blogs. (The following quotes are from Kannaley and others, 2019.)

Developmental Psychology Videos

Aging and Memory: Studying Alzheimer's Disease

In this video, you will hear from patients with Alzheimer's and scientists studying Alzheimer's as they grapple with this disease.

Achieve

There is horror at losing control:

> "People wash their . . . wallets, and car keys. . . . Well, I never have," wrote one man. "It comes from my navy training. . . . You . . . do it right or die." And then he added: "Today part of me died."
>
> (p. 3078)

Shame at feeling incompetent in front of loved ones:

> It shouldn't be my children's job to tell me my pants have fallen down . . . or remind me I haven't put my pants on at all.
>
> (p. 3077)

Terror of feeling totally at sea:

> Which way is up? It's pitch black. . . . Noise as if the world is ending surrounds me.
>
> (p. 3081)

Still, there can be pride at efficaciously managing:

> I'm grateful to . . . try to . . . keep the brain active . . . still plugging along.
>
> (p. 3077)

And some remarkable people use this illness as a *redemption sequence*, a chance to center on what is *really* important in life:

> The flowers are blooming, the leaves are turning. . . . I keep rediscovering each day and thing like it was the first time. . . . Dementia can be kinda cool that way.
>
> (p. 3078)

> I . . . have a wonderful daughter. I sent her to . . . school . . . and now she takes care of . . . my business. . . . I'm in my baby phase now. . . . So I call her "my mumma." . . . She's such a blessing to me.
>
> (quoted in Snyder, 1999, p. 103)

For Caregivers: Coping with Life Turned Upside Down Imagine your beloved parent or spouse has a neurocognitive disorder. You know this condition is permanent. You must helplessly witness your loved one deteriorate. As the disease progresses to its middle stage, you deal with a human being who has turned alien, where the tools used in typical encounters no longer apply. The person might be physically and verbally abusive and wake and wander in the night. When the 24/7 symptoms produce total role overload (Infurna, Gerstorf, & Zarit, 2013), you face the guilt of putting your loved one in a nursing home (Graneheim, Johansson, & Lindgren, 2014). Or you decide to put your own life on hold for years and care for the person every minute of the day.

How do loved ones emotionally handle the combative behaviors the disease can cause? For answers, listen to these interviews with African American women who were caring full-time for a parent with Alzheimer's (Hansen, Hodgson, & Gitlin, 2019):

> When I could say, "This is not personal, [she can't help how she acts], . . ." I began handling it differently.
>
> (p. 3043)

These women intuitively knew criticizing was counterproductive (Safavi, Wearden, & Berry, 2019). You had to go at the person's own pace:

> You put her on the toilet, let her sit [for an hour or two] . . . and read a book and come back later.
>
> (Hansen, Hodgson, & Gitlin, 2019, p. 3045)

They were determined to put other commitments in second place, in order to provide the best possible care:

> I told 'em [my boss] . . . "My dad come first . . . I'll be at work when I can."
>
> (p. 3045)

These testimonials illustrate why Dan McAdams's research suggests that some African Americans embody the highest form of generativity (see Chapter 12). They demonstrate another message of Chapter 12: Traumatic life experiences — such as dealing with a loved one's devastating illness — *can* teach us to be wise. Table 14.2 summarizes and expands on these messages by offering specific caregiving tips.

Table 14.2: Tips for Helping People with Neurocognitive Disorders (and Dementia)

1. Provide cues to alert the person to the surroundings, such as using note cards and labeling rooms and objects around the home. Use strong, contrasting colors to highlight the difference between different rooms in the house.
2. Protect the person from getting injured by double-locking the doors, turning off the stove, and taking away car keys.
3. Offer a highly predictable, structured, loving daily routine.
4. Don't take aggressive behaviors personally. Understand that "it's the disease talking."
5. Remain calm, don't criticize, and take your time.
6. Try to see the silver lining: This is a chance to stretch your capacities and show your love.
7. Definitely join a caregiver support group—and contact the Alzheimer's Association (www.alz.org) for helpful resources.

