Module 54

Adulthood: Physical, Cognitive, and Social Development


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Module Learning Objectives

54-1 Identify the physical changes that occur during middle and late adulthood.

54-2 Assess the impact of aging on memory.

54-3 Discuss the themes and influences that mark the social journey from early adulthood to death.

54-4 Describe trends in people's self-confidence and life satisfaction across the life span.

54-5 Describe the range of reactions to the death of a loved one.

The unfolding of people's adult lives continues across the life span. It is, however, more difficult to generalize about adulthood stages than about life's early years. If you know that James is a 1-year-old and Jamal is a 10-year-old, you could say a great deal about each child. Not so with adults who differ by a similar number of years. The boss may be 30 or 60; the marathon runner may be 20 or 50; the 19-year-old may be a parent who supports a child or a child who receives an allowance. Yet our life courses are in some ways similar. Physically, cognitively, and especially socially, we differ at age 50 from our 25-year-old selves. In the discussion that follows, we recognize these differences and use three terms: *early adulthood* (roughly twenties and thirties), *middle adulthood* (to age 65), and *late adulthood* (the years after 65). Within each of these stages, people will vary widely in physical, psychological, and social development.

Physical Development

54-1 What physical changes occur during middle and late adulthood?

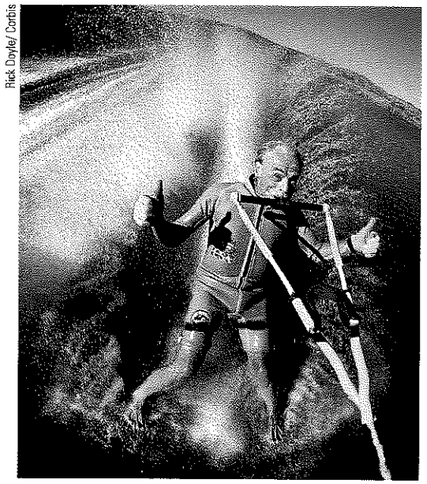
Like the declining daylight after the summer solstice, our physical abilities—muscular strength, reaction time, sensory keenness, and cardiac output—all begin an almost imperceptible decline in our mid-twenties. Athletes are often the first to notice. World-class sprinters and swimmers peak by their early twenties. Women—who mature earlier than men—also peak earlier. But most of us—especially those of us whose daily lives do not require top physical performance—hardly perceive the early signs of decline.

menopause the time of natural cessation of menstruation; also refers to the biological changes a woman experiences as her ability to reproduce declines.

Physical Changes in Middle Adulthood

Post-40 athletes know all too well that physical decline gradually accelerates. During early and middle adulthood, physical vigor has less to do with age than with a person's health and exercise habits. Many of today's physically fit 50-year-olds run 4 miles with ease, while sedentary 25-year-olds find themselves huffing and puffing up two flights of stairs.

Aging also brings a gradual decline in fertility, especially for women. For a 35- to 39-year-old woman, the chances of getting pregnant after a single act of intercourse are only half those of a woman 19 to 26 (Dunson et al., 2002). Men experience a gradual decline in sperm count, testosterone level, and speed of erection and ejaculation. Women experience **menopause,** as menstrual cycles end, usually within a few years of age 50. Expectations and attitudes influence the emotional impact of this event. Is it a sign of lost femininity and growing old? Or is it liberation from menstrual periods and fears of pregnancy? For men, too, expectations can influence perceptions. Some experience distress related to a perception of declining virility and physical capacities, but most age without such problems.



Rick Doyle/ Corbis

Adult abilities vary widely
97-year-olds: Don't try this. In 2002, George Blair became the world's oldest barefoot water skier, just days after reaching age 87. And he did it again in 2012, at age 97!

With age, sexual activity lessens. Nevertheless, most men and women remain capable of satisfying sexual activity, and most express satisfaction with their sex life. This was true of 70 percent of Canadians surveyed (ages 40 to 64) and 75 percent of Finns (ages 65 to 74) (Kontula & Haavio-Mannila, 2009; Wright, 2006). In another survey, 75 percent of respondents reported being sexually active into their eighties (Schick et al., 2010). And in an American Association of Retired Persons sexuality survey, it was not until age 75 or older that most women and nearly half of men reported little sexual desire (DeLamater & Sill, 2005). Given good health and a willing partner, the flames of desire, though simmered down, live on. As Alex Comfort (1992, p. 240) jested, "The things that stop you having sex with age are exactly the same as those that stop you riding a bicycle (bad health, thinking it looks silly, no bicycle)."

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"Happy fortieth. I'll take the muscle tone in your upper arms, the girlish timbre of your voice, your amazing tolerance for caffeine, and your ability to digest french fries. The rest of you can stay."

"For some reason, possibly to save ink, the restaurants had started printing their menus in letters the height of bacteria." -Dave Barry, *Dave Barry Turns Fifty*, 1998

Physical Changes in Later Life

Is old age "more to be feared than death" (Juvenal, *Satires*)? Or is life "most delightful when it is on the downward slope" (Seneca, *Epistulae ad Lucilium*)? What is it like to grow old?

STRENGTH AND STAMINA

Although physical decline begins in early adulthood, we are not usually acutely aware of it until later life, when the stairs get steeper, the print gets smaller, and other people seem to mumble more. Muscle strength, reaction time, and stamina diminish in late adulthood. As a lifelong basketball player, I find myself increasingly not racing for that loose ball. But even diminished vigor is sufficient for normal activities. Moreover, exercise slows aging. Active older adults tend to be mentally quick older adults. Physical exercise not only enhances muscles, bones, and energy and helps to prevent obesity and heart disease, it also stimulates brain cell development and neural connections, thanks perhaps to increased oxygen and nutrient flow (Erickson et al., 2010; Pereira et al., 2007).

SENSORY ABILITIES

With age, visual sharpness diminishes, and distance perception and adaptation to light-level changes are less acute. The eye's pupil shrinks and its lens becomes less transparent, reducing the amount of light reaching the retina: A 65-year-old retina receives only about one-third as much light as its 20-year-old counterpart (Kline & Schieber, 1985). Thus, to see as well as a 20-year-old when reading or driving, a 65-year-old needs three times as much light—a reason for buying cars with untinted windshields. This also explains why older people sometimes ask people your age, "Don't you need better light for reading?"

The senses of smell and hearing also diminish. In Wales, teens' loitering around a convenience store has been discouraged by a device that emits an aversive high-pitched sound almost no one over 30 can hear (Lyall, 2005).

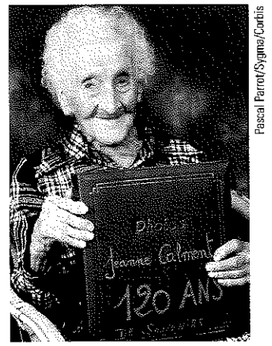
FYI

Most stairway falls taken by older people occur on the top step, precisely where the person typically descends from a window-lit hallway into the darker stairwell (Fozard & Popkin, 1978). Our knowledge of aging could be used to design environments that would reduce such accidents (National Research Council, 1990).

HEALTH

For those growing older, there is both bad and good news about health. The bad news: The body's disease-fighting immune system weakens, making older adults more susceptible to life-threatening ailments, such as cancer and pneumonia. The good news: Thanks partly to a lifetime's accumulation of antibodies, people over 65 suffer fewer short-term ailments, such as common flu and cold viruses. One study found they were half as likely as 20-year-olds and one-fifth as likely as preschoolers to suffer upper respiratory flu each year (National Center for Health Statistics, 1990).

Pascal Parrot/Sygma/Corbis



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World record for longevity?
French woman Jeanne Calment, the oldest human in history with authenticated age, died in 1998 at age 122. At age 100, she was still riding a bike. At age 114, she became the oldest film actor ever, by portraying herself in *Vincent and Me*. She is shown at left at age 20 in 1895.

THE AGING BRAIN

Up to the teen years, we process information with greater and greater speed (Fry & Hale, 1996; Kail, 1991). But compared with you, older people take a bit more time to react, to solve perceptual puzzles, even to remember names (Bashore et al., 1997; Verhaeghen & Salthouse, 1997). The neural processing lag is greatest on complex tasks (Cerella, 1985; Poon, 1987). At video games, most 70-year-olds are no match for a 20-year-old.

Slower neural processing combined with diminished sensory abilities can increase accident risks. As **FIGURE 54.1** indicates, fatal accident rates per mile driven increase sharply after age 75. By age 85, they exceed the 16-year-old level. Nevertheless, because older people drive less, they account for fewer than 10 percent of crashes (Coughlin et al., 2004).