And if your career involves caring for people with these disorders, take time to understand the patient's life history (Cooney & O'Shea, 2019). Go slowly, build trust, and tailor your help to the unique person living inside (Berglund, Gillsjö, & Svanström, 2019). You also might use the nursing home strategies outlined in Table 14.3 to enhance people's joy and anchor residents in the world.

Table 14.3: Techniques to Improve Quality of Life for Nursing Home Residents with Neurocognitive Disorders (and Dementia)

1. **Music therapy.** Introduce activities involving music (Ho and others, 2019), ideally constructing personal playlists based on people's prior preferences (Kulibert and others, 2019).
2. **Canine therapy.** If possible, push for a dog or cat companion. Interacting with a pet is tailor-made to reduce stress (Klimova, Toman, & Kuca, 2019).
3. **Visual arts education.** Feature sessions in which residents can produce artistic works, as creative activities enhance mood (Richards and others, 2019).
4. **Assistive technology.** Draw on new technologies to promote safety and well-being: sensors to monitor residents' behavior (and alert medical personnel if there has been a fall), GPS tracking systems (Daly Lynn and others, 2019), and a social robot that visits rooms to remind people of the time and day and play favorite songs (Nauta and others, 2019).

For Society: Bring Alzheimer's Out of the Shadows My discussion shows that family caregivers are a group at emotional risk. Imagine living isolated, entrapped by the 24/7 care. You cannot go anywhere. Friends and relatives may minimize the problem and avoid you out of fear. You may yearn for education from experts, and feel that you are not given adequate help. The reason is ignorance. Unless you are going through the experience, *no one* understands (Braun and others, 2019; Laparidou and others, 2019).

Because outsiders become more empathic when they have direct knowledge of these diseases (Cheston, Hancock, & White, 2019), as much as possible, we need to embed people with Alzheimer's in the community and develop educational programs stressing that people with cognitive impairments can still have a full life.

AP Photo/Carrie Antlfinger

At the Connections Cafe in Watertown, Wisconsin, people with neurocognitive disorders are not shunted aside. They are carefully embedded into the life of the town.

In a seaside Australian town popular with retirees, the government and a university collaborated to develop this type of model dementia-friendly community. After polling residents about their attitudes, they enlisted people with Alzheimer's and caregivers to speak at community forums (Phillipson and others, 2019). The idea was to keep people with early symptoms from being shunted to institutions. The larger goal was to show *every older resident* that if they happen to develop these frightening disorders, they won't lose their basic humanity and pleasure in life. ■

Up to this point, I've mainly focused on how people can take action to promote the best person–environment fit when old-age frailties strike. Now, let's look generally at what the wider culture is doing to help.

Tying It All Together

1. Match the correct neural issue to either *Alzheimer's disease* or *vascular neurocognitive disorder*.
   a. Plaques and tangles
   b. Small strokes
2. Your mother is beginning to show symptoms of mild cognitive impairment. Pick the statement that is both accurate and comforting.
   a. "Don't worry. Your condition rarely progresses to Alzheimer's disease."
   b. "Don't worry. Scientists can now cure your problem before it progresses to Alzheimer's disease."
   c. "You should be concerned, but understand that not everyone who has your condition gets Alzheimer's disease."
3. A doctor has just diagnosed Mrs. Leu with early Alzheimer's disease. Pick the *false* statement:
   a. She probably understands her condition.
   b. She probably has freedom to direct her care.
   c. She is probably in her eighties or beyond.
4. Your mom is caring for your grandfather who has Alzheimer's disease. She is terribly upset when Grandpa gets abusive. Based on this chapter, what should you tell your mom?
   a. Understand that "it's the disease," not the person. Grandpa can't help how he acts.
   b. Confront Grandpa about his behavior. If you stand up for yourself, Grandpa is more likely to back down.

Answers to the Tying It All Together questions can be found at the end of this chapter.

Learning Outcomes

- Outline services for frail, elderly people, making special reference to the United States.
- Evaluate nursing home care.
- Critique care for later-life disabilities.