Brain regions important to memory begin to atrophy during aging (Schacter, 1996). In early adulthood, a small, gradual net loss of brain cells begins, contributing by age 80 to a brain-weight reduction of 5 percent or so. Earlier, we noted that late-maturing frontal lobes

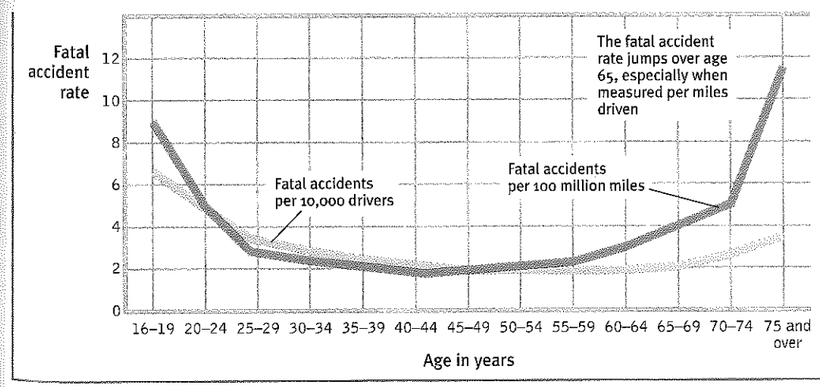


Figure 54.1
Age and driver fatalities Slowing reactions contribute to increased accident risks among those 75 and older, and their greater fragility increases their risk of death when accidents happen (NHTSA, 2000). Would you favor driver exams based on performance, not age, to screen out those whose slow reactions or sensory impairments indicate accident risk?

FYI

How old does a person have to be before you think of him or her as old? Depends on who you ask. For 18- to 29-year-olds, 67 was old. For those 60 and over, old was 76 (Yankelovich, 1995).

help account for teen impulsivity. Late in life, atrophy of the inhibition-controlling frontal lobes seemingly explains older people's occasional blunt questions and comments ("Have you put on weight?") (von Hippel, 2007).

As noted earlier, exercise helps counteract some effects of brain aging. It aids memory by stimulating the development of neural connections and by promoting neurogenesis, the birth of new nerve cells, in the hippocampus. Sedentary older adults randomly assigned to aerobic exercise programs exhibit enhanced memory, sharpened judgment, and reduced risk of *neurocognitive disorder* (formerly called "dementia") (Colcombe et al., 2004; Liang et al., 2010; Nazimek, 2009).

Exercise also helps maintain the telomeres, which protect the ends of chromosomes (Cherkas et al., 2008; Erickson, 2009; Pereira et al., 2007). With age, telomeres wear down, much as the tip of a shoelace frays. This wear is accentuated by smoking, obesity, or stress. As telomeres shorten, aging cells may die without being replaced with perfect genetic replicas (Epel, 2009).

"I am still learning." -MICHELANGELO, 1560, AT AGE 85

The message for seniors is clear: We are more likely to rust from disuse than to wear out from overuse.

Cognitive Development

54-2 How does memory change with age?

AP® Exam Tip

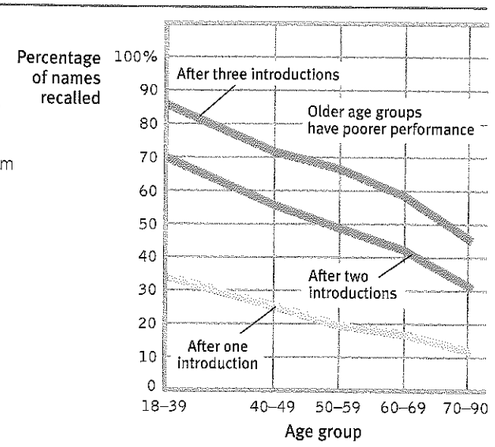
This section is a good example of the complexity of seemingly simple questions. It seems like one should be able to answer a question like "Does memory decline with age?" with a straightforward *yes* or *no*. People are complex. Development is complex. We should not be surprised to learn that many factors influence memory in adulthood.

Among the most intriguing developmental psychology questions is whether adult cognitive abilities, such as memory, intelligence, and creativity, parallel the gradually accelerating decline of physical abilities.

As we age, we remember some things well. Looking back in later life, people asked to recall the one or two most important events over the last half-century tend to name events from their teens or twenties (Conway et al., 2005; Rubin et al., 1998). Whatever people experience around this time of life—the election of Barack Obama, the events of 9/11, the civil rights movement—becomes pivotal (Pillemer, 1998; Schuman & Scott, 1989). Our teens and twenties are a time of so many memorable "firsts"—first kiss, first job, first day at college or university, first meeting of in-laws.