Options and Services for Frail, Elderly People

Imagine you are in your eighties, and cooking and cleaning are difficult. You have trouble walking to the mailbox or getting from your car to the store. You start by using *selection* and *optimization*. You focus on your most essential activities. You spend more time on each important life task. You are determined to live independently for as long as possible. But you know that the time is coming when you will enter Baltes's full-fledged *compensation* mode. You will need to depend on other people for your daily needs. Where can you turn?

Setting the Context: Scanning the Global Elder-Care Scene

For most of human history, older people would never confront this challenge. Families lived in multigenerational households. When the oldest generation needed help, caregivers were right on the scene.

Today, however, this support network has frayed even in some of the collectivist countries historically most committed to family care (Qu, 2014). In Japan, nursing homes are common. In China, the need for women to work full time makes it difficult to provide hands-on care when the oldest generation needs help with daily life (Zhang, 2020). So today, the East is turning to the West for models of societal elder care.

The Scandinavian countries offer our best examples of elder care that advanced Western societies can provide (Rodrigues & Schmidt, 2010). In Sweden, Norway, and Denmark, government-funded home health services swing into operation to help impaired older people "age in place" — that is, stay in their own homes (Nordic Council of Ministers, 2017). Innovative elderly housing alternatives dot the countryside — from multigenerational villages with a community center providing health care, to small nursing facilities with attractive private rooms (Johri, Beland, & Bergman, 2003). Because their care is free and government-funded, Scandinavian older adults don't need to face that anxiety-ridden question: "Can I afford to get help?"

Alternatives to Institutions in the United States

In the United States, we have these worries. The reason is that **Medicare**, the U.S. health insurance system for elderly citizens, pays only for services defined as cure-oriented. It does not cover help with activities of daily living — the very services such as cooking or cleaning or bathing that keep people out of a nursing home when they are having trouble functioning in life. What choices do older people in the United States have when they need some help with ADL impairments, but not the intense help of a nursing home? Here are the main **alternatives to institutionalization** that we have in the United States today:

Medicare The U.S. government's health insurance program for elderly people.

alternatives to institutionalization Services and settings designed to keep older people who are experiencing age-related disabilities that don't merit intense 24-hour care from having to enter nursing homes.

- A **continuing-care retirement community** is a residential complex that provides different levels of services, from independent apartments to nursing home care. Continuing care provides the ultimate person–environment fit. Residents arrive in relatively good health and get the appropriate type of care as their physical needs change. The emphasis here is on healthy living for as long as feasible, plus all-important peace of mind — knowing paid caregivers are "on-call" to help.

continuing-care retirement community Elderly housing option characterized by different levels of care. People enter in relatively good health and then move to sections providing more intense help when they grow more disabled.

- An **assisted-living facility** is designed for people who have ADL limitations, but not impairments that require full-time, 24-hour care. Assisted living also offers care in a less medicalized, more homey setting. Residents have private rooms; they can keep the cherished mementos that allow them to live a dignified life. Here, too, the focus is on maximizing personal control in a safer environment than living at home alone (Koehn, Mahmood, & Stott-Eveneshen, 2016; Pirhonen & Pietilä, 2016).

assisted-living facility Elderly housing option providing care for people with disabilities that, while significant, do not require a nursing home.

- **Day-care programs** are for older people who live with families. Much like its namesake for children, adult day care provides activities and a place for an older person to go when family members work. Adult day care can be invaluable for people with early Alzheimer's disease, as it offers a stimulating and protected environment away from home.

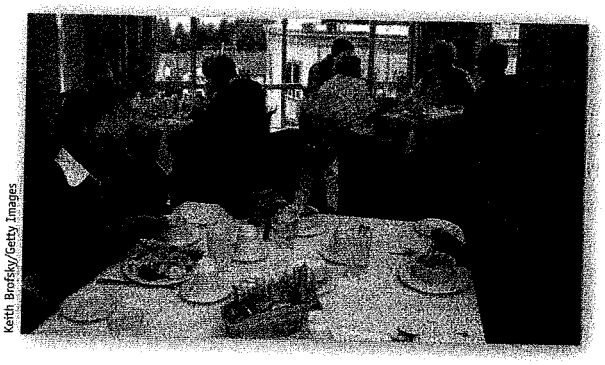
day-care program Center offering activities and a safe place to go during the day for impaired older adults living with relatives.

- **Home health services** help people age in place (at home). Paid caregivers come to the person's house to cook, clean, and help with personal care activities such as bathing.

home health services Nursing-oriented help provided in the home of an impaired adult.

With their enriching activities and social contacts, assisted-living and continuing-care facilities can be wonderful places in which to spend the final years of your life. ("It's like permanently living on a cruise ship," gushed a friend). Still, many affluent older people, even those with marked ADL impairments, resist moving to these places (Koenig and others, 2014). Why?

One reason is that entering these settings (like buying hearing aids or using walkers) may symbolize, "I've landed in elderly territory." Assisted living, in particular, limits the freedom people have in "real life." Yes, you won't have to struggle to make it alone, but you must bend to the group rules. Suppose your new peer group doesn't share your interests, or you confront the same poisonous group-status hierarchies



Keith Brofsky/Getty Images

Their tempting menus can make continuing-care communities delicious places for older adults to spend their last years of life—provided you can tolerate the social "risk" of not being invited to sit at this dinner table.

you had to deal with during your preteen years (Ayalon & Green, 2013; Schafer, 2013)? (Unfortunately, human nature doesn't change!)

But the *real* deterrent is cost. With entry fees north of $500,000 dollars for upscale buy-in continuing care (plus hefty monthly rates) and with assisted living costing, *on average*, $4,000 per month in the United States, people can only choose these options if they are wealthy — not middle-class! (In my state, Illinois, a handful of assisted living places do accept moderate-income people without long-term care insurance, but their waiting lists are over a year.) Can't we devise innovative, low-cost, elder-care alternatives that help people who have some ADL problems, but don't require that ultimate setting — the nursing home?

Nursing Home Care

nursing home/long-term-care facility A residential institution that provides shelter and intensive caregiving, primarily to older people who need help with basic ADLs.

Nursing homes, or **long-term-care facilities**, provide shelter and services to people with basic ADL limitations — individuals who do require 24-hour caregiving help. Although adults of every age live in nursing homes, it should come as no surprise that the main risk factor for entering these institutions is being very old. The average nursing home resident is in his — or, I should say, her — late eighties (O'Shea Carney & Norris, 2017). Because, as we know, females live sicker into advanced old age, women make up the vast majority of residents in long-term care.

What causes people to enter nursing homes? Often, a person arrives after some incapacitating event, such as a broken hip or stroke. Given that these illnesses require such daunting 24/7 care, roughly half of all nursing home residents have a severe cognition-impairing condition such as Alzheimer's disease (O'Shea Carney & Norris, 2017).

In predicting who ends up in a nursing home, both nature and nurture forces are involved. Yes, the person's biology (or physical state) does matter. But so does the environment — specifically, whether a network of attachment figures is available to provide care. Does the older adult have several family members and/or a friend willing to take the person in? The more places (and people) a frail person has "in reserve" to provide help, the lower the risk of that individual's landing in long-term care (Kasper, Pezzin, & Rice, 2010).

Just as the routes by which people arrive differ, residents take different paths once they enter nursing homes. Sometimes, a nursing home is a short stop for rehabilitation. Or, as these places provide hospice services, it may be a short interlude before death. Some residents live for years in long-term care (O'Shea Carney & Norris, 2017).

You might be surprised to learn who is paying for these residents' care in the United States. Because people begin by paying the costs out of their own pockets and "spend down" until they are impoverished, *Medicaid*, the U.S. government health-care program specifically for lower-income citizens, finances our nation's nursing homes.

Evaluating Nursing Homes

Nursing homes are often viewed as dumping grounds where residents are abused or left to languish unattended until they die. How accurate are these stereotypes?

Many times, the generalizations are unfair. Nursing homes may offer perks from beauty parlors to private rooms. A strong movement is afoot to make nursing homes homey and "person-centered," and to offer loving care (Barbosa and others, 2017).