Early adulthood is indeed a peak time for some types of learning and remembering. In one test of recall, people (1205 of them) watched videotapes as 14 strangers said their names, using a common format: "Hi, I'm Larry" (Crook & West, 1990). Then those strangers reappeared and gave additional details. For example, they said, "I'm from Philadelphia," providing more visual *and* voice cues for remembering the person's name. As **FIGURE 54.2** shows, after a second and third replay of the introductions, everyone remembered more names, but younger adults consistently surpassed older adults.

Figure 54.2
Tests of recall Recalling new names introduced once, twice, or three times is easier for younger adults than for older ones. (Data from Crook & West, 1990.)



Perhaps it is not surprising, then, that nearly two-thirds of people over age 40 say their memory is worse than it was 10 years ago (KRC, 2001). In fact, how well older people remember depends on the task. In another experiment (Schonfield & Robertson, 1966), when asked to *recognize* 24 words they had earlier tried to memorize, people showed only a minimal decline in memory. When asked to *recall* that information without clues, the decline was greater (**FIGURE 54.3**).

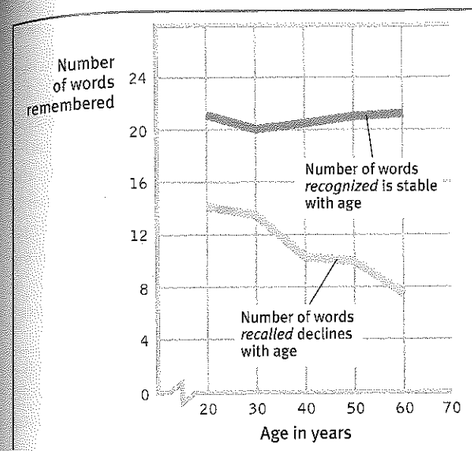


Figure 54.3
Recall and recognition in adulthood In this experiment, the ability to *recall* new information declined during early and middle adulthood, but the ability to *recognize* new information did not. (From Schonfield & Robertson, 1966.)

In our capacity to learn and remember, as in other areas of development, we differ. Younger adults vary in their abilities to learn and remember, but 70-year-olds vary much more. "Differences between the most and least able 70-year-olds become much greater than between the most and least able 50-year-olds," reports Oxford researcher Patrick Rabbitt (2006). Some 70-year-olds perform below nearly all 20-year-olds; other 70-year-olds match or outdo the average 20-year-old.

No matter how quick or slow we are, remembering seems also to depend on the type of information we are trying to retrieve. If the information is meaningless—nonsense syllables or unimportant events—then the older we are, the more errors we are likely to make. If the information is *meaningful,* older people's rich web of existing knowledge will help them to hold it. But they may take longer than younger adults to *produce* the words and things they know: Quick-thinking game show winners are usually young or middle-aged adults (Burke & Shafto, 2004). Older people's capacity to learn and remember *skills* declines less than their verbal recall (Graf, 1990; Labouvie-Vief & Schell, 1982; Perlmutter, 1983).

Module 62 explores another dimension of cognitive development: intelligence. As we will see, **cross-sectional studies** (comparing people of different ages) and **longitudinal studies** (restudying the same people over time) have identified mental abilities that do and do not change as people age. Age is less a predictor of memory and intelligence than is proximity to death. Tell me whether someone is 8 months or 8 years from death and, regardless of age, you've given me a clue to that person's mental ability. Especially in the last three or four years of life, cognitive decline typically accelerates (Wilson et al., 2007). Researchers call this near-death drop *terminal decline* (Backman & MacDonald, 2006).

Try This

What experiences from your high school years do you think you may never forget? (These years, and the next few, will be among the times of your life you may remember most easily when you are 50.)

cross-sectional study a study in which people of different ages are compared with one another.

longitudinal study research in which the same people are restudied and retested over a long period.

Social Development

54-3 What themes and influences mark our social journey from early adulthood to death?

Many differences between younger and older adults are created by significant life events. A new job means new relationships, new expectations, and new demands. Marriage brings the joy of intimacy and the stress of merging two lives. The three years surrounding the birth of a child bring increased life satisfaction for most parents (Dyrdal & Lucas, 2011). The death of a loved one creates an irreplaceable loss. Do these adult life events shape a sequence of life changes?