We still have far to go. Experts bemoan the excessive emphasis on safety that limits people from having a sliver of an autonomous life (Kane & Cutler, 2015). Nursing home residents are barred from leaving the facility unless relatives check them out; they are subject to random checks from caregivers. They do not have input regarding when to eat (or what to eat). They can't just decide to lie in bed or refuse to take a medicine. Their every action — from moving to a chair to being taken to the toilet — is dependent on the workers providing care. As one frustrated new resident named Luis put it, "I would say to my friends, don't go there. Go to jail instead" (quoted in Johnson & Bibbo, 2014, p. 60).

Working in a nursing home can be hazardous to caregivers. In one poll from a Swiss nursing home, 2 in 3 staff members reported being the target of a resident's verbal aggression within the previous two weeks. Almost half of these workers had to fend off a physically aggressive act (Stutte and others, 2017). Sexual harassment is also an uncomfortable risk when nursing home workers need to bathe cognitively impaired residents — and wash their private parts (see Grigorovich & Kontos, 2019).

This brings me to the main workers in nursing homes — the **certified nurse assistant or aide.** Nursing home aides, like their counterparts in day-care centers, earn poverty-level wages. Because U.S. nursing homes are chronically understaffed (O'Shea Carney & Norris, 2017), even committed caregivers don't often have the resources to do an adequate job. Having worked in long-term care, I can testify that residents are sometimes left lying in urine for hours. They wait an inordinately long time for help getting fed. One reason is that it can take workers hours to feed the eight or so people in their care when dinner arrives!

certified nurse assistant or aide The main hands-on care provider in a nursing home who helps elderly residents with basic ADL limitations.

Still, even language barriers (many nursing home workers are recent immigrants) and lack of training (Zysberg and others, 2019) don't impede the intense generative mission that people derive from their jobs (Munkejord & Tingvold, 2019). In focus group studies conducted at Arkansas nursing homes, aides said they relished the chance to make a difference: "I didn't want to become an LPN or RN. I wanted to be a CNA to be hands-on" (quoted in Gray and others, 2016, p. 247). They took pride in their stamina and skills: "You have to have a knack for it. I don't do it for the money" (p. 247). They felt incredibly close to the older people: "You go home and dream about the residents" (p. 247).

Jayson — a mellow, 6-foot-tall, 200-pound man, who worked in a Philadelphia nursing home — may have put it best:

> If you . . . say, ". . . I'm just doing my job," . . . you're in the wrong field. . . . When somebody . . . dies . . . , we . . . . go to their funerals. . . . I . . . spoke at . . . the funerals. . . . I say how much this person meant to me.
>
> (quoted in Black & Rubinstein, 2005, pp. S-4–6)

Jayson believes his career is a calling from God. What about nursing home residents? Can people flourish in this setting? For uplifting answers, see below.

Experiencing the Lifespan Flourishing in a Nursing Home: A Psychologist Describes Her Career

A few years ago, I attended an unforgettable memorial service at a Florida nursing home. Person after person rose to eulogize this woman, a passionate advocate who had worked with immense self-efficacy to make a difference in her fellow residents' lives. Then Mrs. Alonzo's son told his story. He said that he had never really known his mother. When he was young, she became schizophrenic and was shunted to an institution. Then, at age 68, Mrs. Alonzo entered the nursing home to await death. It was only in this place, where life is supposed to end, that she blossomed as a human being.

If you think this story of emotional growth is unique, read about a psychologist friend of mine who, like Jayson, finds her generativity in nursing home work.

My most amazing success entered treatment two years ago. This severely depressed resident had had an abusive marriage and suffered from enduring feelings of powerlessness and low self-esteem. I think that being sent to our institution allowed this woman to make the internal changes that she had been incapable of before. She began to look at her past and see how her experiences had shaped her poor sense of self and then to see her inner strengths. She and I formed a very close relationship.

So then she decided to work on becoming closer to her children. She had been aloof as a mother, and she told me that once her younger child had asked her to say that she loved her and she couldn't get the words out. Now, at age 89, she called this daughter, and told her that she did love her and that she was sorry she couldn't say it before. Her daughters said that I had presented them with a miracle, the loving mother they always wanted. My patient made friends on the floor and became active in the residents' council. In the time we saw one another, she used to tell me, "I never believed I could change at this age."

As she finished her story, my friend's eyes filled with tears: "My patient died a few months ago, and I still miss her so much."

Table 14.4: Choosing a Nursing Home: A Checklist*

The General Milieu
• Is the setting appealing, with user-friendly features that take into account sensory and motor disabilities (e.g., carpeting on floors to prevent falling; adequate indirect lighting; dining areas that don't magnify hearing problems; no long hallways; clear differentiation between corridors)?
• Can the person have her own room, and is privacy allowed? Are there pleasant outdoor areas? Have residents decorated their living spaces?
• How many residents live here? Studies agree that smaller facilities provide better care.
• Are there good rehab facilities and enriching activities?
The Staff
• Spend time observing and talking to the aides. Is the staff nurturing? Do they feel committed to this work? Do they feel they have too much to do? Are they happy with this organization?
• Ask about staff turnover: How many people have left within the last few months? More stability may signal better-quality care.
The Residents
• If possible, interview a resident and/or a family member. What are the negatives and positives of this place?
• Is there a residents' council? Do consumers have input into how this place is run? Do older people here feel comfortable lodging complaints?
• And, if a loved one is contemplating entering continuing care, urge the person to spend a few nights living at that prospective home. Apart from everything else, it's imperative to know: *Will I fit in socially here?*

*I'm basing these suggestions on the studies I've surveyed and on my experience working in a state-of-the-art, research-based facility. However, with the caveat that objective rankings may not offer the best insights (Perraillon, Konetzka & Weiner, 2019), you also might consult the U.S. Centers for Medicare and Medicaid Services website, which ranks facilities' quality of care from 1 to 5.

Table 14.4 amplifies this section's messages by offering tips for choosing a nursing home. (Notice the similarities to the day-care suggestions in Table 4.2!) Now, let's offer a few wrap-up thoughts on this chapter of life.

Final Thoughts: Society and Old-Age Physical Decline

Dealing with ADL impairments is a vital social challenge facing our rapidly aging world. As we know, we can't count on science to magically cure the disabilities inherent to surviving beyond our "expiration date." We must deal with the onslaught of frail, elderly individuals *now*.

A strong lesson of this chapter is to avoid the natural temptation to infantilize people when they develop old-age frailties. Autonomy — that basic human drive — is just as critical at age 92 as it is at age 2!

And just like in our youngest years, a second lesson is that the United States has a long way to go in offering optimal environments for people approaching the upper end of life. The wider world is not designed with older adults in mind. Assisted living and continuing care, like excellent child day care, is available only to well-off people. Medicaid reimbursements for nursing home care are dreadfully low (O'Shea Carney & Norris, 2017). Do we really want to honor our aged mothers and fathers by letting them suffer with dismal care, just when their ranks are exploding and they need us most?

On a positive note, the story of the nursing home resident who flowered emotionally shows just how much growth can occur in advanced old age. It also enriches Erikson's masterful ideas that have guided our lifespan tour: It's never too late to accomplish developmental tasks that we may have missed. People can find their real identity (or authentic self), fulfill their generativity, and so reach integrity in their final months of life!

In Chapter 15, I'll continue this theme of inner development and also stress the crucial importance of self-efficacy and control as I focus directly on life's endpoint — death.

Tying It All Together

1. Imagine you are a geriatric counselor, and an 85-year-old woman and her family come to your office for advice about the best arrangement for her care. Match the letter of each item below with the number of the suggestion that would be most appropriate if this elderly client:

   a. is affluent, worried about living alone, and has no ADL problems.
   b. has ADL impairments and is living with her family — who want to continue to care for her at home.
   c. has instrumental ADL impairments (but can perform basic self-care activities), can no longer live alone, and has a good amount of money.
   d. has basic ADL impairments.
   e. is beginning to have ADL impairments, lives alone, and has very little money (but does not qualify for Medicaid).

   (1) a continuing-care retirement facility
   (2) an assisted-living facility
   (3) a day-care program
   (4) a nursing home
   (5) There are no good alternatives you can suggest; in the United States, people in this situation must struggle to cope at home.

2. Devise some creative strategies to care for elderly people with frailties who don't need nursing home care.

3. Warrin is a nursing home aide. Pick the *false* statement:

   a. Warrin is probably making minimum wage.
   b. Warrin probably hates his job.
   c. Warrin probably has too much to do.

Answers to the Tying It All Together questions can be found at the end of this chapter.

SUMMARY

Tracing Physical Aging

Normal aging changes progress into **chronic disease** and ultimately, during the old-old years, may result in **activities of daily living (ADL) problems**, either less incapacitating **instrumental ADL problems** or **basic ADL limitations** (troubles with basic self-care).

Some gurus predict that we are about to extend the maximum human lifespan (currently about a century), especially because underfeeding can extend the maximum lifespan of rats. But gerontologists believe this goal is unlikely in the near future, because the cascade of faults involved in human aging ensure that our bodies must give out at about the century mark. Pushing the normal lifespan beyond our maximum lifespan can have unwanted effects.

Socioeconomic status predicts how quickly we age and die, as shown by the wide life expectancy differences between the affluent and developing worlds. The **socioeconomic health gap** refers to the fact that, within each nation, people who are affluent live healthier for a longer time. Race and ethnicity combine with low socioeconomic status to predict premature disability and death among U.S. disadvantaged ethnic minority groups; but Hispanic Americans are more cushioned from these negative effects because they live embedded in close family relationships (the **Hispanic paradox**). Close attachments and living in diverse, efficacious communities that stress good health behaviors enhance health. Education is a powerful predictor of longevity, too.

Gender also affects aging and death. Men tend to die at younger ages of heart attacks and diseases of despair. Women survive longer but live more disabled. Gerontologists are now focused on improving the **health span**, our years of healthy life. Although physical problems are the predictable price of living far into old age, improving children's lives and constructing caring communities may have dramatic health payoffs during the last half of life.

Sensorimotor Changes

The classic age-related vision problems — **presbyopia** (impairments in near vision), difficulties seeing in dim light, and problems with glare — are caused by a rigid, cloudier **lens.** Modifying lighting can help compensate for these losses. Cataracts, the endpoint of a cloudy lens, can be easily treated, although other major age-related vision impairments can cause a more permanent loss of sight. Don't overprotect visually impaired loved ones. Encourage people to visit a low-vision center for help.

The common old-age hearing impairment **presbycusis** limits a person's contact with the human world. As exposure to noise promotes this selective loss for high-pitched tones, men are at higher risk of having hearing impairments, especially at younger ages. To help a hearing-impaired person, limit low-pitched background noise and speak distinctly — but avoid **elderspeak**, the impulse to talk to the older person like a baby. For your own future hearing, protect yourself against excessive noise. While hearing aids have improved dramatically and can soon be purchased over the counter, older people are still often reluctant to get this simple device.

"Slowness" in later life is due to age-related changes in **reaction time** and skeletal conditions such as osteoarthritis and **osteoporosis** (thin, fragile bones). Osteoporosis is a special concern because falling

and breaking a hip is a major reason for entering a nursing home. As mobility is crucial to late-life independence, older people should modify their homes to reduce the risk of falls.

Although elderly people drive less often, accident rates (and especially deaths due to accidents) rise sharply among drivers over age 75. While operating cars demands many sensory and motor skills, older people are reluctant to give up their cars, and U.S. states don't test drivers for cognitive impairments. An alarming number of people with early Alzheimer's disease still drive.

Neurocognitive Disorders (and Dementia)

Major neurocognitive disorder (and **dementia**) is the label for any illness involving serious declines in cognitive functioning. The two illnesses that cause these symptoms are **Alzheimer's disease**, defined by neural atrophy accompanied by **neurofibrillary tangles** and **senile plaques**, and **vascular neurocognitive disorder (vascular dementia)**, caused by small strokes. These diseases typically erupt during the old-old years and progress gradually, ultimately causing the person to lose all functions. Several genetic configurations, especially the APOE-4 marker, predict developing Alzheimer's disease at a relatively young age.

To prevent the accumulation of the plaques (and ward off the illness before it sets in), scientists have uncovered biomarkers predicting Alzheimer's. Today, Alzheimer's cannot be prevented or cured, although exercise may delay its onset. Doctors should be upfront with newly diagnosed people, as in the early stages of this illness people can still direct their lives. Caregivers struggle to cope heroically 24/7, often in isolation, with the difficult behaviors these diseases produce. Society should educate people about these most feared conditions by providing first-hand contact with patients (and caregivers) living with these diseases.

Options and Services for Frail, Elderly People

Although, traditionally, older people lived in multigenerational households, with a built-in family support network for when they became frail, now even the nations historically most committed to family care (such as China and Japan) need society to offer programs for disabled older adults. In the United States, the major **alternatives to institutionalization—continuing-care retirement communities, assisted-living facilities, day-care programs,** and **home health services**—are typically costly and not covered by **Medicare.** We need services to help people with disabilities who are not wealthy and who do not need the intense care of a nursing home. Scandinavia is our worldwide model for humane, affordable elder care.

Being female, being very old, and not having loved ones to take the person in are the main risk factors for entering **nursing homes**, or **long-term-care facilities**. While nursing homes vary in quality, even the best institutions severely limit an autonomous life. Although the **certified nursing assistant or aide**, the main caregiver, is poorly paid, people find tremendous gratification in nursing home work. Preserving autonomy in the face of ADL impairments and providing better services for frail elders is a critical U.S. need. People can develop as human beings even in a nursing home, and can reach Eriksonian milestones they may have missed earlier in life during their final years—or months—of life.

KEY TERMS

activities of daily living (ADL) problems, p. 395
alternatives to institutionalization, p. 417
Alzheimer's disease, p. 412
assisted-living facility, p. 417
basic ADL limitations, p. 396
certified nurse assistant or aide, p. 419
chronic disease, p. 395
continuing-care retirement community, p. 417
day-care program, p. 417
elderspeak, p. 406
health span, p. 401
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home health services, p. 417
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Medicare, p. 417
neurofibrillary tangles, p. 412
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presbycusis, p. 405
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vascular neurocognitive disorder (vascular dementia), p. 412

ANSWERS TO Tying It All Together QUIZZES

Tracing Physical Aging

1. chronic diseases; over a period of time
2. (a) and (d). The other options are basic ADL impairments.
3. A centenarian lifespan has such complex causes that finding any single life-extension intervention will be virtually impossible. Moreover, even if we can replace individual body parts, such as our heart, other vital organs (such as our kidneys, lungs, or pancreas) will be programmed to wear out by a certain barrier age.
4. (c) Men die more frequently of diseases of despair.
5. (d) All of the above are true.

Sensorimotor Changes

1. lens; cataracts
2. (a) Only a fraction of older people buy hearing aids.
3. (b) Putting fluorescent lights in the ceiling will make Grandma's eyesight worse.
4. a very important issue; U.S. states *still permit* people with cognitive impairments to operate cars.

Neurocognitive Disorders (and Dementia)

1. (a) Alzheimer's disease; (b) vascular neurocognitive disorder
2. (c)
3. (b)
4. (a)

Options and Services for Frail, Elderly People

1. (a) 1; (b) 3; (c) 2; (d) 4; (e) 5
2. Here, you can use your own creativity. My suggestions: (1) Institute a program whereby people get cash incentives to care for frail elders in their homes. (2) Build small, intergenerational living communities, with a centrally located home option specifically for frail, elderly individuals. Residents who buy houses here would commit to taking care of the older adults in their midst. (3) Set up a Web site that matches older people who have a spare room with area college students in need of housing. Young people would live rent-free in exchange for helping the older person with cooking and shopping. (4) Establish a national scholarship program (perhaps called the "Belsky Grant"!) that would pay your tuition and living expenses if you commit to caring for frail elders in the community.
3. (b)

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